UWTASP
tele-antimicrobial stewardship program

DISCUSSION: Asymptomatic COVID-19 Transmission and Post-Vaccination Activity

March 9th, 2021

Interim PH Recommendations for Fully Vaccinated People

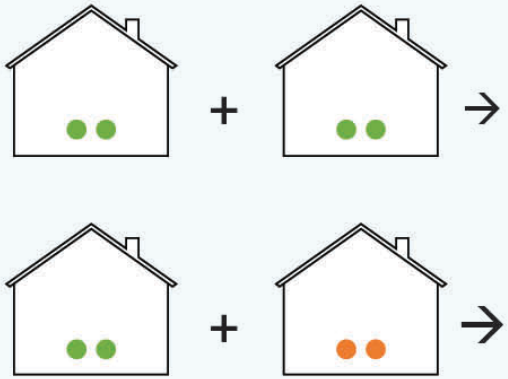
- Updated 3/8/21: https://www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinated-guidance.html
- “Fully vaccinated” definition
- Activities
  - Visit with other fully vaccinated people indoors without wearing masks or physical distancing
  - Visit with unvaccinated people from a single household who are at low risk for severe COVID-19 disease indoors without wearing masks or physical distancing
  - Refrain from quarantine and testing following a known exposure if asymptomatic

= Vaccinated

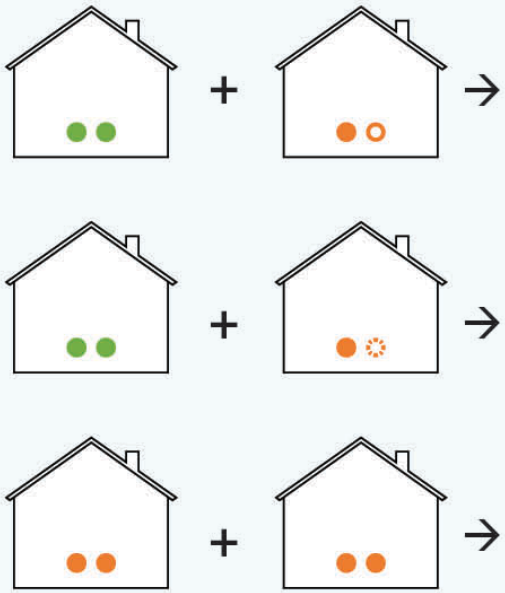
= Unvaccinated + low risk

= Unvaccinated + high risk

= Unvaccinated + high risk not at home



No prevention methods



Take prevention methods

Wear a mask

Choose well ventilated areas

Keep 6 feet away from others and avoid crowds

Wash your hands

Table 20. Vaccine Efficacy Against Asymptomatic SARS-CoV-2 Infections, Full Analysis Set

	Day 1-Day 29			After Day 29[e]		
	Ad26.COV2.S No. of Cases (Person-yrs)	Placebo No. of Cases (Person-yrs)	VE% (95% CI)	Ad26.COV2.S No. of Cases (Person-yrs)	Placebo No. of Cases (Person-yrs)	VE% (95% CI)
FAS seron… at baseli…				=19301	N=19162	
+PC… ser…			12.…	099.7)	54 (3064.2	59.7% (32.8; 76.6)
+… s… p… s…					38 (3061.5	74.0% (46.8; 88.4)
Sero…					N=1304	
Se…				2)	50 (298.8	65.5% (39.9; 81.1)
			30.…			
Seroco… without pr… symptoms[c,d]			22.6% (-3.9, 42.5)	10 (310.9)	37 (296.6	74.2% (47.1; 88.6)

https://www.fda.gov/media/146338/download

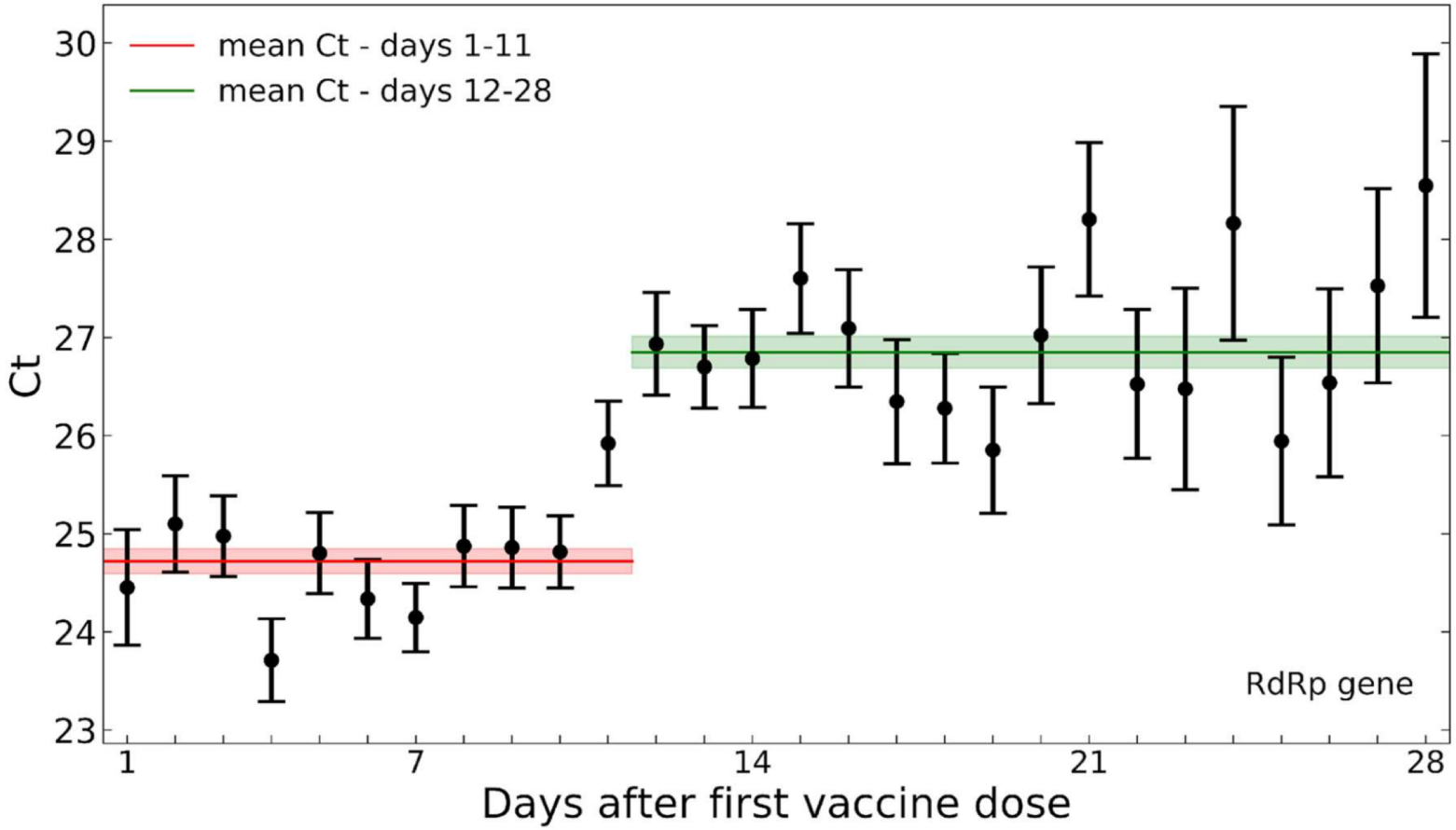
Table 20. Vaccine Efficacy Against Asymptomatic SARS-CoV-2 Infections, Full Analysis Set

	Day 1-Day 29			After Day 29[e]		
	Ad26.COV2.S No. of Cases (Person-yrs)	Placebo No. of Cases (Person-yrs)	VE% (95% CI)	Ad26.COV2.S No. of Cases (Person-yrs)	Placebo No. of Cases (Person-yrs	VE% (95% CI)
FAS seronegative at baseline	N=19739	N=19809		N=19301	N=19162	
+PCR and/or serology[b]	159 (1561.3)	182 (1564.1)	12.5% (-8.9, 29.7)	22 (3099.7)	54 (3064.2	59.7% (32.8; 76.6)
+PCR and/or serology without previous symptoms[b,d]	87 (1556.2)	109 (1559.3)	20.0% (-7.0, 40.4)	10 (3098.0)	38 (3061.5	74.0% (46.8; 88.4)
Serology risk set[a]	N=14084	N=14019		N=1346	N=1304	
Seroconverted[c]	153 (1114.3)	175 (1108.2)	13.1% (-8.6, 30.5)	18 (312.2)	50 (298.8	65.5% (39.9; 81.1)
Seroconverted without previous symptoms[c,d]	84 (1109.4)	108 (1103.7)	22.6% (-3.9, 42.5)	10 (310.9)	37 (296.6	74.2% (47.1; 88.6)

https://www.fda.gov/media/146338/download

Title: Decreased SARS-CoV-2 viral load following vaccination

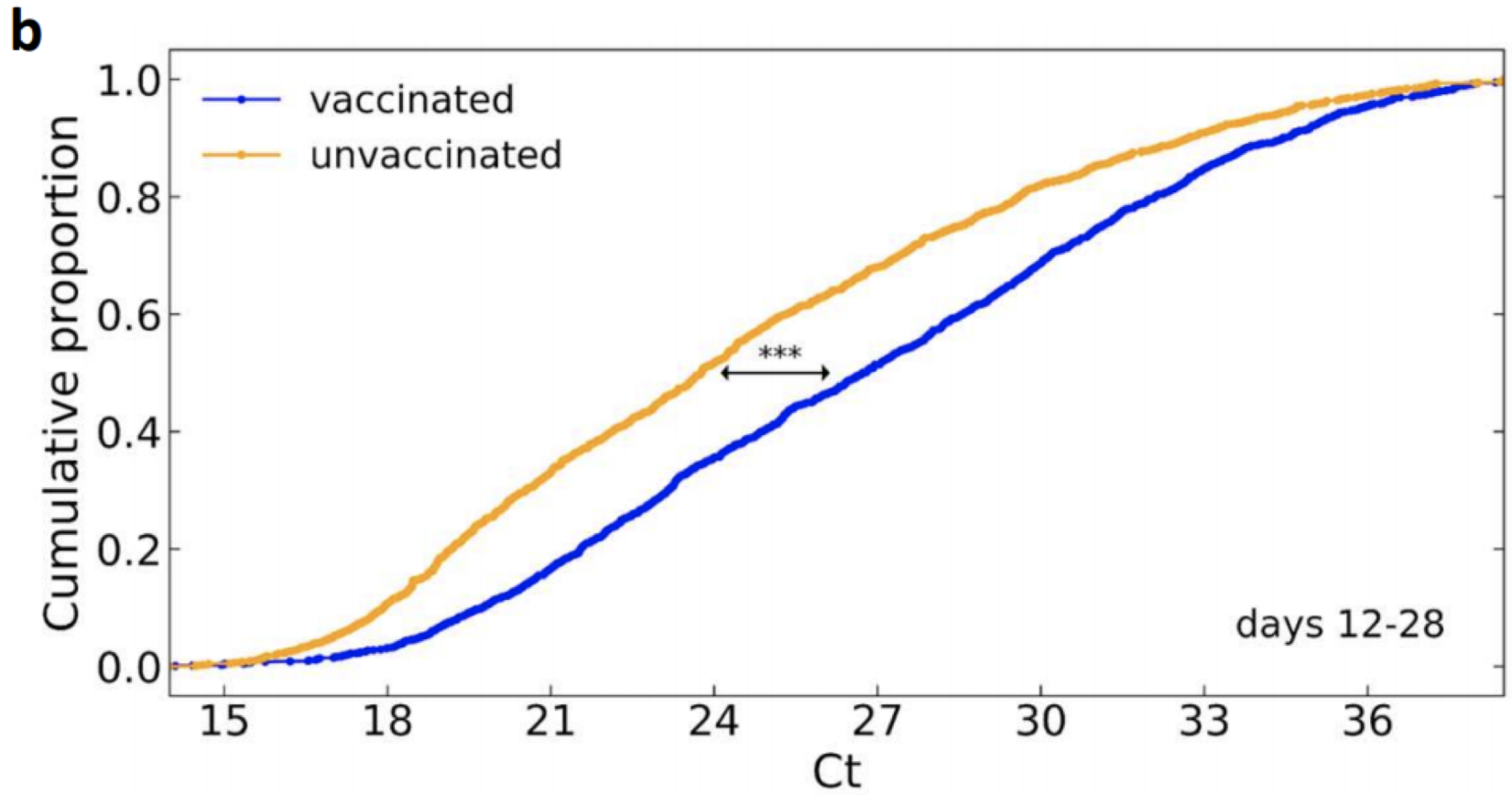
Matan Levine-Tiefenbrun[1,*], Idan Yelin[1,*,+], Rachel Katz[2], Esma Herzel[2], Ziv Golan[3], Licita Schreiber[3], Tamar Wolf[3], Varda Nadler[3], Amir Ben-Tov[2,4], Jacob Kuint[2,4], Sivan Gazit[2], Tal Patalon[2], Gabriel Chodick[2,4], Roy Kishony[1,5,+]



https://www.medrxiv.org/content/10.1101/2021.02.06.21251283v1.full.pdf

Title: Decreased SARS-CoV-2 viral load following vaccination

Matan Levine-Tiefenbrun[1,*], Idan Yelin[1,*,+], Rachel Katz[2], Esma Herzel[2], Ziv Golan[3], Licita Schreiber[3], Tamar Wolf[3], Varda Nadler[3], Amir Ben-Tov[2,4], Jacob Kuint[2,4], Sivan Gazit[2], Tal Patalon[2], Gabriel Chodick[2,4], Roy Kishony[1,5,+]



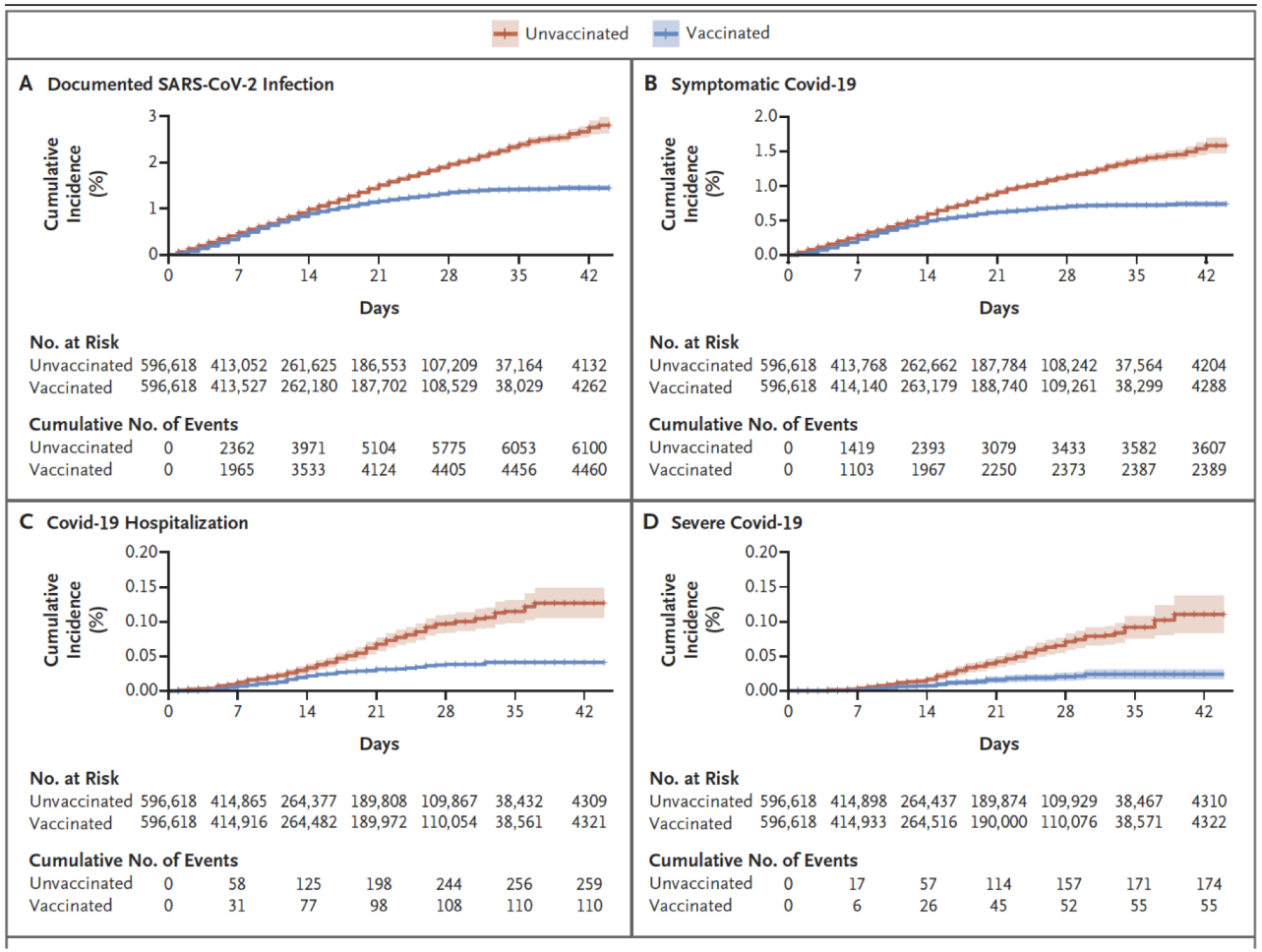
https://www.medrxiv.org/content/10.1101/2021.02.06.21251283v1.full.pdf

The NEW ENGLAND JOURNAL of MEDICINE

BNT162b2 mRNA Covid-19 Vaccine in a Nationwide Mass Vaccination Setting

~600,000 people!

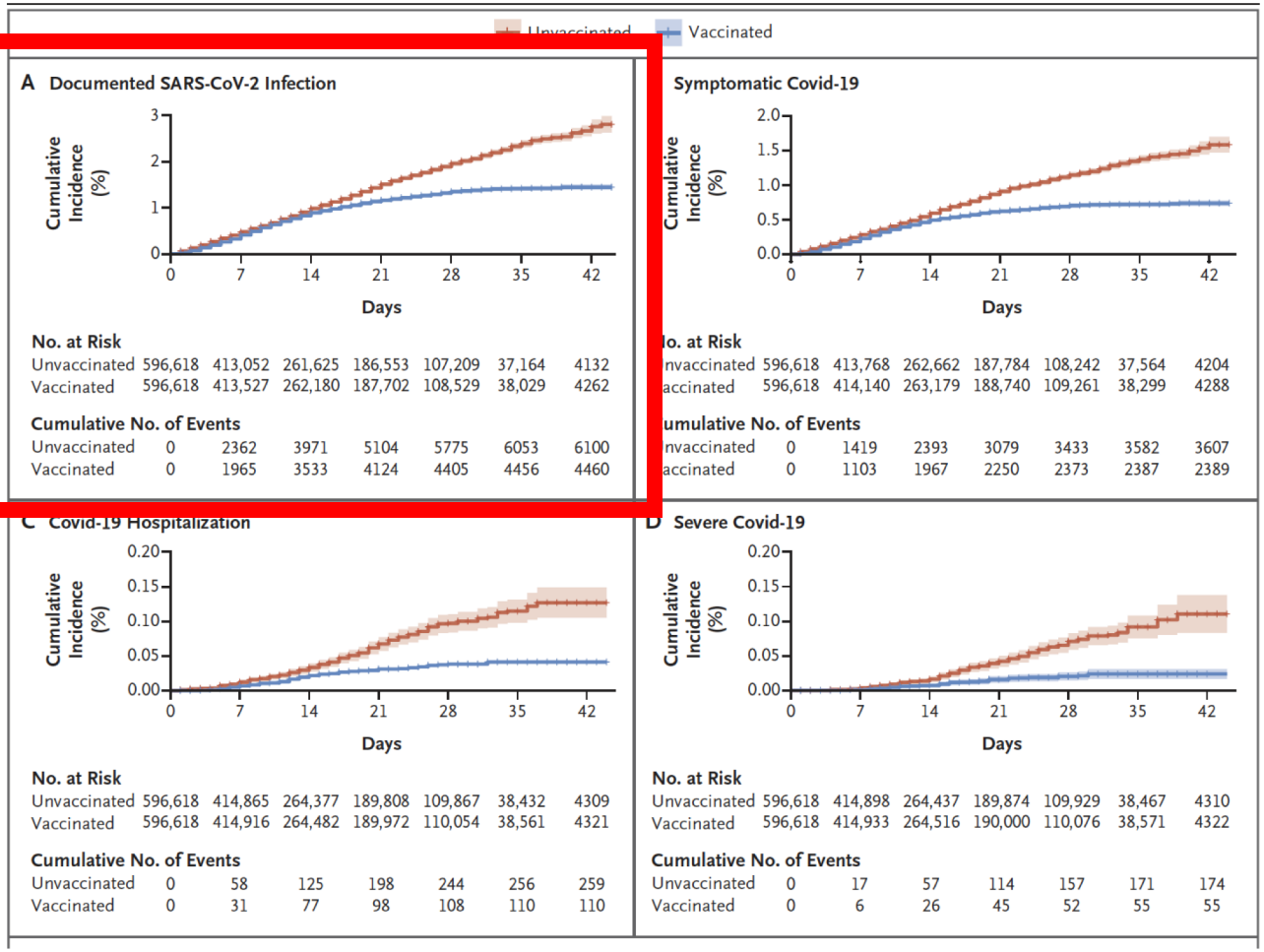
Noa Dagan, M.D., Noam Barda, M.D., Eldad Kepten, Ph.D., Oren Miron, M.A., Shay Perchik, M.A., Mark A. Katz, M.D., Miguel A. Hernán, M.D., Marc Lipsitch, D.Phil., Ben Reis, Ph.D., and Ran D. Balicer, M.D.



The NEW ENGLAND JOURNAL of MEDICINE

BNT162b2 mRNA Covid-19 Vaccine in a Nationwide Mass Vaccination Setting

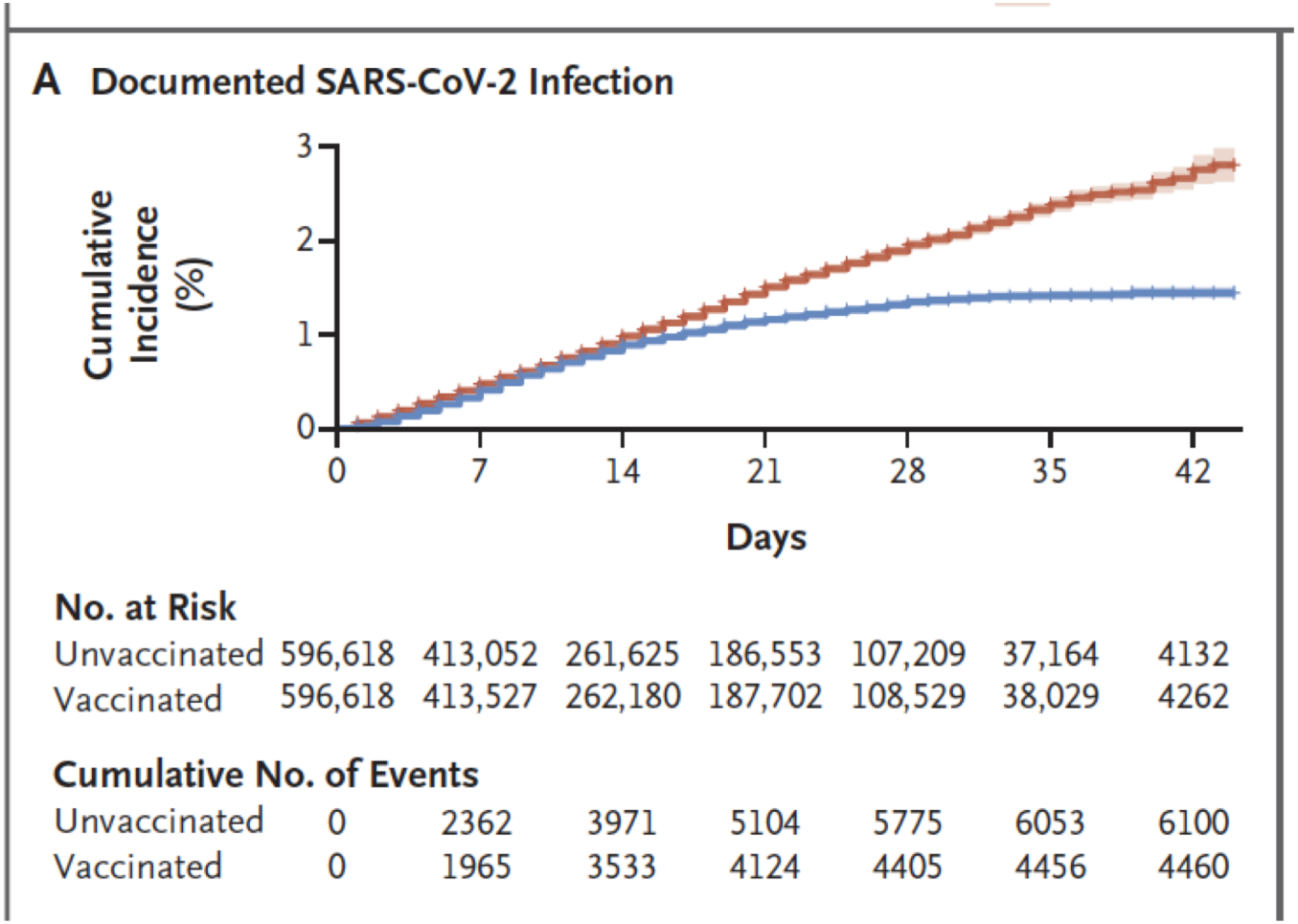
Noa Dagan, M.D., Noam Barda, M.D., Eldad Kepten, Ph.D., Oren Miron, M.A., Shay Perchik, M.A., Mark A. Katz, M.D., Miguel A. Hernán, M.D., Marc Lipsitch, D.Phil., Ben Reis, Ph.D., and Ran D. Balicer, M.D.



The NEW ENGLAND JOURNAL of MEDICINE

BNT162b2 mRNA Covid-19 Vaccine in a Nationwide Mass Vaccination Setting

Noa Dagan, M.D., Noam Barda, M.D., Eldad Kepten, Ph.D., Oren Miron, M.A., Shay Perchik, M.A., Mark A. Katz, M.D., Miguel A. Hernán, M.D., Marc Lipsitch, D.Phil., Ben Reis, Ph.D., and Ran D. Balicer, M.D.



No. at Risk

Unvaccinated	596,618	413,052	261,625	186,553	107,209	37,164	4132
Vaccinated	596,618	413,527	262,180	187,702	108,529	38,029	4262

Cumulative No. of Events

Unvaccinated	0	2362	3971	5104	5775	6053	6100
Vaccinated	0	1965	3533	4124	4405	4456	4460

Early rate reductions of SARS-CoV-2 infection and COVID-19 in BNT162b2 vaccine recipients

Sharon Amit • Gili Regev-Yochay • Arnon Afek • Yitshak Kreiss • Eyal Leshem

Published: February 18, 2021 • DOI: https://doi.org/10.1016/S0140-6736(21)00448-7

		Unvaccinated	Days after Dose 1		
		NA	1-14	15-21	22-28
All SARS-CoV-2 PCR Positive	Number of cases	89	55	19	7
	Number of exposure days	120,575	100,433	48,271	39,855
	Rate per 10,000 person days	7.4	5.5	3.9	1.8
	Rate reduction compared with unvaccinated	NA	26% (-4%-47%)	47% (12%-68%)	76% (49%-89%)
	Adjusted rate reduction compared with unvaccinated[1]	NA	30% (2%-50%)	65% (43%-79%)	86% (70%-94%)

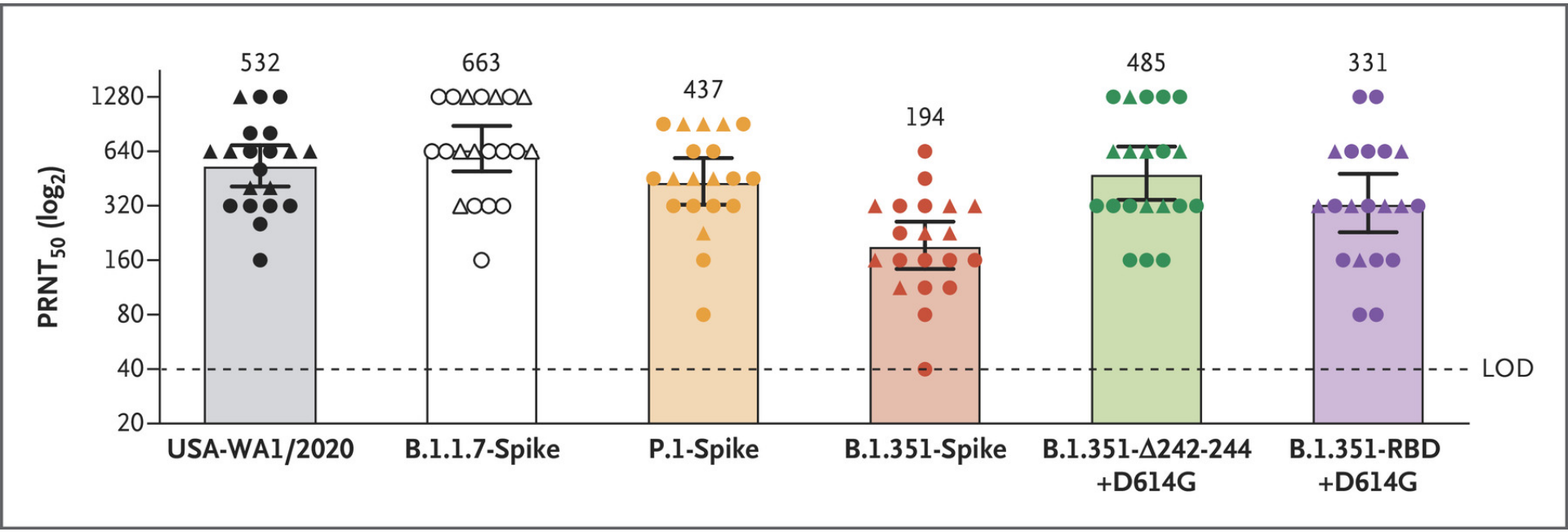
SARS-CoV-2 variants

	Incr Upper Resp VL	Binds bACE2	NAb escape	Better binding	Pending
Mutations	**D614G**	**N501Y**	**E484K**	**K417**	**L452R**
Location	Spike	Spike	Spike	Spike	Spike
B1.1.1.7	X	X			
B.1.351	X	X	X		
B.1.427 (CA)	X	X		X	X
B.1.526 (NY)	X	X			
P.1	X	X	X	X	
Oregon isolate	X	X	X		

The NEW ENGLAND JOURNAL of MEDICINE

CORRESPONDENCE

Neutralizing Activity of BNT162b2-Elicited Serum



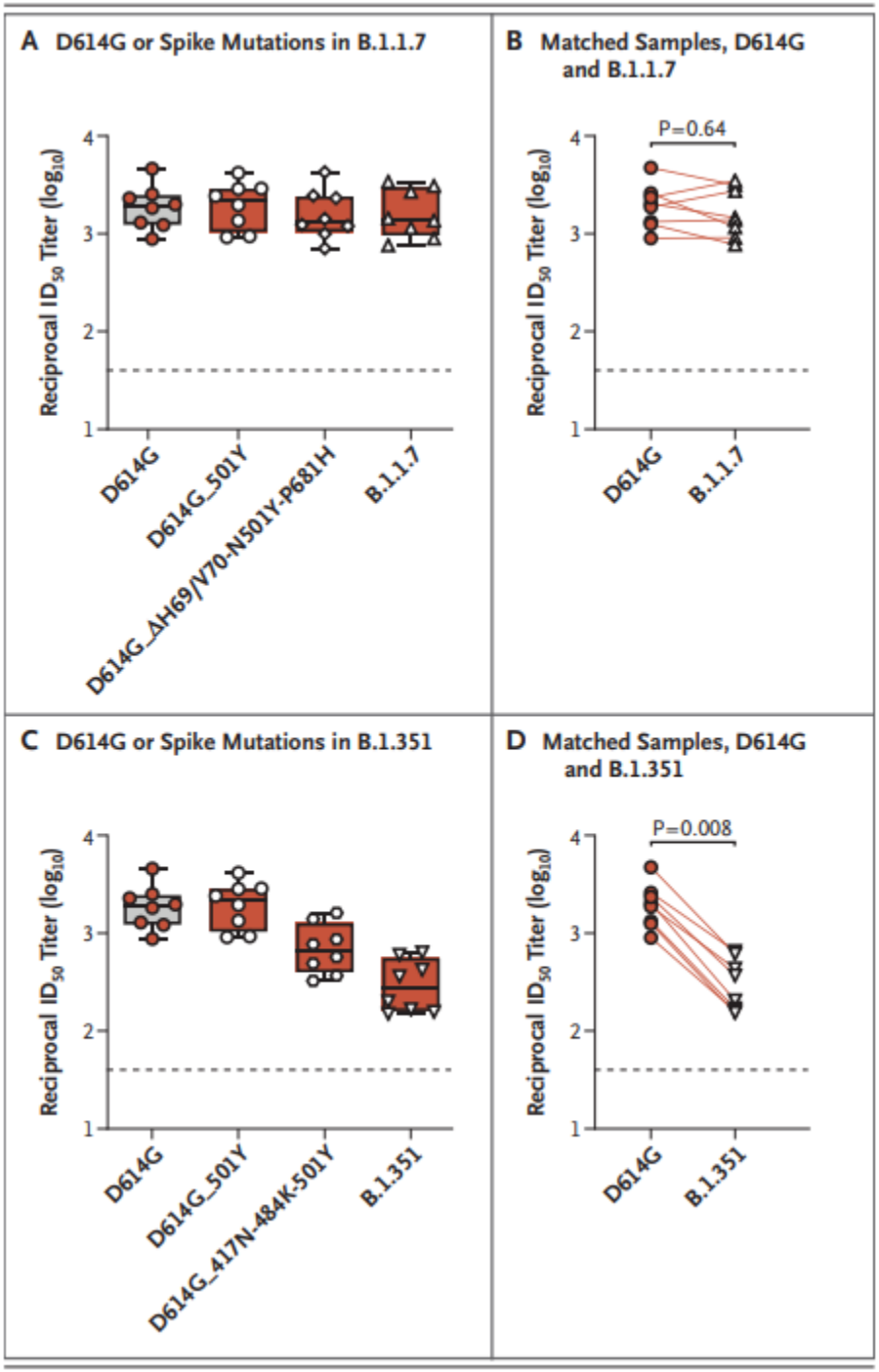
https://www.nejm.org/doi/full/10.1056/NEJMc2102017?query=featured_coronavirus

The NEW ENGLAND JOURNAL of MEDICINE

CORRESPONDENCE

Serum Neutralizing Activity Elicited by mRNA-1273 Vaccine — Preliminary Report

https://www.nejm.org/doi/full/10.1056/NEJMc2102179?query=featured_coronavirus



The Seattle Times

We may never reach herd immunity on coronavirus — but it probably doesn't matter

March 8, 2021 at 6:00 am | *Updated March 8, 2021 at 11:23 am*

Now, it's mostly invoked as the pandemic finish line — the point when so many people have immunity from vaccination or infection that the virus will fizzle out like sparks that can't find sufficient tinder to sustain a flame.

Or, as King County's top health official describes it: "some sort of magical threshold."

But Dr. Jeffrey Duchin doesn't put much stock in magic. He's one of a growing number of experts who doubt herd immunity against the novel coronavirus will ever be achieved — and who say it doesn't really matter.

"It would be great if we reached that threshold," says Duchin, public health officer for Public Health – Seattle & King County. "I think it's very questionable that we will, and I also think we don't need to achieve true herd immunity to return to a normal lifestyle."