Vacunas contra COVID: qué dice la evidencia

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Vacunas contra COVID

- Tipos de vacunas
- Eficacia y efectividad
- Gestantes y lactancia
- Adolescentes
- Tercera dosis
- Variantes
- Tercera ola

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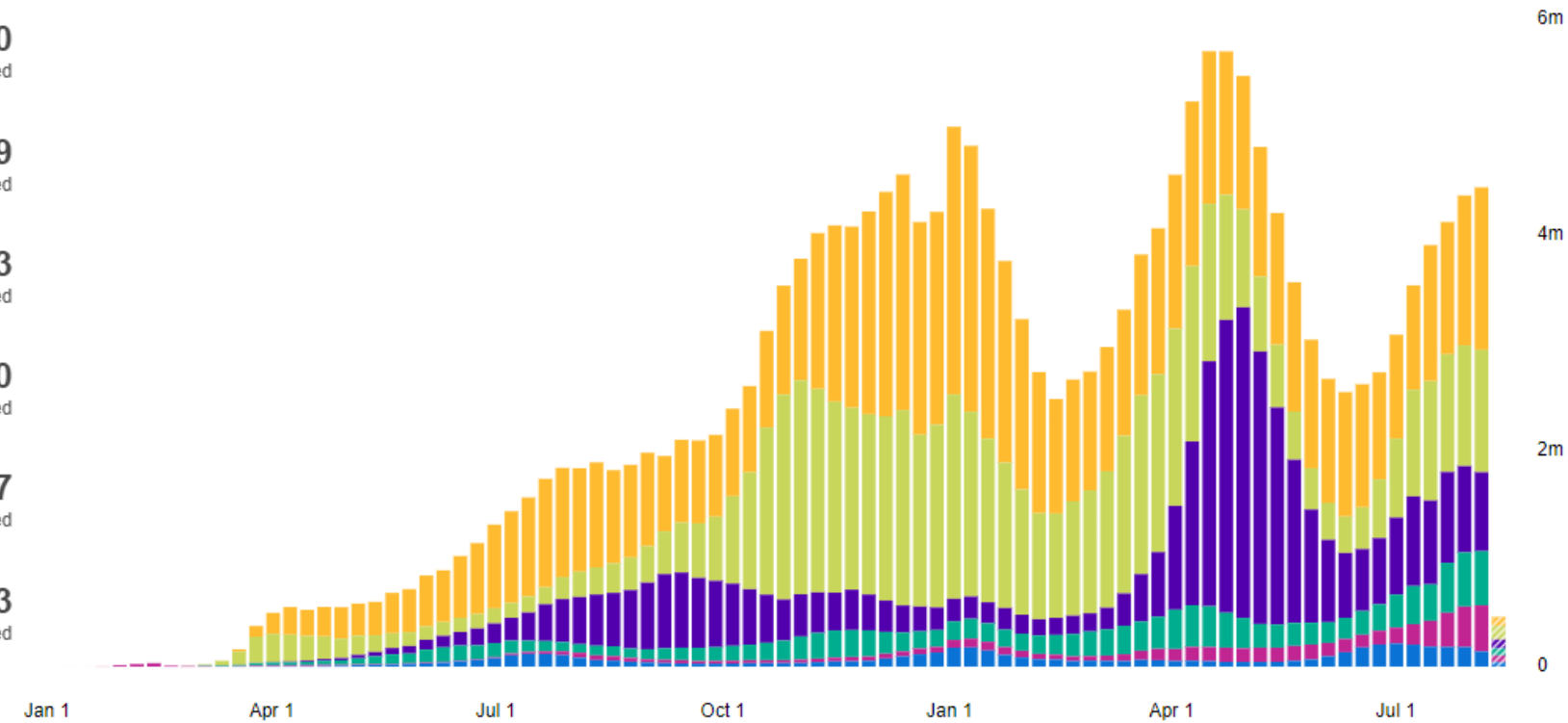
WHO Coronavirus (COVID-19) Dashboard

Back to top

Situation by WHO Region

Daily | Weekly | Cases | Deaths | Count

Americas	80,203,540 confirmed
Europe	62,600,959 confirmed
South-East Asia	39,992,613 confirmed
Eastern Mediterranean	13,665,080 confirmed
Western Pacific	5,393,767 confirmed
Africa	5,316,363 confirmed



Source: World Health Organization

Data may be incomplete for the current day or week.

16 de Agosto del 2021

https://covid19.who.int/

JOHNS HOPKINS UNIVERSITY & MEDICINE | CORONAVIRUS RESOURCE CENTER

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COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)

Last Updated at (M/D/YYYY)
16/8/2021 12:21

Total Cases
207.557.334

Total Deaths
4.367.023

Total Vaccine Doses Administered
4.699.852.239

28-Day Cases
16.908.214

28-Day Deaths
269.033

28-Day Vaccine Doses Administered
1.220.777.774

Cases | Deaths by Country/Region/Sovereignty

US
28-Day: 2.598.793 | 12.707
Totals: 36.741.688 | 621.874

India
28-Day: 1.081.284 | 17.534
Totals: 32.225.513 | 431.642

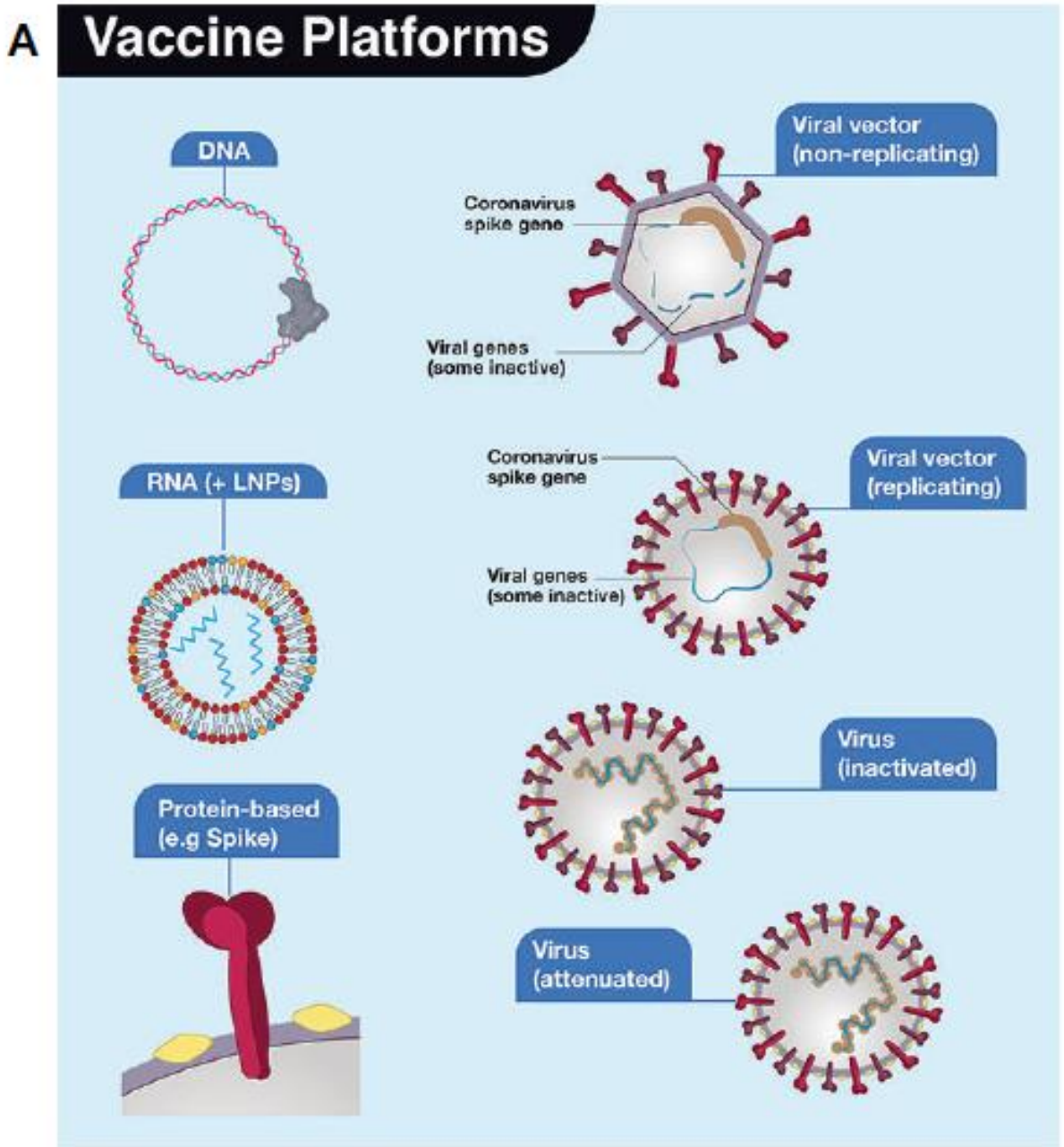
Brazil
28-Day: 987.525 | 26.844
Totals: 20.364.099 | 569.058

Indonesia
28-Day: 976.878 | 44.006
Totals: 3.871.738 | 118.833

Iran
28-Day: 902.558 | 10.667
Totals: 4.467.015 | 98.483

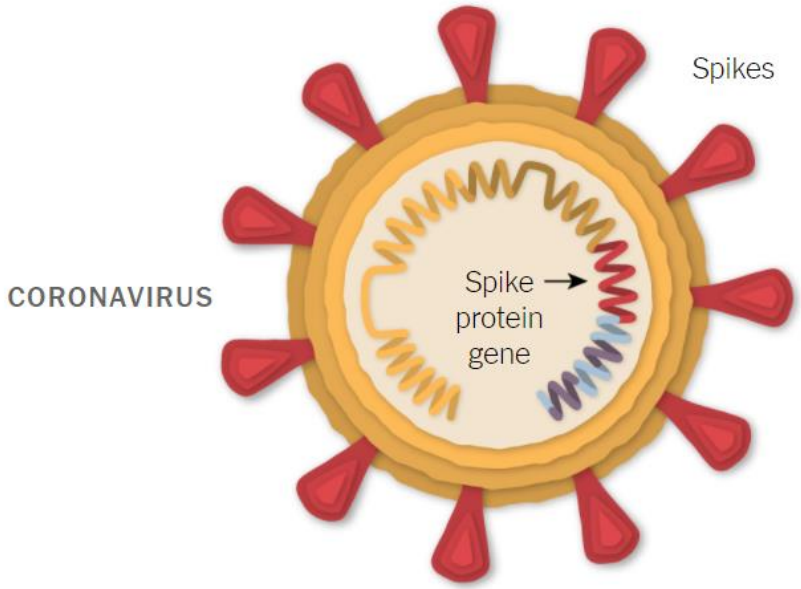
Vacunas contra COVID-19

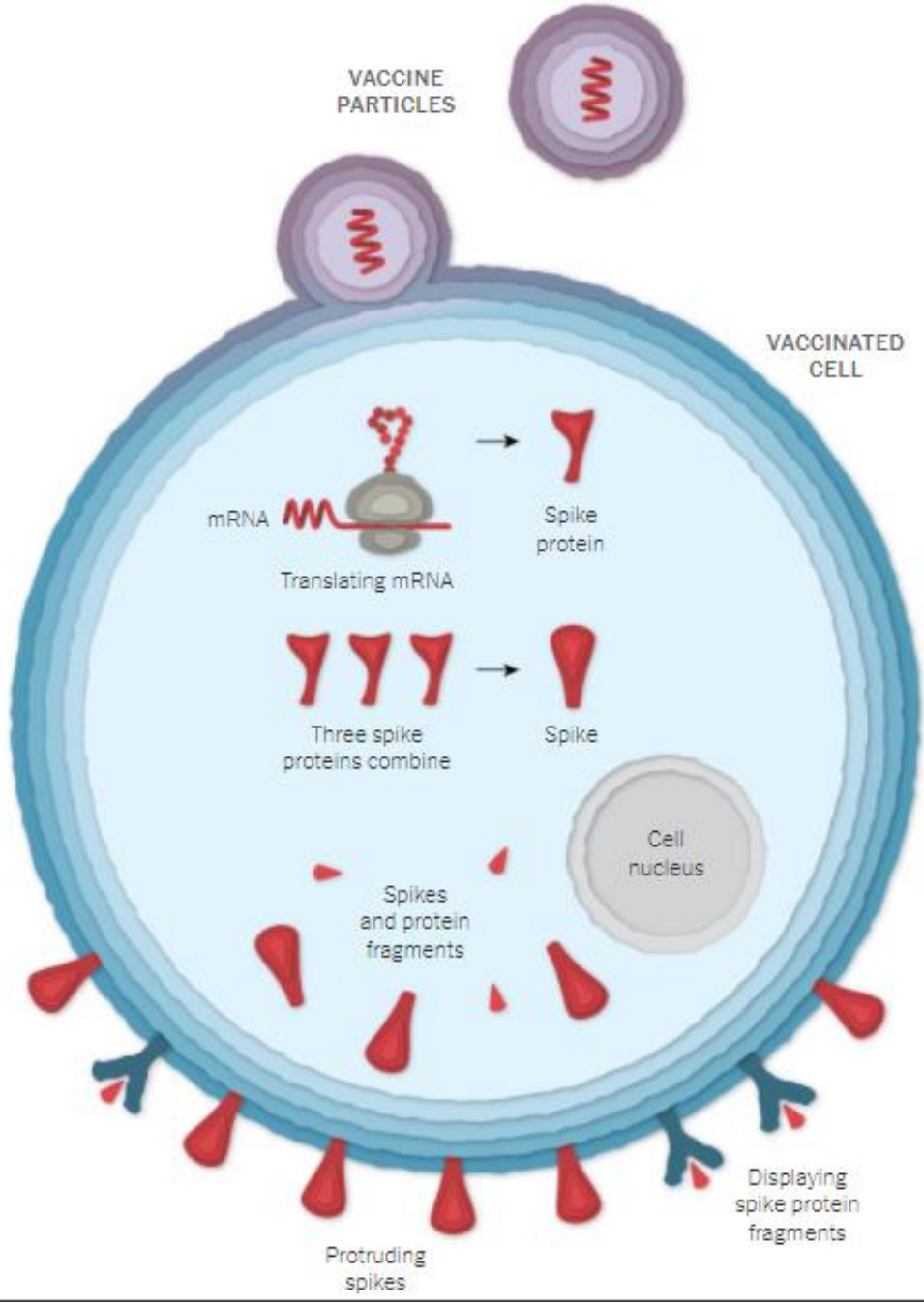
Funk et al.



- **DNA**
  - **INO-4800** (Inovio)
  - **bacTRL-Spike** (Symvivo)
- **RNA**
  - **mRNA-173** (Moderna)
  - **BNT162** (BioNtech)
  - **"Lead"** (CureVac)
- **Protein**
  - **NVX-CoV2373** (Novavax)
  - **SCB-2019** (Clover Biopharm)
  - **"Lead"** (Univ Queensland)
  - **"Lead"** (Sanofi/GSK)
- **Viral vector (non-replic.)**
  - **AZD1222** (U Oxford/AstraZeneca)
  - **Ad5-nCoV** (CanSino)
  - **Ad26 SARS-CoV-2** (J&J)
- **Virus (inactive)**
  - **CoronaVac** (Sinovac)
  - **COVID-19 vaccine** (Sinopharm)

Vacunas mRNA: Pfizer





The New York Times

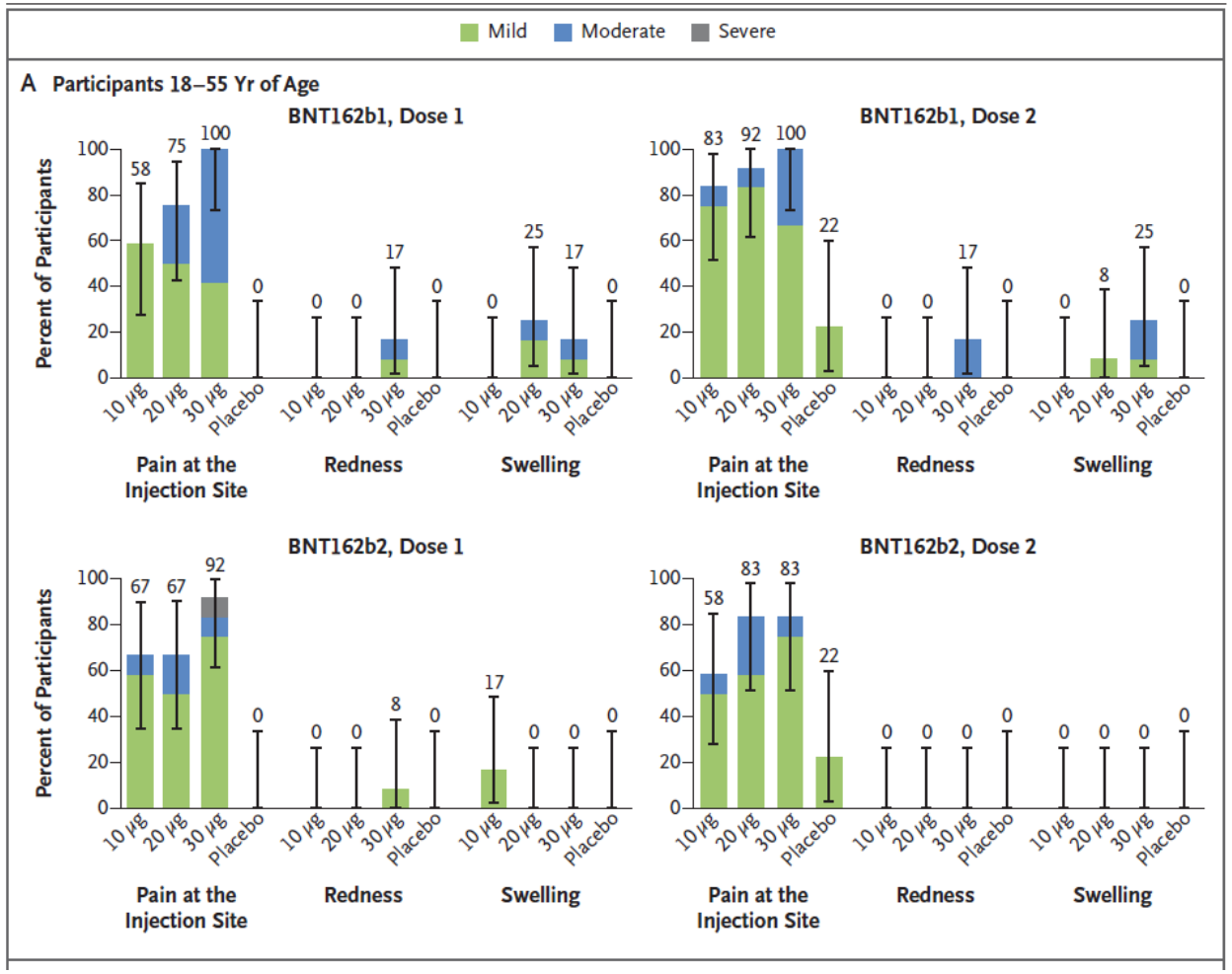
ORIGINAL ARTICLE

N ENGL J MED 383;25 NEJM.ORG DECEMBER 17, 2020

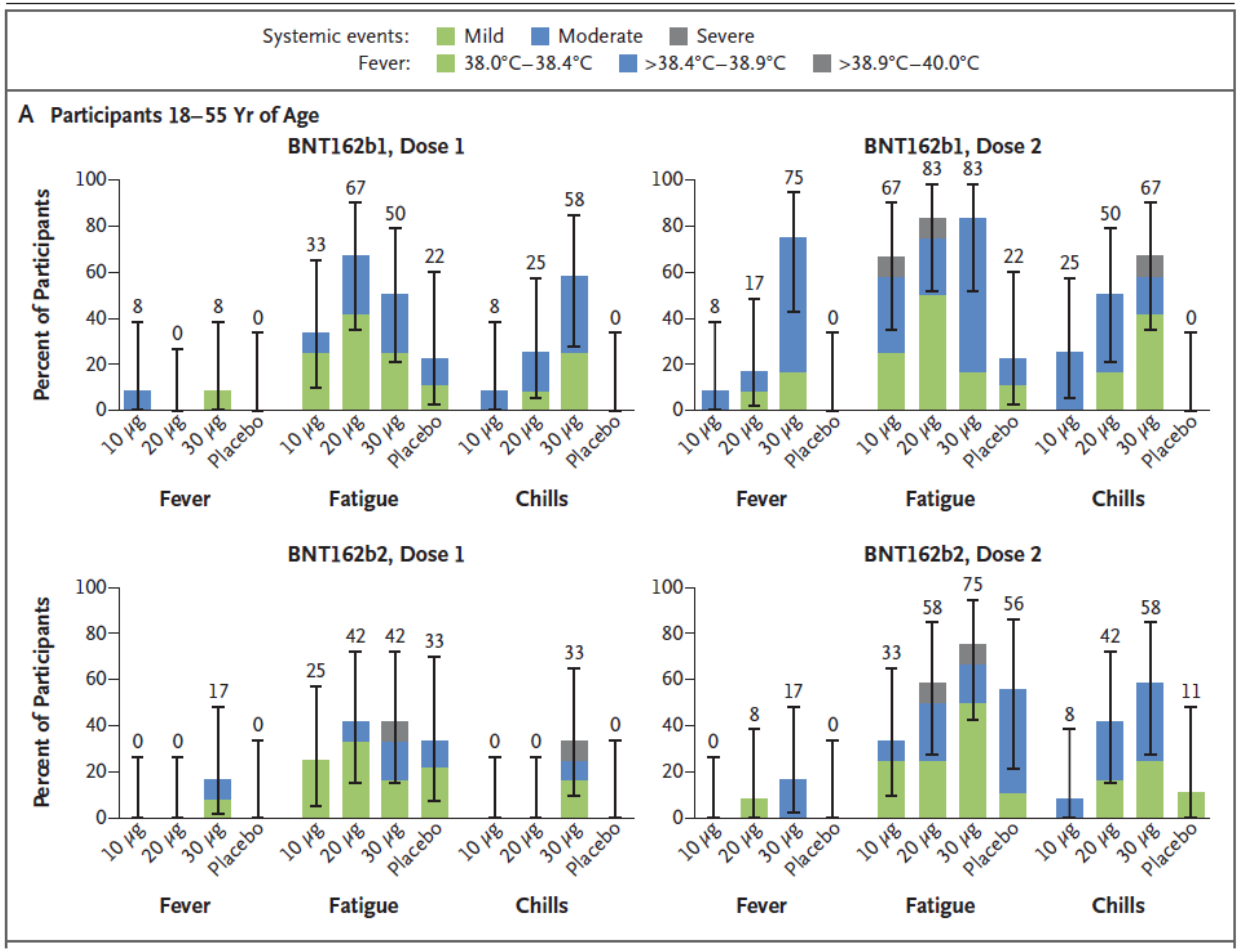
Safety and Immunogenicity of Two RNA-Based Covid-19 Vaccine Candidates

BioNTech and Pfizer

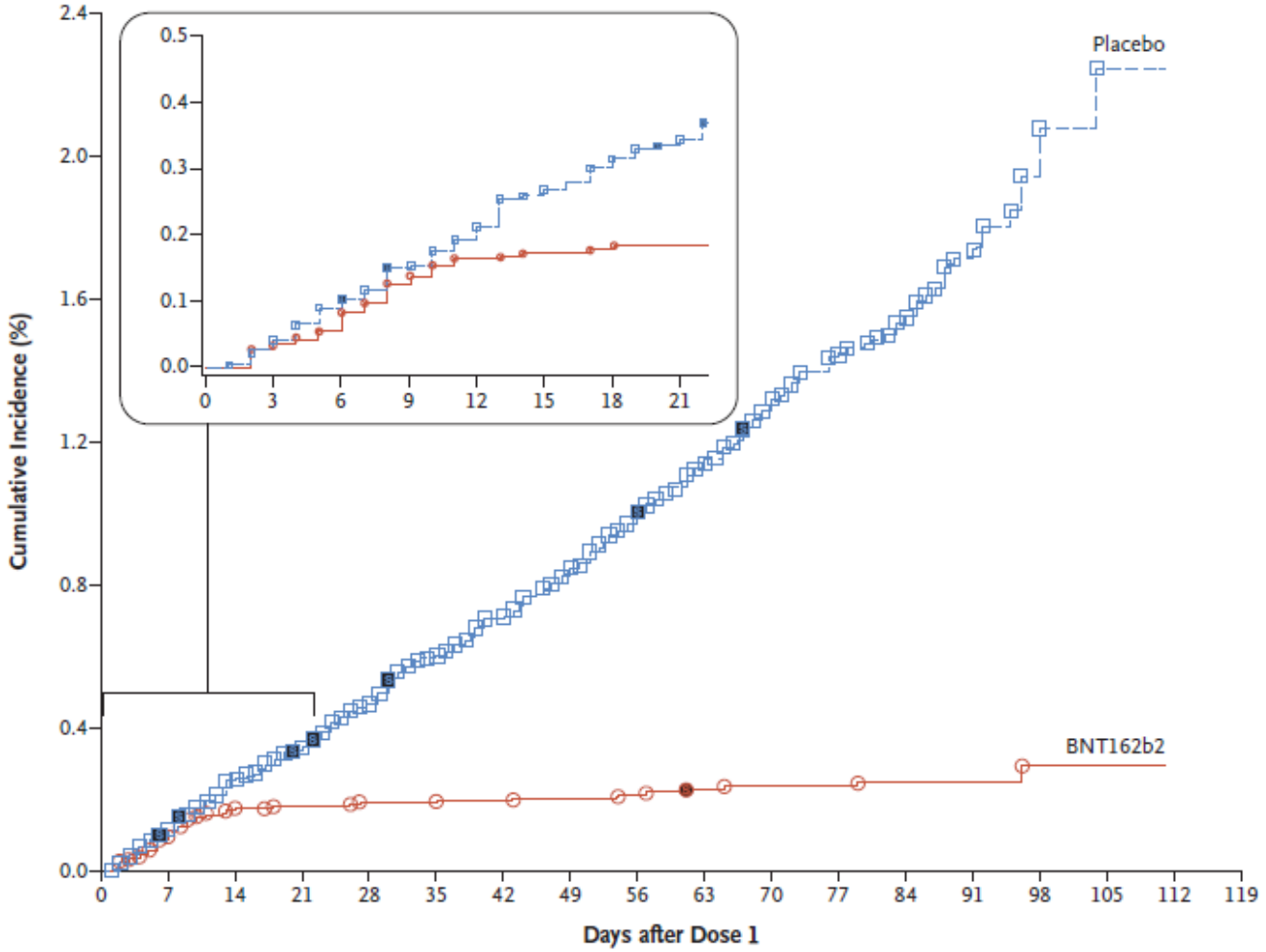
Reactogenicidad



Reacciones locales



Reacciones sistémicas



Efficacy End-Point Subgroup	BNT162b2, 30 μg (N=21,669)		Placebo (N=21,686)		VE (95% CI)
	No. of participants	Surveillance time *person-yr (no. at risk)*	No. of participants	Surveillance time *person-yr (no. at risk)*	*percent*
Covid-19 occurrence					
After dose 1	50	4.015 (21,314)	275	3.982 (21,258)	82.0 (75.6–86.9)
After dose 1 to before dose 2	39		82		52.4 (29.5–68.4)
Dose 2 to 7 days after dose 2	2		21		90.5 (61.0–98.9)
≥7 Days after dose 2	9		172		94.8 (89.8–97.6)

Figure 3. Efficacy of BNT162b2 against Covid-19 after the First Dose.

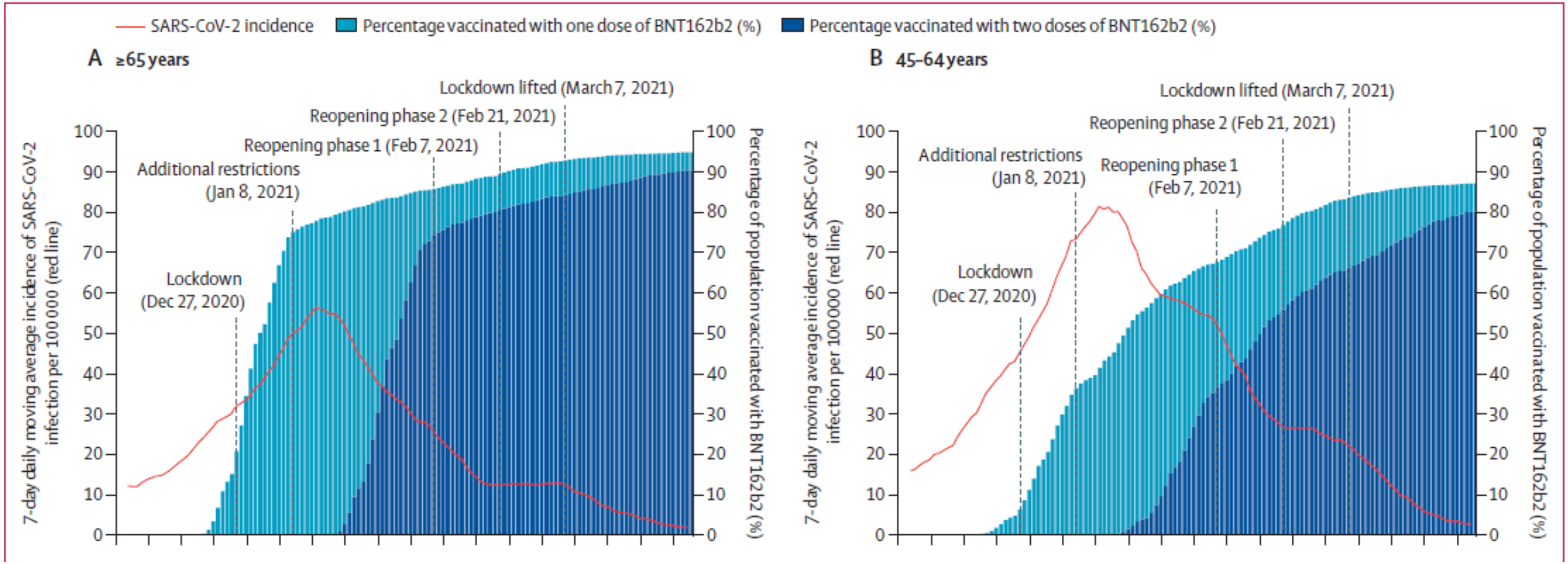
This article was published on December 10, 2020, and updated on December 16, 2020, at NEJM.org.

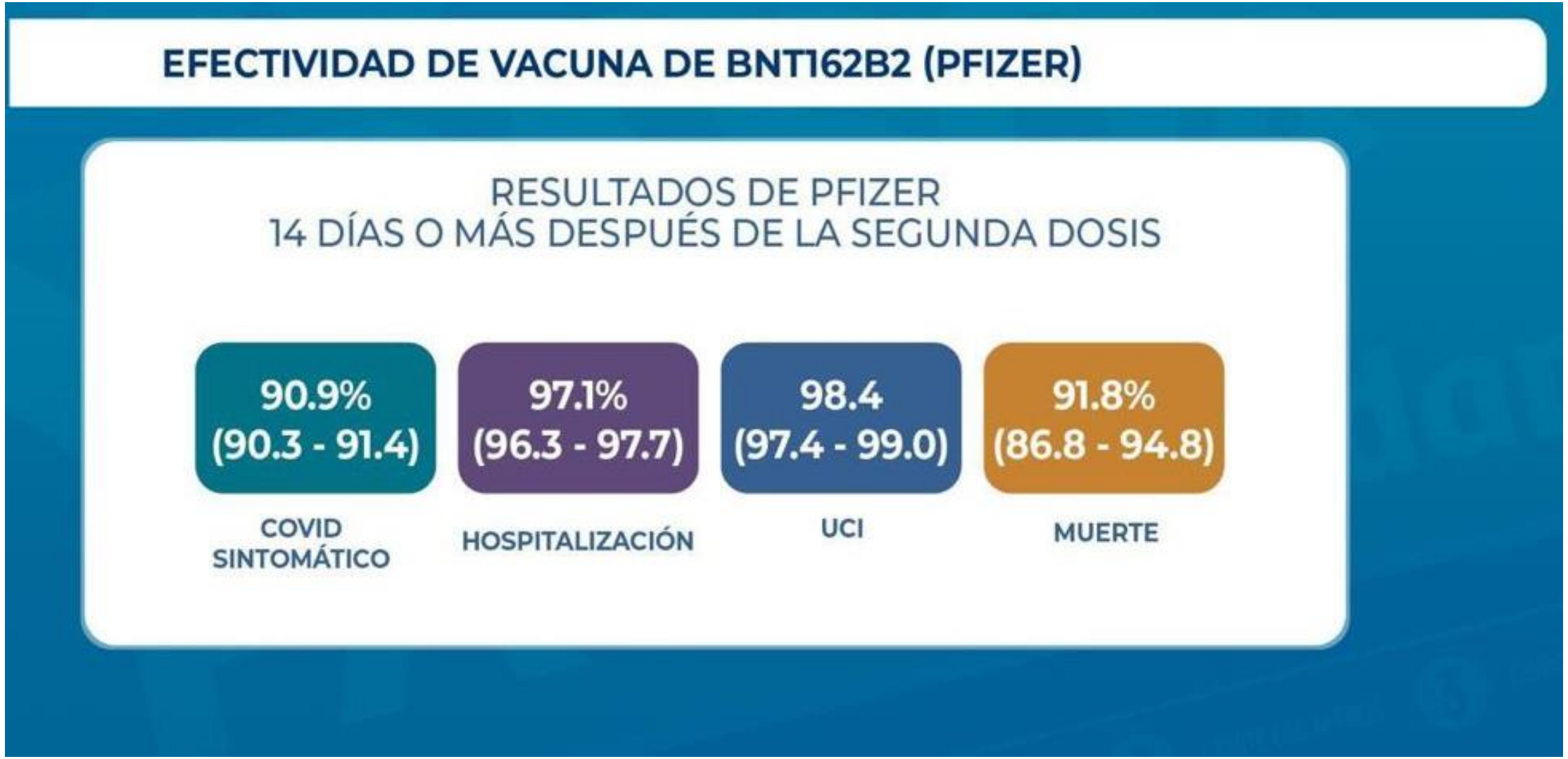
Eficacia: 94.1%

BioNTech and Pfizer

Impact and effectiveness of mRNA BNT162b2 vaccine against SARS-CoV-2 infections and COVID-19 cases, hospitalisations, and deaths following a nationwide vaccination campaign in Israel: an observational study using national surveillance data

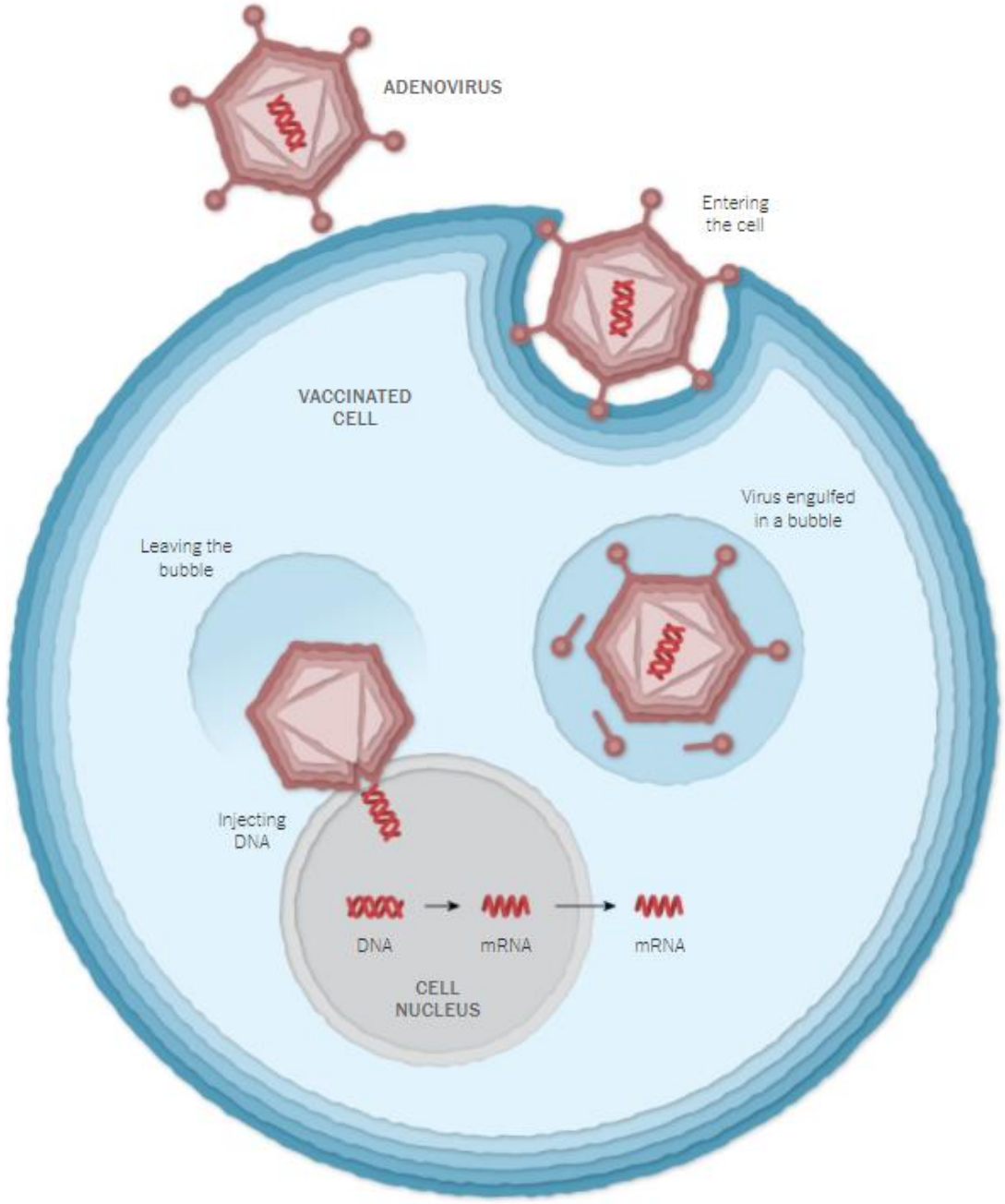
Lancet 2021; 397: 1819–29





Datos de Chile

Vacunas de vector viral: AstraZeneca



Safety and efficacy of the ChAdOx1 nCoV-19 vaccine (AZD1222) against SARS-CoV-2: an interim analysis of four randomised controlled trials in Brazil, South Africa, and the UK

www.thelancet.com Published online December 8, 2020 https://doi.org/10.1016/S0140-6736(20)32661-1

AstraZeneca /Oxford
~23,000 participantes

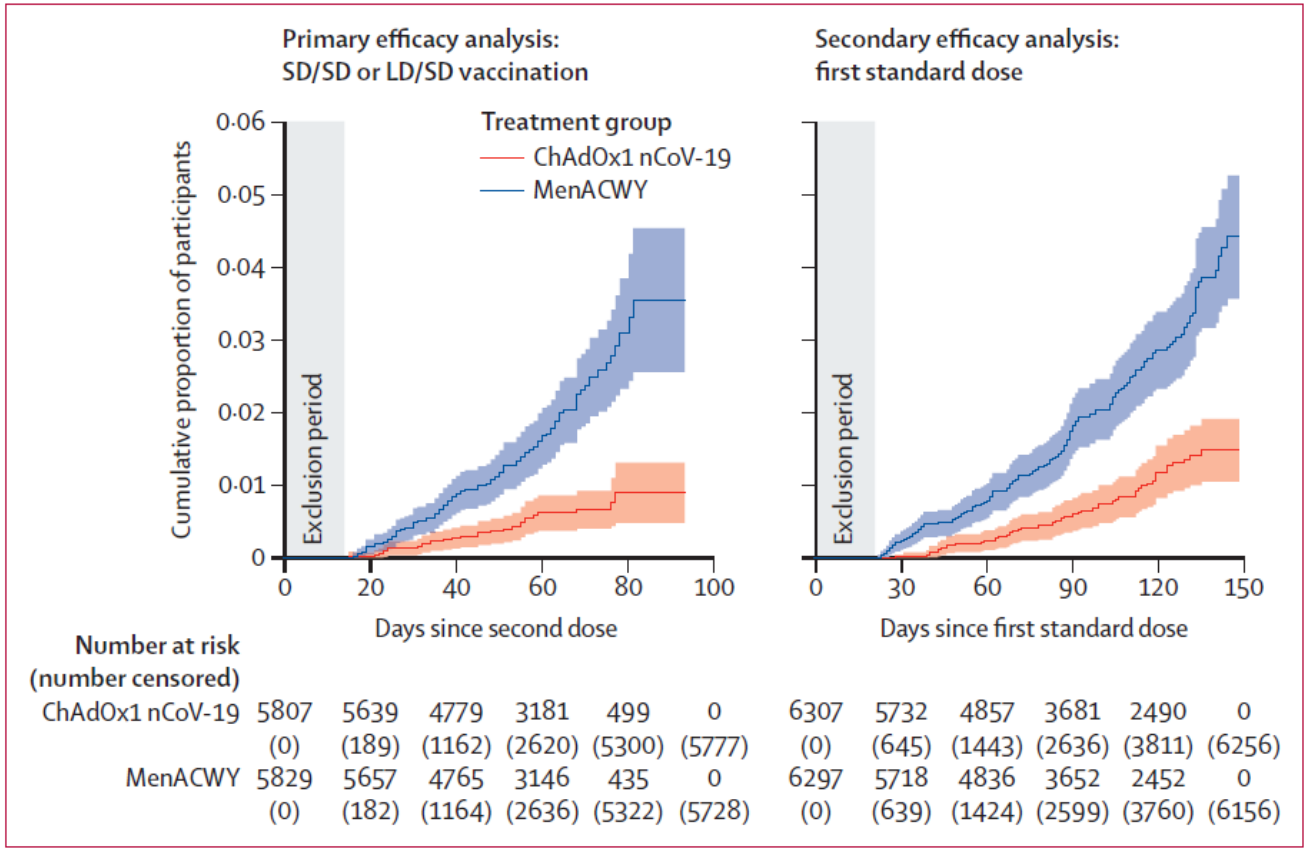


Figure: **Kaplan-Meier cumulative incidence of primary symptomatic, NAAT-positive COVID-19**
Cumulative incidence of symptomatic COVID-19 after two doses (left) or after first standard dose in participants receiving only standard-dose vaccines (right). Grey shaded areas show the exclusion period after each dose in which cases were excluded from the analysis. Blue and red shaded areas show 95% CIs. LD/SD=low-dose prime plus standard-dose boost. MenACWY=meningococcal group A, C, W, and Y conjugate vaccine. NAAT=nucleic acid amplification test. SD/SD=two standard-dose vaccines given.

Eficacia: 70.4%

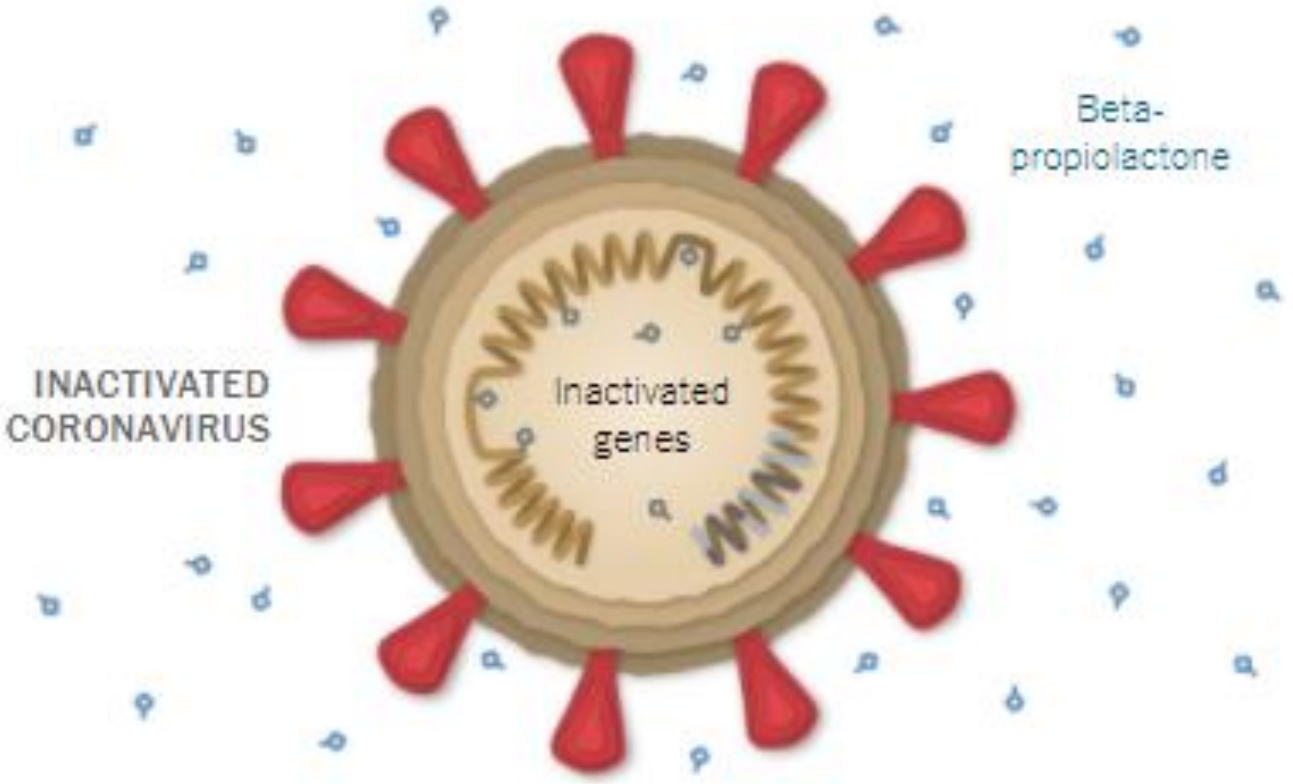
Efectividad para mortalidad por COVID-19, según vacuna – dosis y grupo etario

ASTRAZENECA

Vacuna	60 a 69 Años N=125.230	70 a 79 Años N=62.611	+80 Años N=45.739
<MORTALIDAD 1ra dosis	83.8% (81.1% - 86.5%)	83.2% (80.0% - 85.4%)	67.8% (63.6% - 72.3%)
<MORTALIDAD 2da dosis	100% (...)	96.1% (66.2% - 99.6%)	78.4% (45.4% - 91.4%)

Ministerio de Salud
Argentina

Vacuna de virus inactivado: Sinovac y Sinopharm



JAMA | Original Investigation

Effect of 2 Inactivated SARS-CoV-2 Vaccines on Symptomatic COVID-19 Infection in Adults

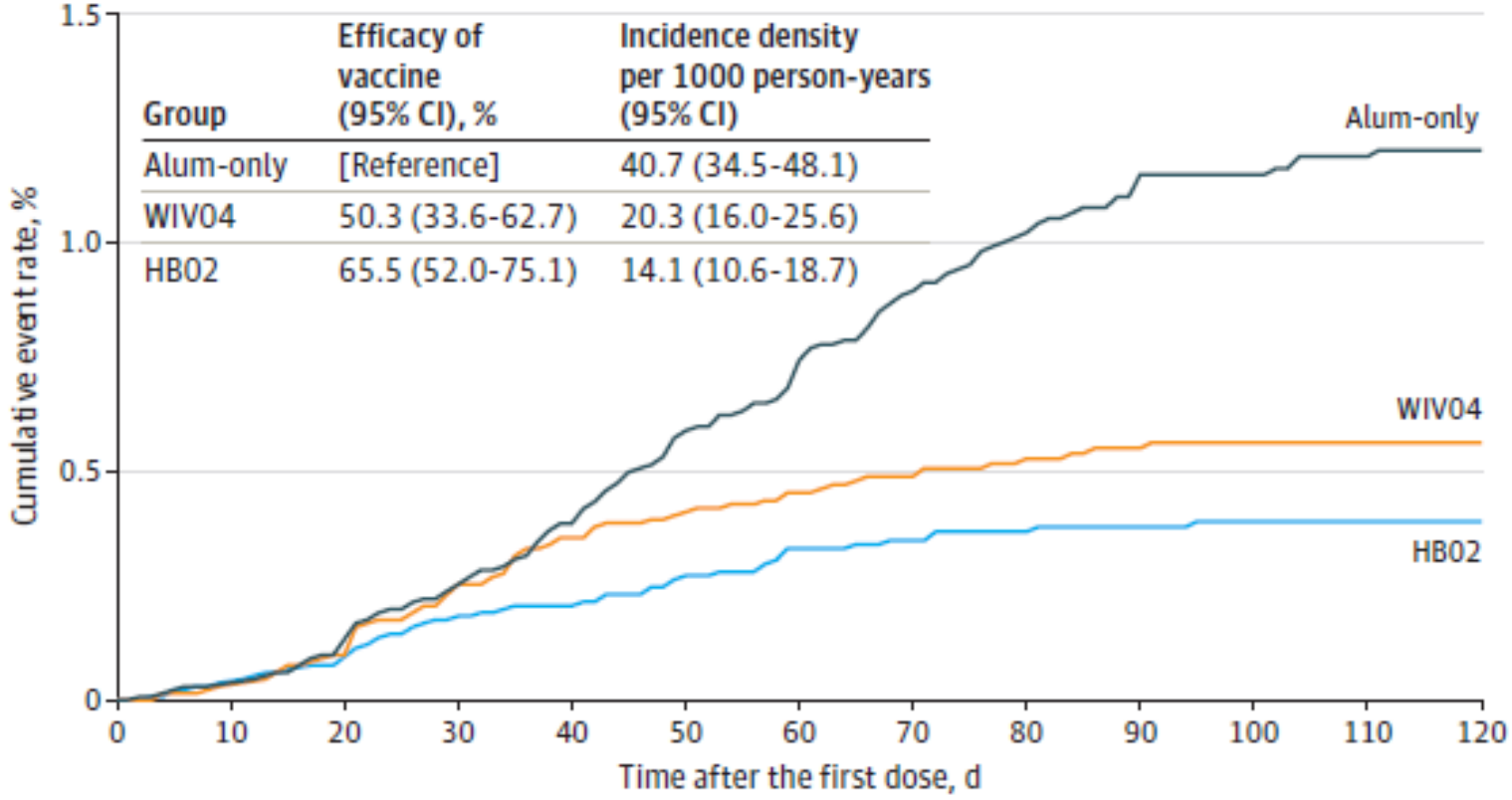
A Randomized Clinical Trial

JAMA. doi:10.1001/jama.2021.8565
Published online May 26, 2021.

Sinopharm
Emiratos Árabes y Bahrain
Eficacia: 73% (W) -78% (H)

B Full analysis population-1

Group	Efficacy of vaccine (95% CI), %	Incidence density per 1000 person-years (95% CI)
Alum-only	[Reference]	40.7 (34.5-48.1)
WIV04	50.3 (33.6-62.7)	20.3 (16.0-25.6)
HB02	65.5 (52.0-75.1)	14.1 (10.6-18.7)



No. of participants at risk

Alum-only	13425	13273	12981	12749	12594	11857	11501	10900	9672	8041	7728	7430	665
WIV04	13428	13294	12979	12771	12622	11984	11614	11012	9780	8074	7772	7502	665
HB02	13436	13300	12993	12781	12624	11953	11618	11008	9783	8134	7844	7573	653

Effectiveness of an Inactivated SARS-CoV-2 Vaccine in Chile

This article was published on July 7, 2021, at NEJM.org.

Table 2. Effectiveness of CoronaVac Vaccine in Preventing Covid-19 Outcomes in Overall Study Cohort, According to Immunization Status.*

Outcome and Immunization Status	Study Cohort	Persons with Covid-19		Vaccine Effectiveness (95% CI)		
	No. of Person-Days	No. of Persons	Incidence Rate	Analysis Adjusted for Sex and Age	Analysis Adjusted for All Covariates†	Stratified Analysis‡
			no. of events/ 1000 person-days		*percent*	
Covid-19						
Unvaccinated	614,868,240	185,633	0.3019	—	—	—
Partially immunized	69,788,352	20,865	0.2990	8.0 (6.5–9.4)	15.5 (14.2–16.8)	17.2 (15.8–18.6)
Fully immunized	91,671,797	12,286	0.1340	61.2 (60.3–62.0)	65.9 (65.2–66.6)	63.7 (62.8–64.6)
Hospitalization						
Unvaccinated	620,894,706	18,034	0.0290	—	—	—
Partially immunized	70,690,796	3,370	0.0477	31.4 (28.6–34.0)	37.4 (34.9–39.9)	40.3 (37.6–42.8)
Fully immunized	92,445,333	1,462	0.0158	86.0 (85.1–86.8)	87.5 (86.7–88.2)	86.5 (85.6–87.4)

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	No. of Person-Days	No. of Persons	Incidence Rate	Analysis Adjusted for Sex and Age	Analysis Adjusted for All Covariates†	Stratified Analysis‡
			no. of events/ 1000 person-days		*percent*	
Admission to ICU						
Unvaccinated	621,226,431	6,359	0.0102	—	—	—
Partially immunized	70,836,597	1,154	0.0163	37.5 (33.1–41.5)	44.7 (40.8–48.3)	45.3 (41.2–49.2)
Fully immunized	92,622,083	360	0.0039	88.8 (87.4–90.0)	90.3 (89.1–91.4)	90.2 (88.9–91.4)
Confirmed death						
Unvaccinated	621,426,477	2,786	0.0045	—	—	—
Partially immunized	70,854,187	847	0.0120	39.8 (34.4–44.7)	45.7 (40.9–50.2)	46.0 (40.7–50.8)
Fully immunized	92,514,261	409	0.0044	84.4 (82.4–86.2)	86.3 (84.5–87.8)	86.7 (84.9–88.3)

Efectividad para mortalidad por COVID-19, según vacuna – dosis y grupo etario

salud

SINOPHARM

Vacuna	60 a 69 Años N=87.281	70 a 79 Años N=40.669	+80 Años N=19.958
<MORTALIDAD 1ra dosis	67.8% (61.5% - 73.5%)	60.9% (51.6%- 67.6%)	35% (10.0% - 54.0%)
<MORTALIDAD 2da dosis	80.2% (67.5% - 88.4%)	88.3% (80.1%- 93.1%)	77.6% (60.0% - 87.5%)

Ministerio de Salud
Argentina

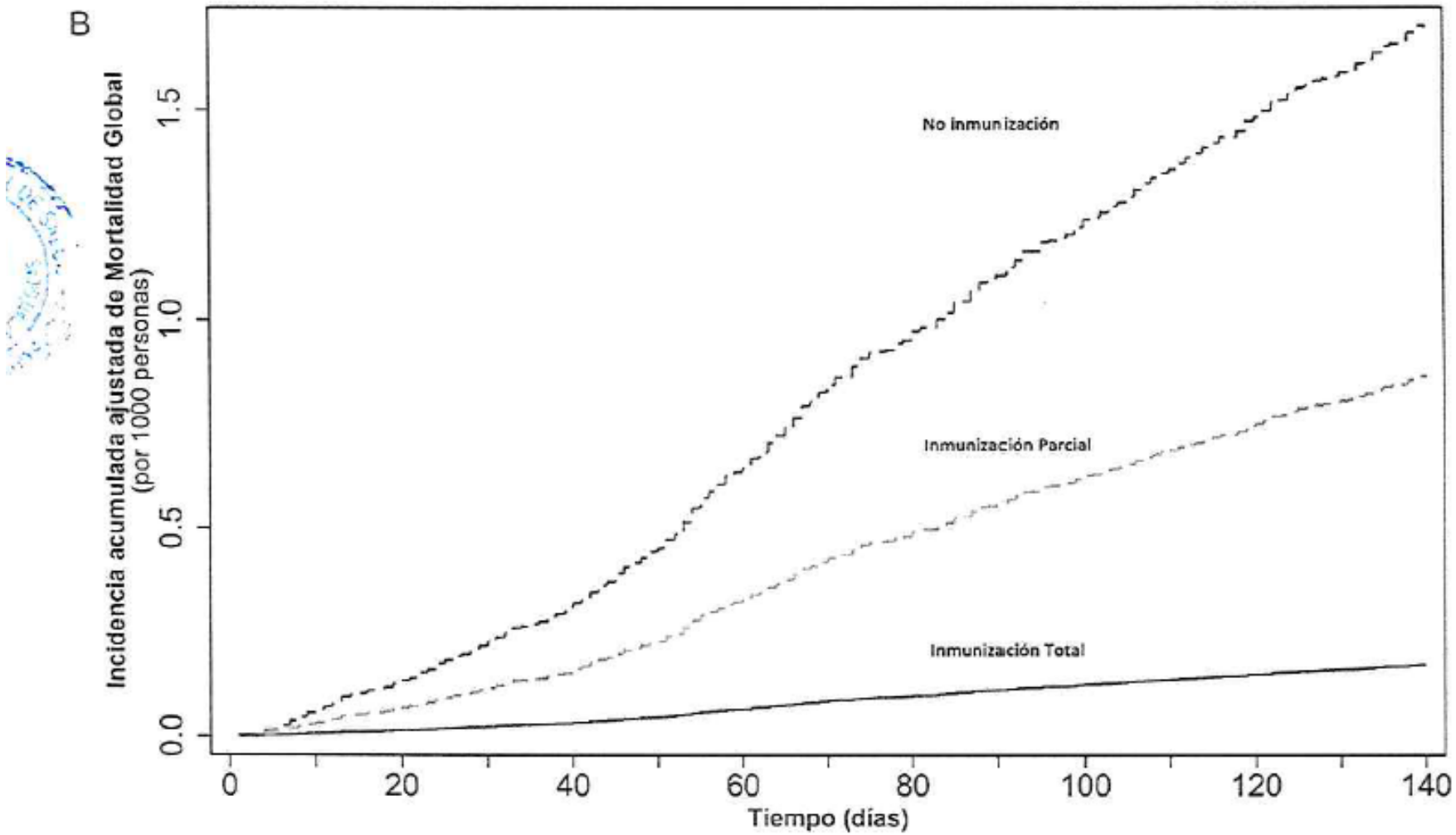
EFECTIVIDAD DE LA VACUNA BBIBP-CorV PARA PREVENIR INFECCIÓN Y MUERTE EN PERSONAL DE SALUD, PERÚ 2021

Tabla 2. Efectividad de la Vacuna BBIBP-Cor-V para infección, muerte por todas las causas y muerte por COVID-19 en trabajadores de salud del Perú, 2021

Desenlace	HR/RTI*	IC 95%	Efectividad (1-HR x 100)
Infección por SARS-CoV-2			
Inmunización parcial	0.83	0.80 - 0.85	17.2%
Inmunización completa	0.50	0.48 - 0.51	50.4%
Mortalidad por todas las causas			
Inmunización parcial	0.49	0.39 - 0.62	51.0%
Inmunización completa	0.10	0.08 - 0.13	90.1%
Mortalidad por COVID-19			
Inmunización parcial	0.54	0.41 - 0.70	46.3%
Inmunización completa	0.06	0.04 - 0.09	94.0%

* HR: Hazard Ratio calculado para Mortalidad por todas las causas y Mortalidad por COVID-19, RTI: Razones de Tasas de Incidencia calculadas para Infección por SARS-CoV-2. Todos los estimados están ajustados por edad, sexo, infección previa por COVID-19, departamento de procedencia, profesión, obesidad y las comorbilidades diabetes, hipertensión, asma, EPOC, estado de inmunosupresión, insuficiencia renal crónica y cáncer

Figura 2a. Densidad de incidencia de Muerte por todas las causas de acuerdo con el estado de inmunización en trabajadores de salud vacunados con BBIBP-CorV, Perú, 2021



FABRICANTE	VACUNA Y TIPO DE TECNOLOGÍA	DOSIS	T°	EFICACIA
Pfizer-BioNTech	BNT162b2 mRNA	 30ug IM Cada 21d	-70°C 2-8°C hasta 1m	94.1% (7d post 2da do)
Moderna	mRNA-1273 mRNA	 100ug IM Cada 28d	-20°C 2-8°C hasta 30d	94.1% (14d post 2da do)
Johnson & Johnson	Ad26.CoV2.S Vector Viral	 $5x10^{10}$ vp	2-8°C hasta 6m	moderado-severo - 66.3% (14d post) - 65.5% (28d post) Severo-crítico - 76.3% (14d post) - 83.5% (28d post)
AstraZeneca/ Oxford	ChAdOx1 (AZD1222) Vector viral	 SD/SD: 5 × 1010 vp LD/SD: 2.2 x 1010 vp Cada <6ss-12ss*	2-8°C hasta 6m	70.4% (14d post 2da do) - SD: 62.1% - LD: 90%

FABRICANTE	VACUNA Y TIPO DE TECNOLOGÍA	DOSIS	T°	EFICACIA
Novavax	NVX-CoV2373 Subunidad proteica	 5ug IM Cada 21d	2-8°C	89.7% (7d post 2da do) - COVID-19 96.4% - B.1.1.7 86.3% - B.1.351 51%
Gamaleya	Sputnik V (Gam-COVID-Vac) Vector Viral rAd26 y rAd5	 0.5mL IM Cada 21d	-18°C 2-8°C	91.6% (21d post 1era do)
Sinovac Biotech	CoronaVac Virus inactivado	 3ug Cada 14d	2-8°C	50.65% - Atendido med 83.7% - mod-sev. 100%
Sinopharm	BBIBP-CorV Virus inactivado	 0.5mL IM Cada 21-28d	2-8°C	80.7%

Preliminary Findings of mRNA Covid-19 Vaccine Safety in Pregnant Persons

This article was published on April 21, 2021, at NEJM.org.

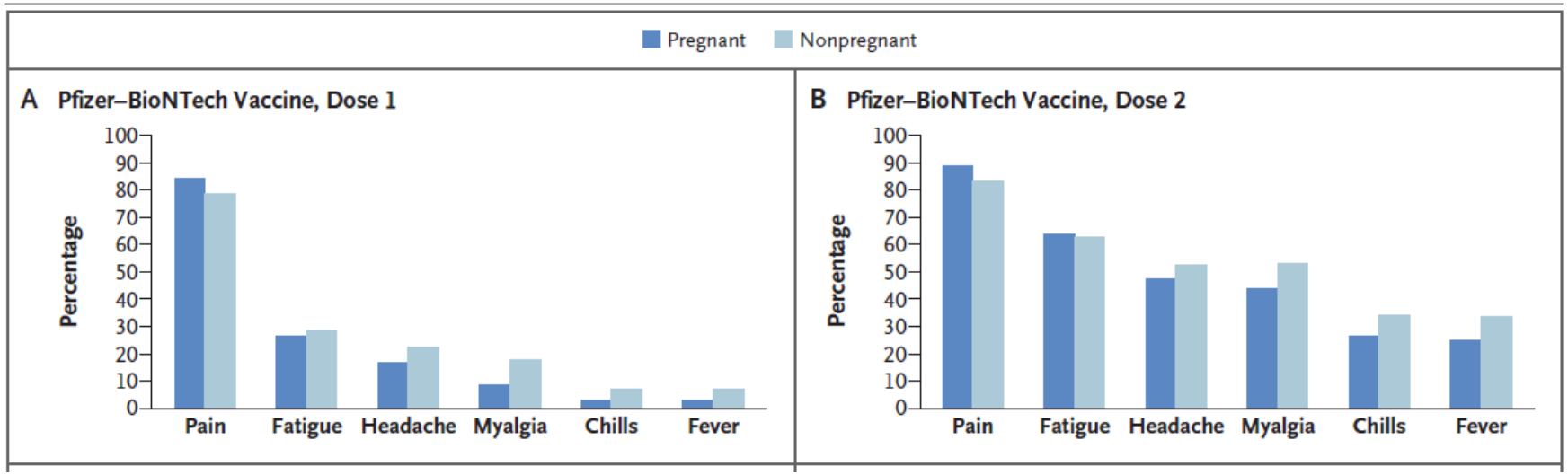


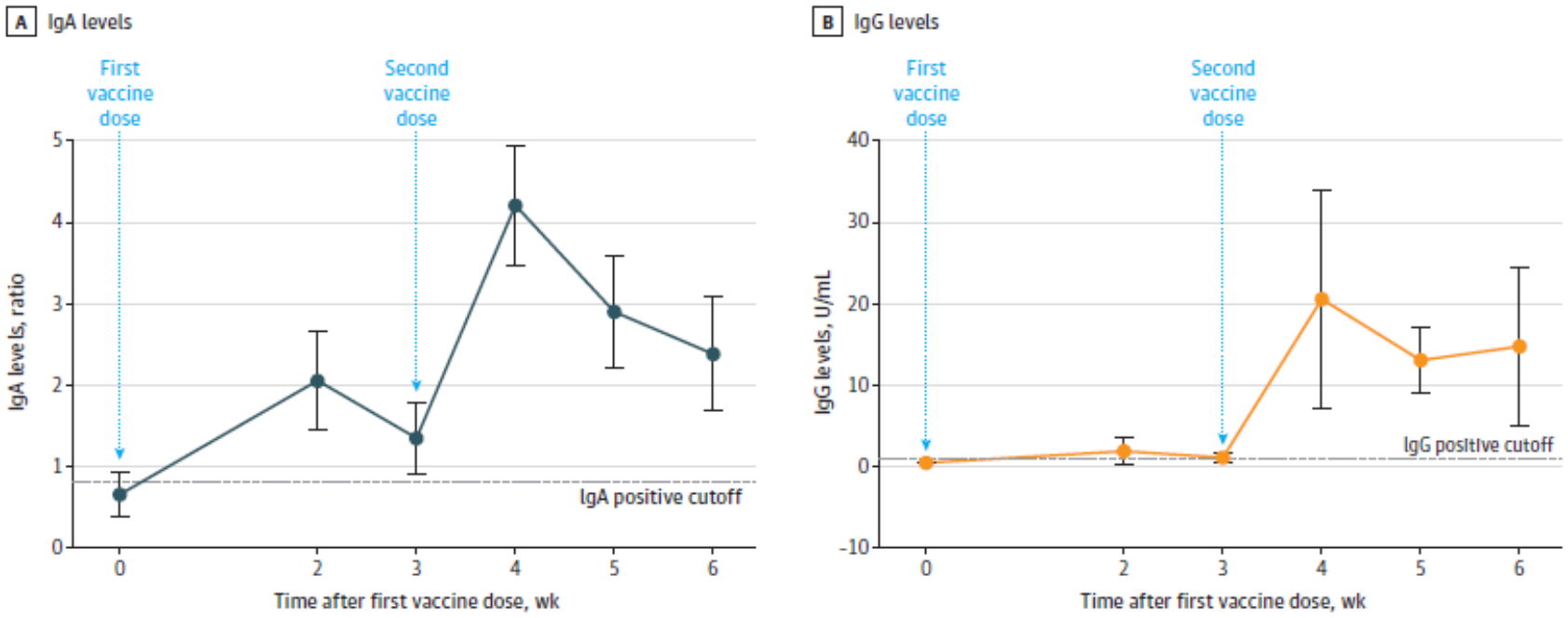
Table 4. Pregnancy Loss and Neonatal Outcomes in Published Studies and V-safe Pregnancy Registry Participants.

Participant-Reported Outcome	Published Incidence*	V-safe Pregnancy Registry†
	%	*no./total no. (%)*
Pregnancy loss among participants with a completed pregnancy		
Spontaneous abortion: <20 wk[15-17]	10–26	104/827 (12.6)‡
Stillbirth: ≥ 20 wk[18-20]	<1	1/725 (0.1)§
Neonatal outcome among live-born infants		
Preterm birth: <37 wk[21,22]	8–15	60/636 (9.4)¶
Small size for gestational age[23,24]‖	3.5	23/724 (3.2)
Congenital anomalies[25]**	3	16/724 (2.2)
Neonatal death[26]††	<1	0/724

SARS-CoV-2–Specific Antibodies in Breast Milk After COVID-19 Vaccination of Breastfeeding Women

JAMA May 18, 2021 Volume 325, Number 19

Figure. Changes in Levels of IgA and IgG in Breast Milk Over Time



A, All the comparisons between time points are $P < .001$. B, The comparison point at week 4 is $P = .004$; at week 5, $P < .001$; and at week 6, $P = .005$.
Data points represent means; error bars, 95% CIs.

Safety, Immunogenicity, and Efficacy of the BNT162b2 Covid-19 Vaccine in Adolescents

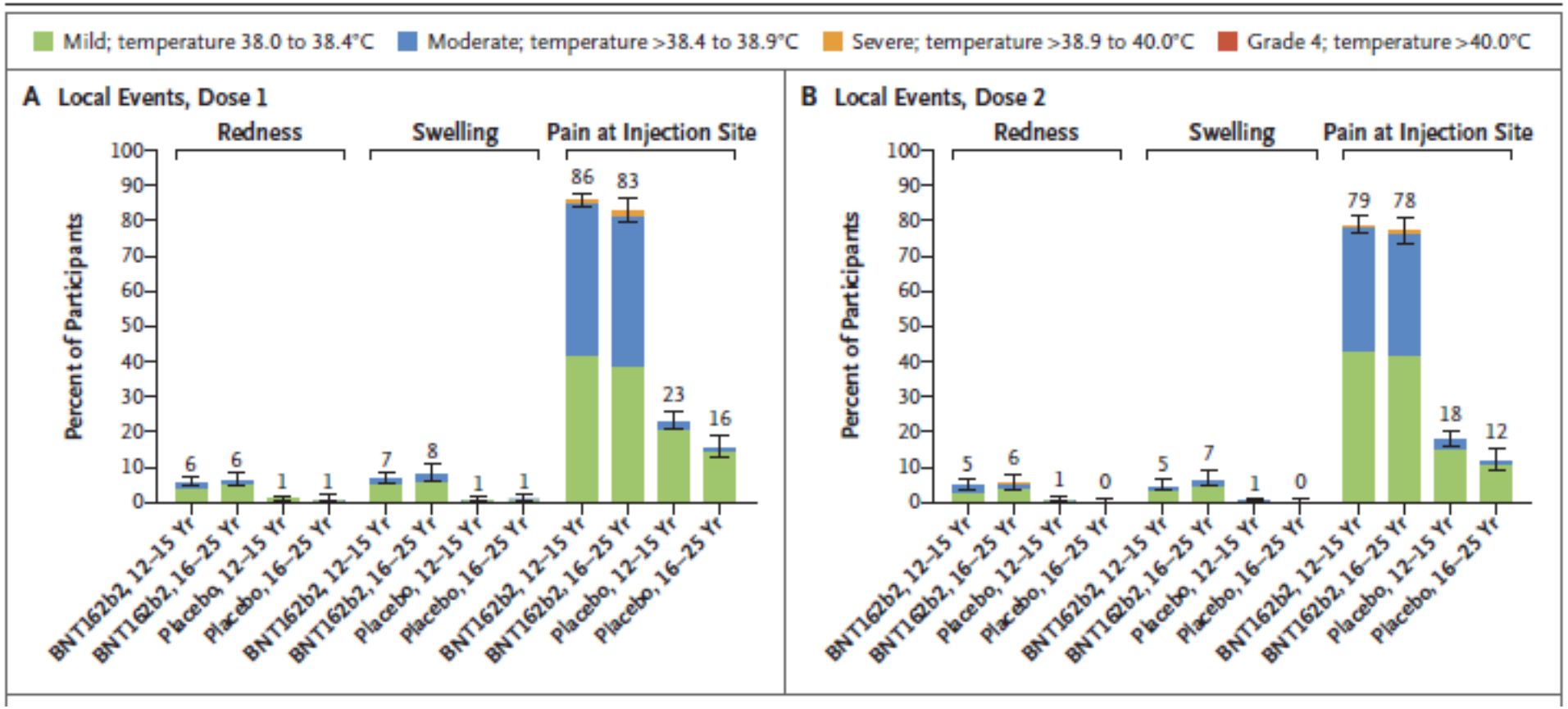


Table 2. SARS-CoV-2 Serum Neutralization Assay Results 1 Month after Dose 2 of BNT162b2 among Participants without Evidence of Infection.*

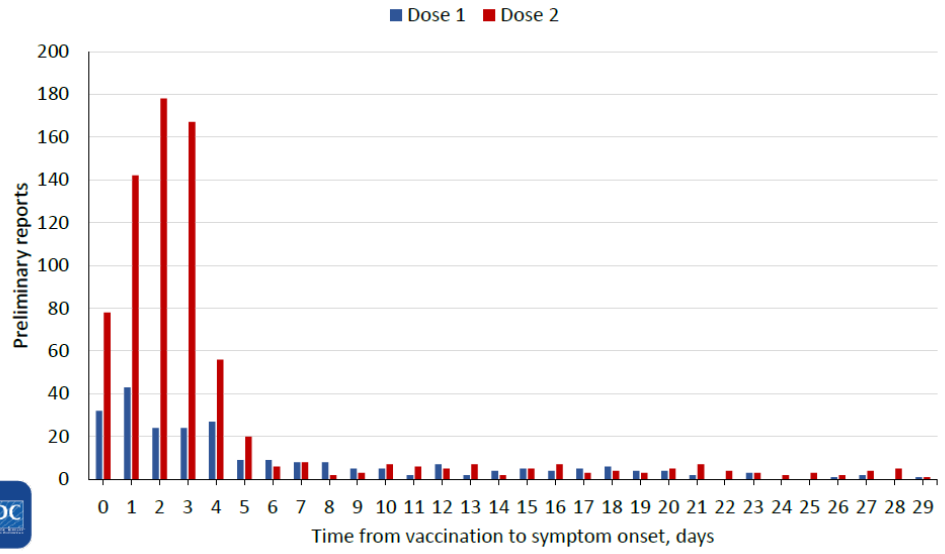
Age Group	No. of Participants	Geometric Mean 50% Neutralizing Titer (95% CI)†	Geometric Mean Ratio (95% CI), 12 to 15 Yr vs. 16 to 25 Yr‡
12–15 yr	190	1239.5 (1095.5–1402.5)	1.76 (1.47–2.10)
16–25 yr	170	705.1 (621.4–800.2)	—

Table 3. Vaccine Efficacy against Covid-19 in Participants 12 to 15 Years of Age.*

Efficacy End Point†	BNT162b2		Placebo		% Vaccine Efficacy (95% CI)‡
	No. of Participants with Event/Total No.§	Surveillance Time (No. at Risk)¶	No. of Participants with Event/Total No.§	Surveillance Time (No. at Risk)¶	
Covid-19 occurrence at least 7 days after dose 2 in participants without evidence of previous infection	0/1005	0.154 (1001)	16/978	0.147 (972)	100 (75.3–100)
Covid-19 occurrence at least 7 days after dose 2 in participants with or without evidence of previous infection	0/1119	0.170 (1109)	18/1110	0.163 (1094)	100 (78.1–100)

Preliminary reports of myocarditis/pericarditis to VAERS after mRNA COVID-19 vaccination by dose number and time to symptom onset*

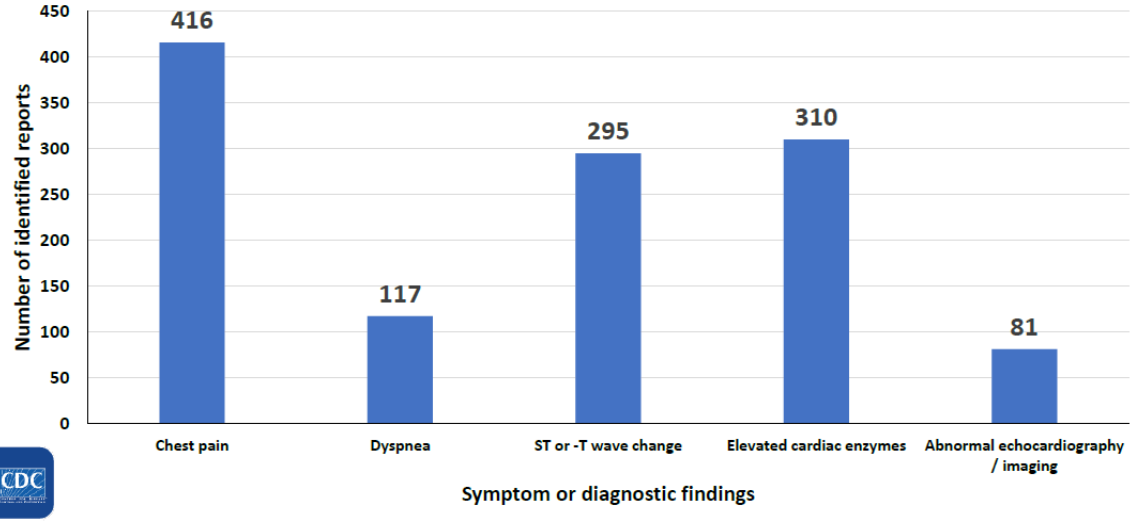
(as of Jun 11, 2021)



* Reports of time to symptom onset truncated at >29 days: Includes 5 reports after Dose 1, 56 after Dose 2

Symptoms and diagnostic findings of preliminary myocarditis/pericarditis reports after mRNA COVID-19 vaccination under review, limited to ≤29 years old (N=484)

(data thru Jun 11, 2021)

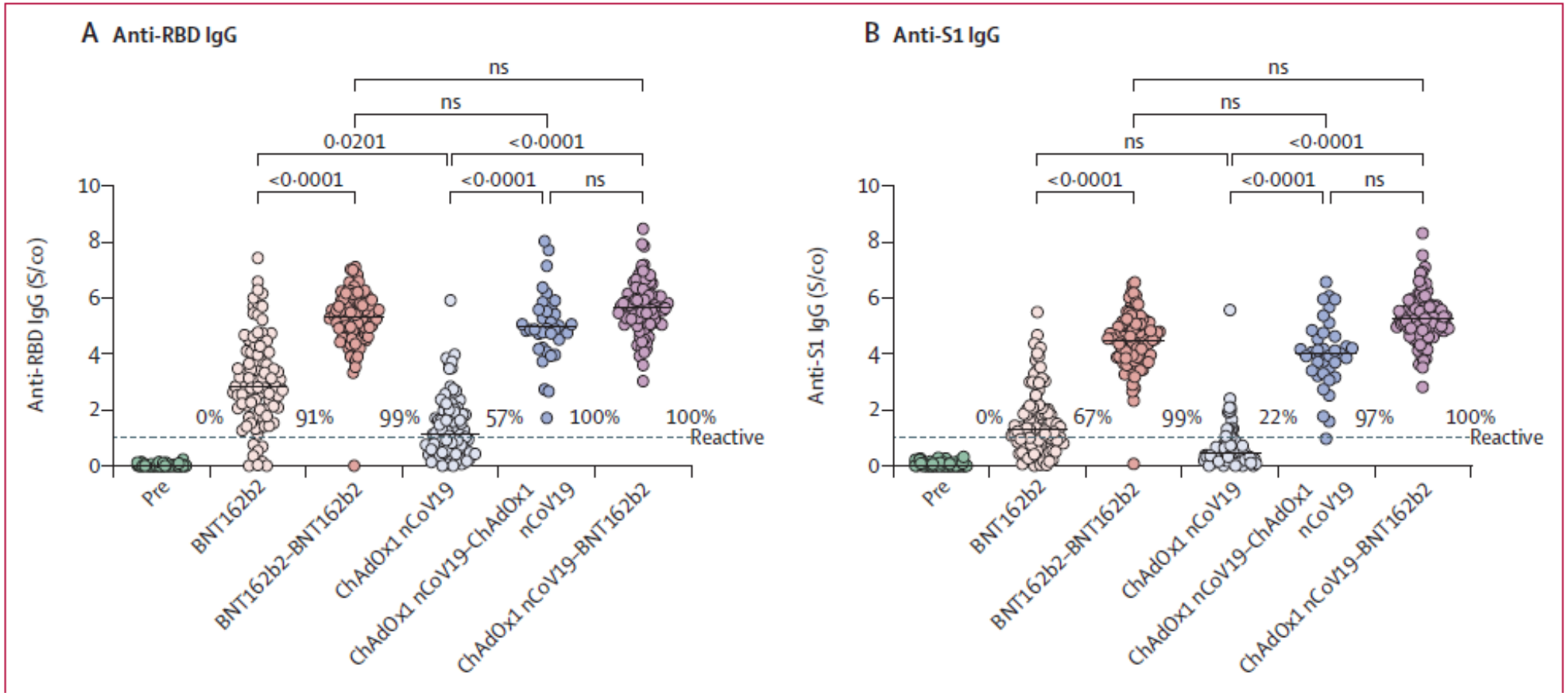


Preliminary myocarditis/pericarditis reports to VAERS following dose 1 mRNA COVID-19 vaccination, Exp. vs. Obs. using 21-day risk window (data thru Jun 11, 2021)

Age groups	Females			Male		
	Doses admin	Expected*,†	Observed*	Doses admin	Expected*,†	Observed*
12–17 yrs	3,777,097	1–13	4	3,569,239	2–21	**32**
18–24 yrs	6,830,706	2–23	9	5,863,268	3–34	**47**
25–29 yrs	5,198,356	2–18	3	4,685,036	3–27	18

Safety, reactogenicity, and immunogenicity of homologous and heterologous prime-boost immunisation with ChAdOx1 nCoV-19 and BNT162b2: a prospective cohort study

Intercambiabilidad



www.thelancet.com/respiratory Published online August 12, 2021

Considerations for use of an additional mRNA COVID-19 vaccine dose after an initial 2-dose primary mRNA COVID-19 vaccine series for immunocompromised people

On August 12, 2021 FDA modified the Emergency Use Authorizations (EUAs) for Pfizer-BioNTech COVID-19 vaccine and Moderna COVID-19 vaccine to allow for administration of an additional dose (i.e., a third dose) of an mRNA COVID-19 vaccine after an initial 2-dose primary mRNA COVID-19 vaccine series for certain immunocompromised people (i.e., people who have undergone solid organ transplantation or have been diagnosed with conditions that are considered to have an equivalent level of immunocompromise). The age groups authorized to receive the additional dose are unchanged from those authorized to receive the primary vaccination series:

- Pfizer-BioNTech: aged ≥12 years
- Moderna: aged ≥18 years

- FDA autorizo al aplicación de una dosis adicional (tercera dosis) para pacientes con inmunodeficiencia moderada y severa

SARSCoV2 variants of concern, characteristics and vaccine efficacy

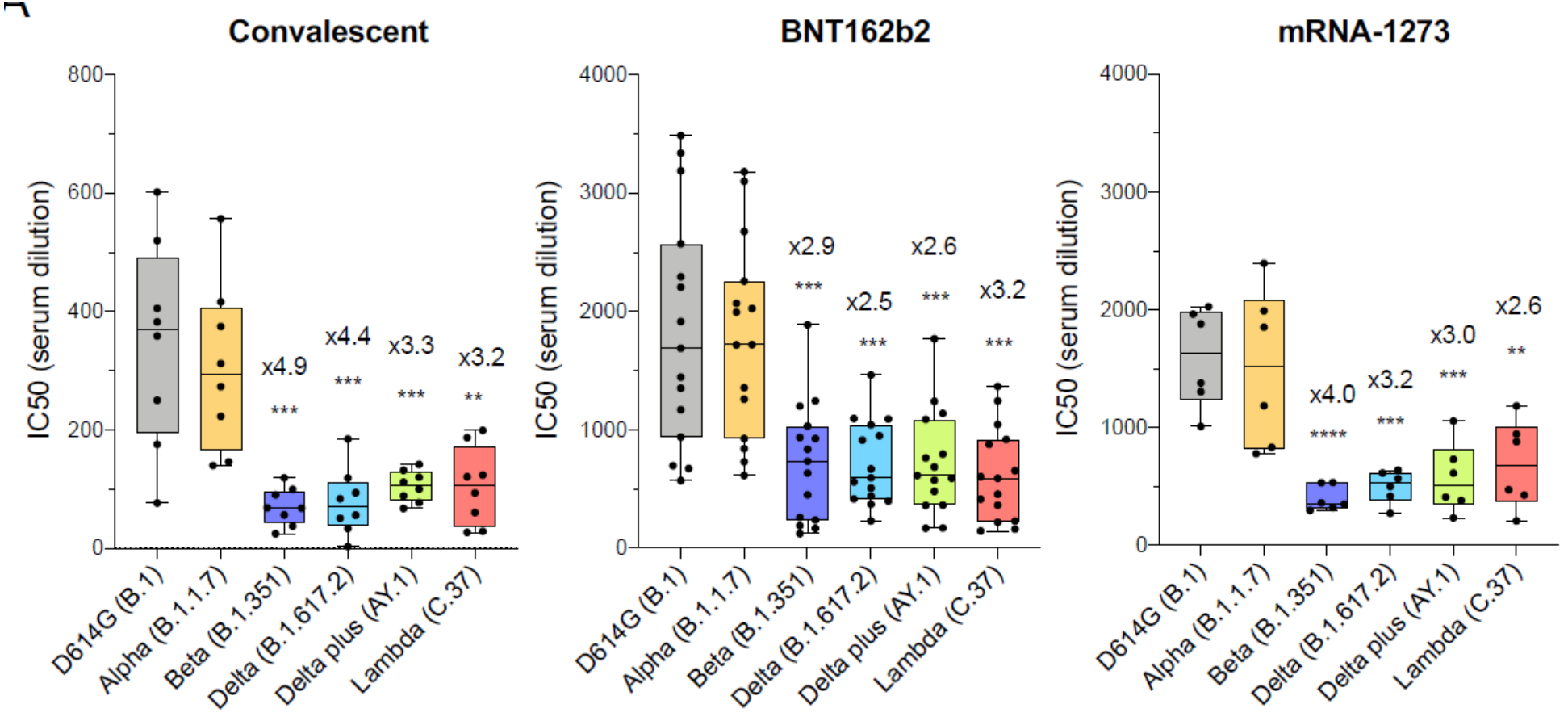
WT

Wild type (WT) is the comparator

Charcteristics of SARCoV2 VOC	α B.1.1.7	β B.1.351	γ P1	δ B.1.617.2
Disease Severity 	Increased	Unchanged	Unchanged	Increased
Mortality 	Increased	Unchanged	Unchanged	Increased
Immune evasion 	No	+++	++	++++
Transmissibility 	+++	+	++	++++
Country where first identified	 U.K	 S.Africa	 Brazil	 India

- Variantes de interés: Epsilon, Iota, Delta plus, Lambda (C37)

Comparison of Neutralizing Antibody Titers Elicited by mRNA and Adenoviral Vector Vaccine against SARS-CoV-2 Variants



Títulos neutralizantes contra variantes de la proteína S de pseudovirus

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NYU Grossman School of Medicine

Effectiveness of Covid-19 Vaccines against the B.1.617.2 (Delta) Variant

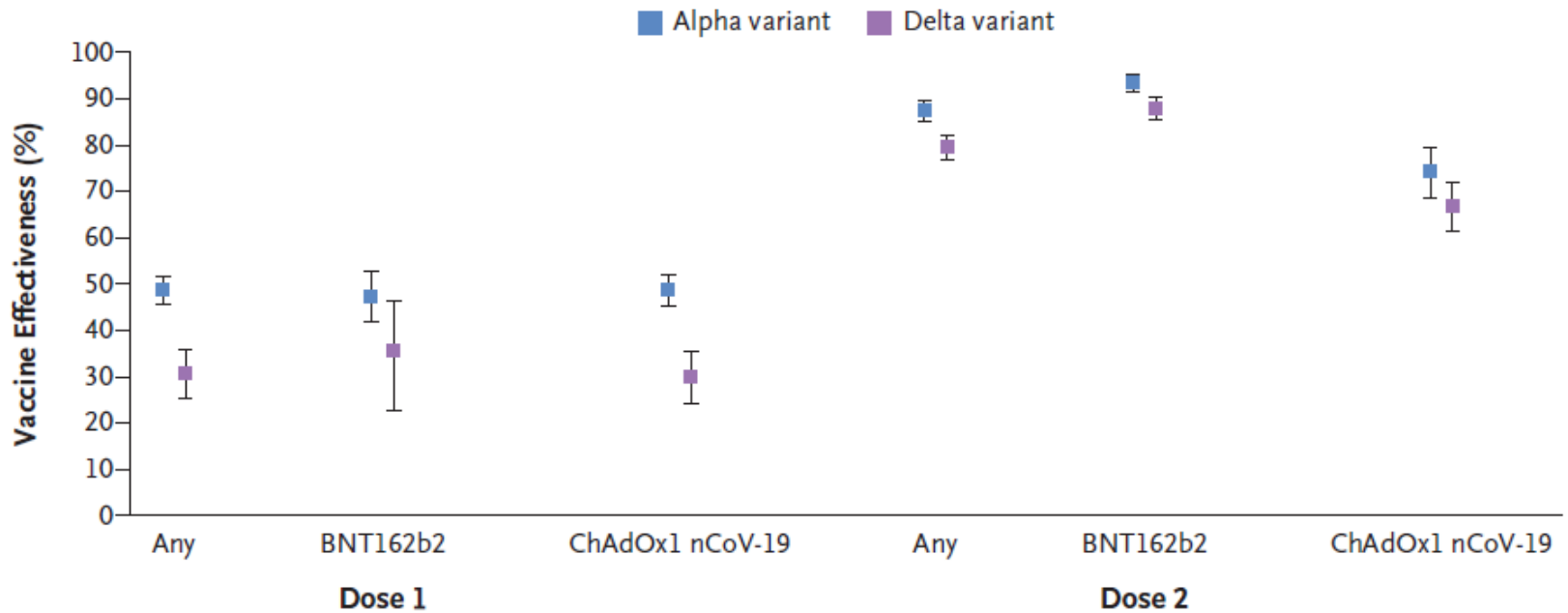


Figure 1. Vaccine Effectiveness against the Alpha and Delta Variants, According to Dose and Vaccine Type.

Shown is the effectiveness of one dose and two doses of the BNT162b2 and ChAdOx1 nCoV-19 vaccines, or either vaccine ("any"), against symptomatic disease with the B.1.1.7 (alpha) or B.1.617.2 (delta) variant of the severe acute respiratory syndrome coronavirus 2. I bars indicate 95% confidence intervals.

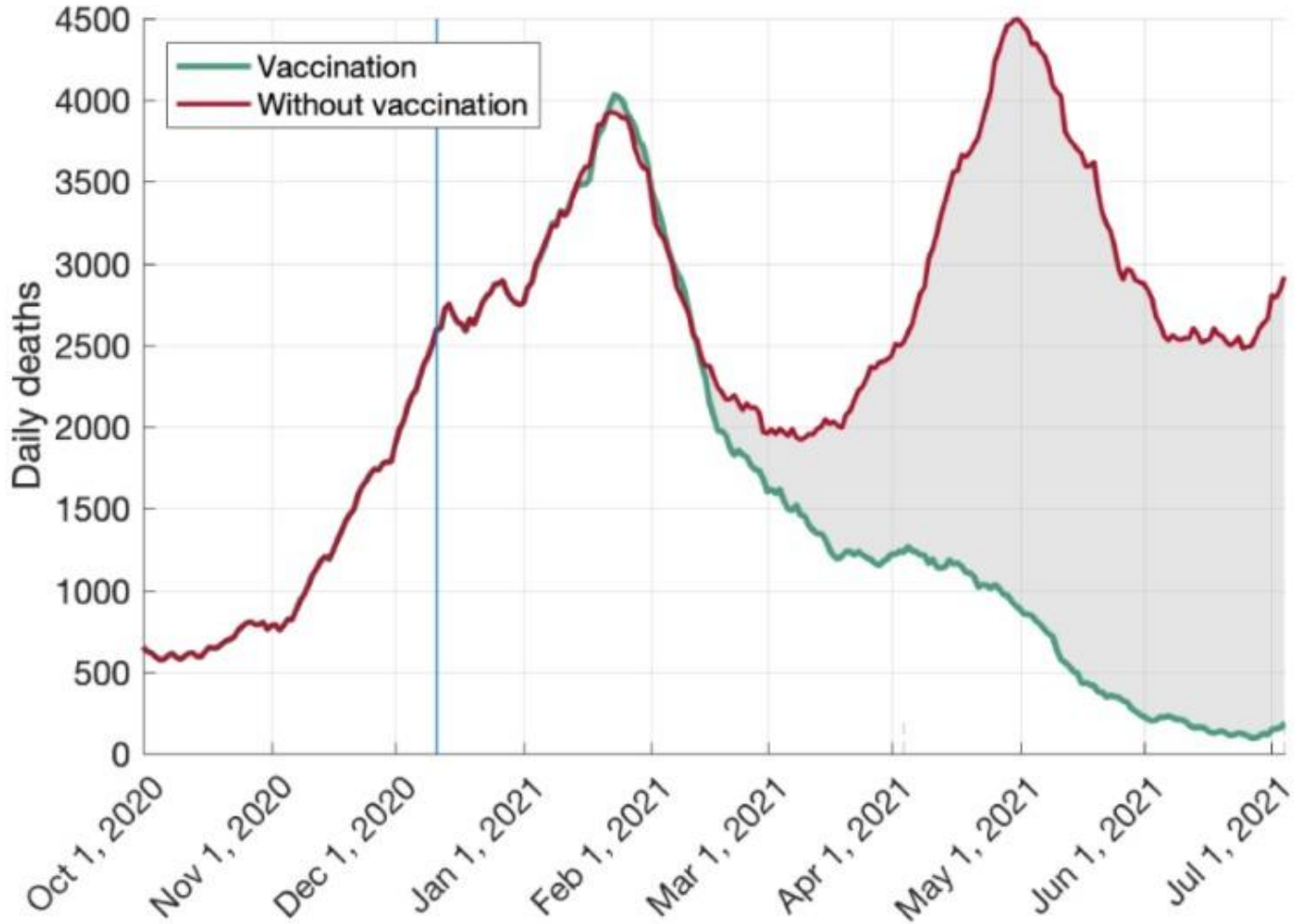
This article was published on July 21, 2021, at NEJM.org.

¿Cuál es la mejor vacuna contra el COVID?

Cuando me preguntan sobre la marca de las vacunas contra COVID

¡¡La mejor vacuna es la primera que llega a mi hombro!!

Estimated U.S. seven-day rolling average of daily deaths with and without vaccination



Source: Alison Galvani, Seyed M. Moghadas, and Eric C. Schneider, *Deaths and Hospitalizations Averted by Rapid U.S. Vaccination Rollout* (Commonwealth Fund, July 2021). https://doi.org/10.26099/wm2j-mz32

99% de las muertes por COVID actualmente en USA es en personas NO vacunadas

¿Qué hacer para minimizar el impacto de la tercera ola?

- Mejorar las coberturas de **vacunación**; cumplir con la **segunda dosis**
- Insistir con las medidas básicas de prevención: uso de **mascarilla**
- Evitar ambientes muy concurridos y cerrados: **ventilación**
- **DAR**:

  D = Detección temprana basada en síntomas

  A = Aislamiento temprano

  R = Reporte
- Mejorar **diagnóstico**: pruebas moleculares y detección de variantes
- Fortalecer **atención primaria de salud** para atención de casos leves
- Mejorar las capacidades hospitalarias: **oxígenos, camas UCI**