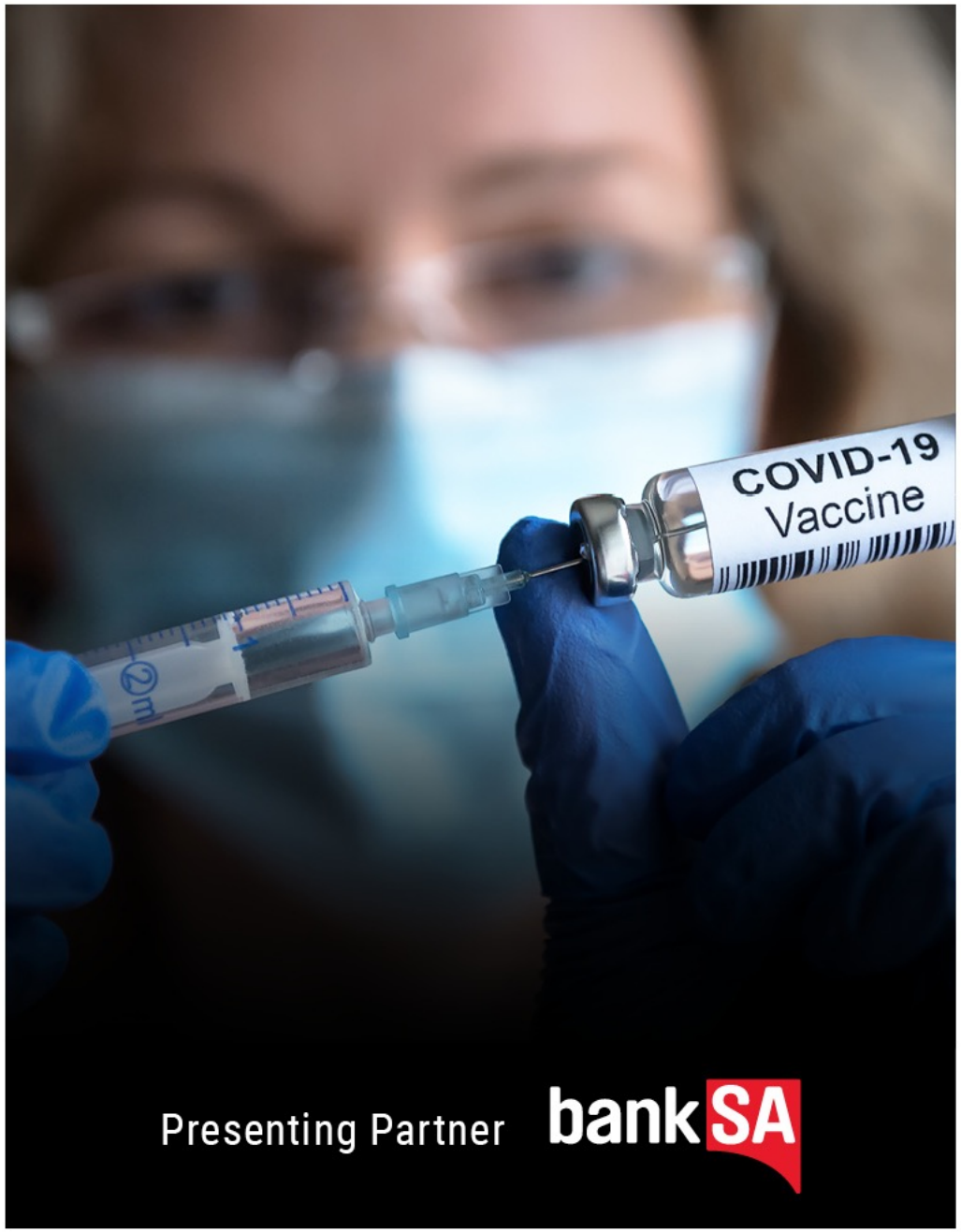

BRAVE

FLINDERS RESEARCH & INNOVATION SERIES

FOR THE GREATER GOOD
PART 2

Presented by

Associate Professor Jill Carr, Professor Jonathan Craig,
Professor Billie Bonevski and special guest
Professor Julie Leask, University of Sydney

Live Stream | 21 July 2021 | 5pm (ACST)

Ms Callista Thillou

Executive Director, Office of Communication, Marketing and Engagement

Flinders UNIVERSITY

Na Marni (welcome)

We acknowledge the traditional owners of the lands Flinders University teaches and researches across (Arrernte, Boandik, Dagoman, Erawirung, Jawoyn, Kaurna, Larrakia, Ngarrindjeri, Ngadjuri, Peramangk, Ramindjeri, Waramungu, Wardaman and Yolngu) and honour their Elders past and present.

"Always was… always will be"

Image: Long Way Home – A celebration of 21 years of Yunggorendi First Nations Centre (2011)

Disclaimer

This content should not be used as a substitute for individual medical advice and/or State/Commonwealth policy and health directives

The focus will be only be one aspect of Australia's public health response to the pandemic, vaccination, and not other health measures such as quarantine and physical distancing

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Associate Professor Jill Carr

Microbiology and Infectious Diseases
College of Medicine and Public Health

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Global totals (18/7/2021)

189,998,957 cases (189 million)

4,082,349 deaths (4 million)

3,601,853,854 vaccine doses (3.601 billion)

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https://coronavirus.jhu.edu/map.html Johns Hopkins University & Medicine, Coronavirus Resource Centre

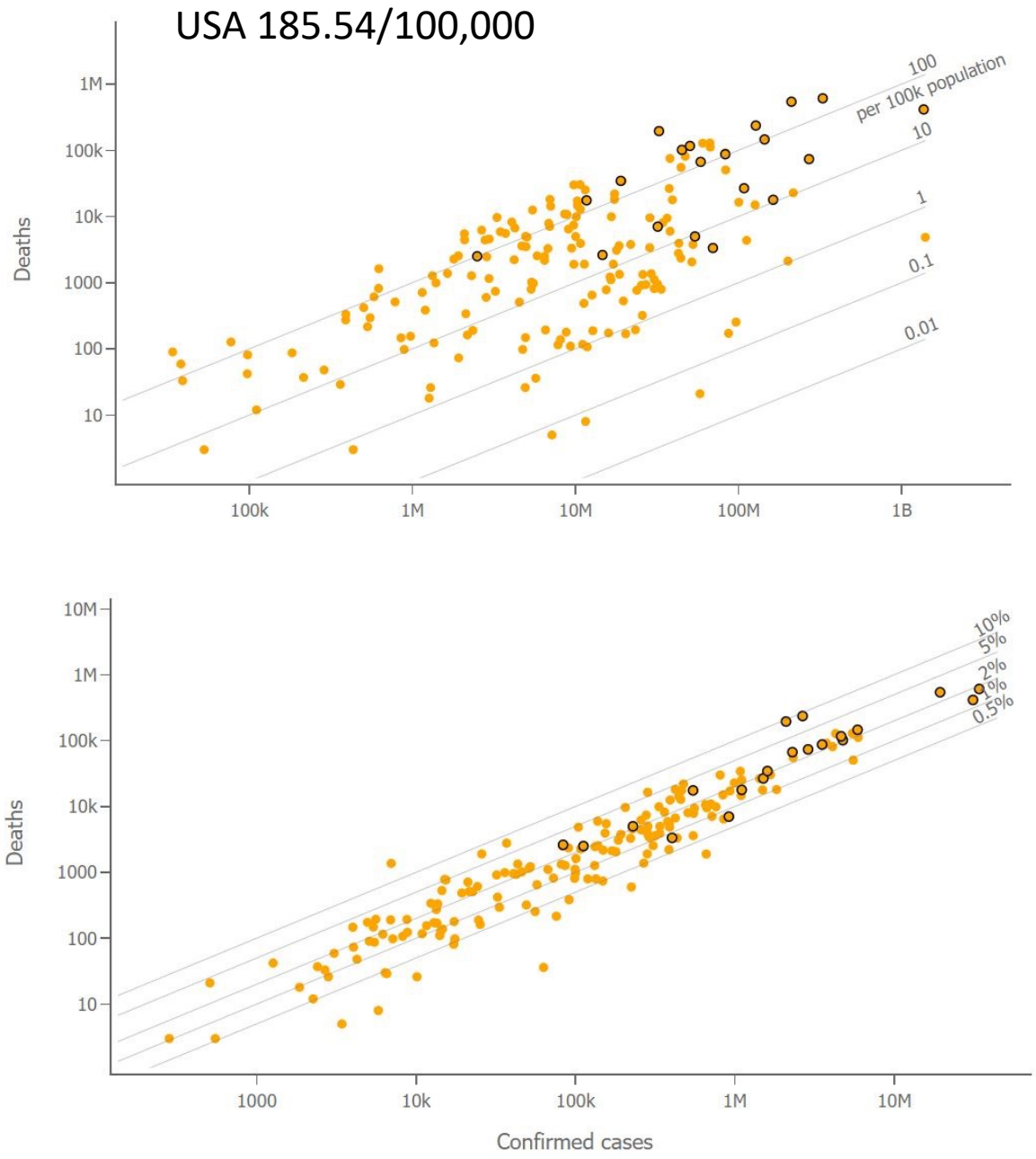
What happens if you get COVID-19?

USA death risk 185.54/100,000 people

USA case fatality 1.8%

Respiratory syndrome

Complications: thrombosis, myocarditis, renal, neurological
(approx 50% of hospitalisations)



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Long COVID in survivors

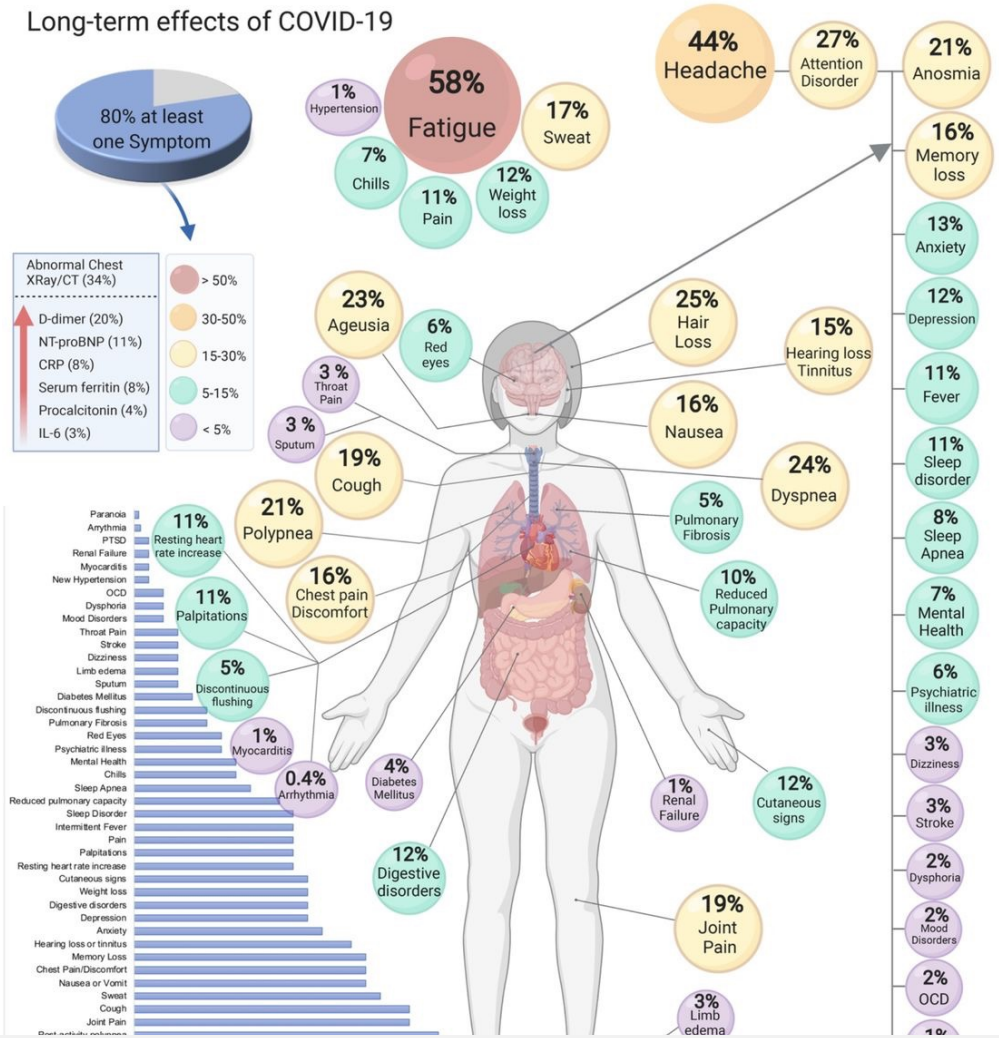
More than 50 Long-term effects of COVID-19: a systematic review and meta-analysis

Sandra Lopez-Leon, Talia Wegman-Ostrosky, Carol Perelman, Rosalinda Sepulveda, Paulina A Rebolledo, Angelica Cuapio, Sonia Villapol

doi: https://doi.org/10.1101/2021.01.27.21250617

80% of all COVID-19 +ve people

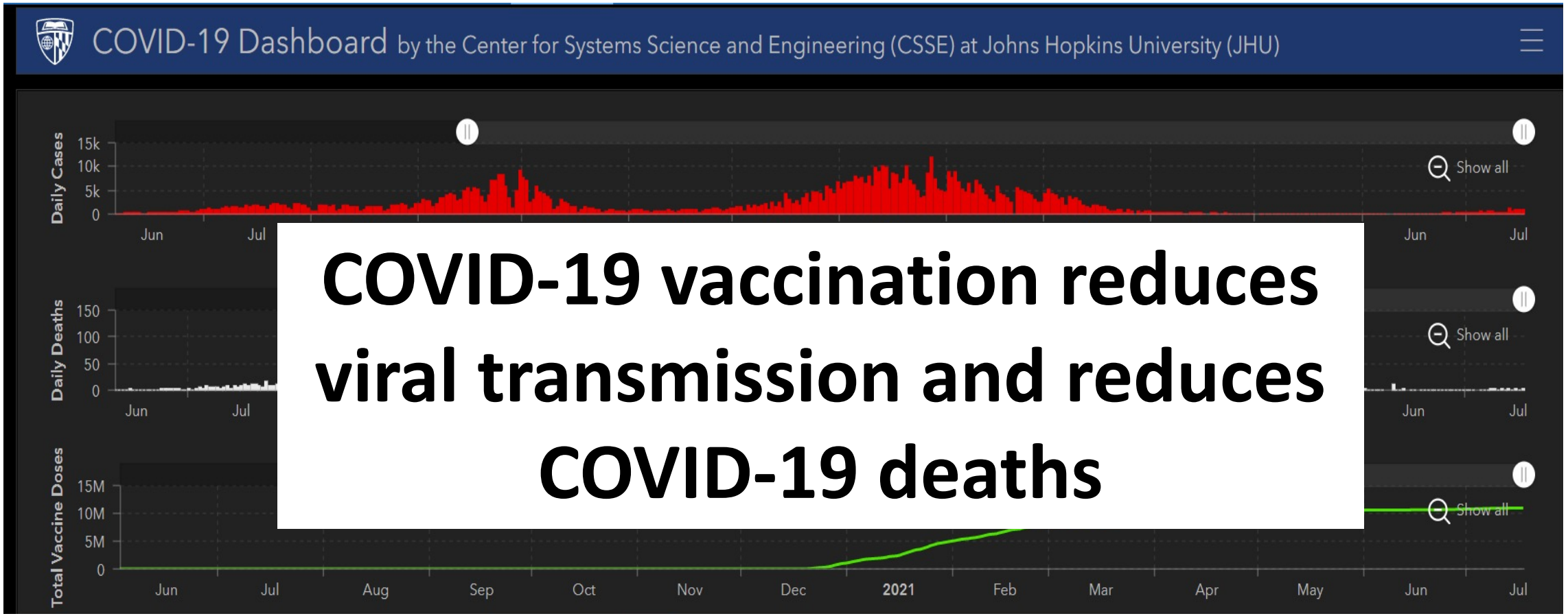
$1.15 billion investment in NIH to address = a future health challenge



What is the impact of vaccination on COVID-19?

A country with high vaccine coverage - Israel totals:

850,968 cases; 6446 deaths; 10.9 million vaccine doses



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https://coronavirus.jhu.edu/map.html Johns Hopkins University & Medicine, Coronavirus Resource Centre

But what about ‘viral variants’?

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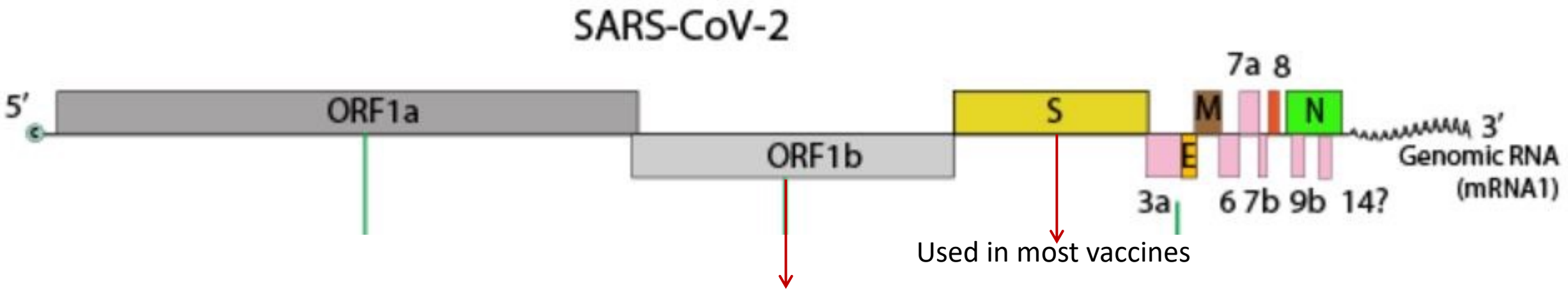
Why do we get SARS-CoV-2 variants?



The ‘copier’ with a built in ‘proof reader’

Sometimes the ‘proof reader’ doesn’t do it’s job properly
= ‘mistakes’ = viral variants

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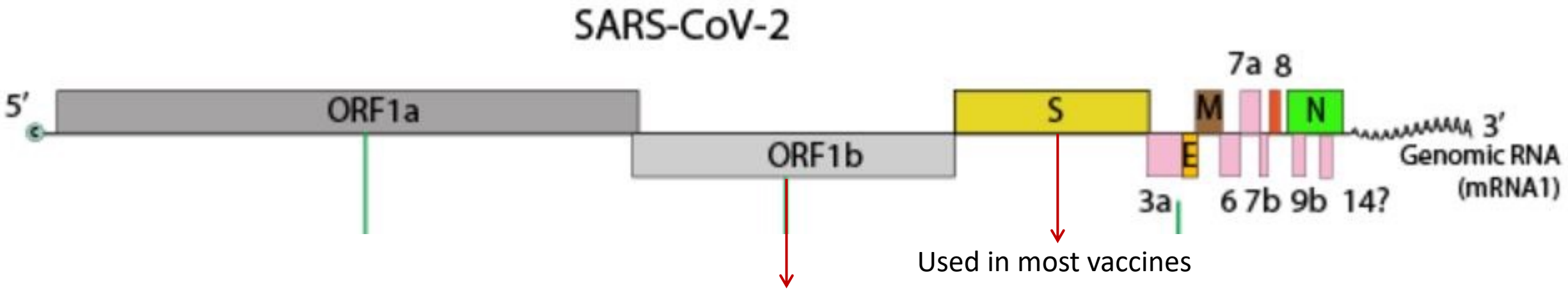
https://viralzone.expasy.org/9076

Are these viral variants always a bad thing?



The ‘copier’ with a built in ‘text editor’

- some variants are ‘defective’ = not infectious; some have no effect
- Some variants have a ‘fitness’ advantage and will ‘outgrow’ others to become the dominant strain a particular setting

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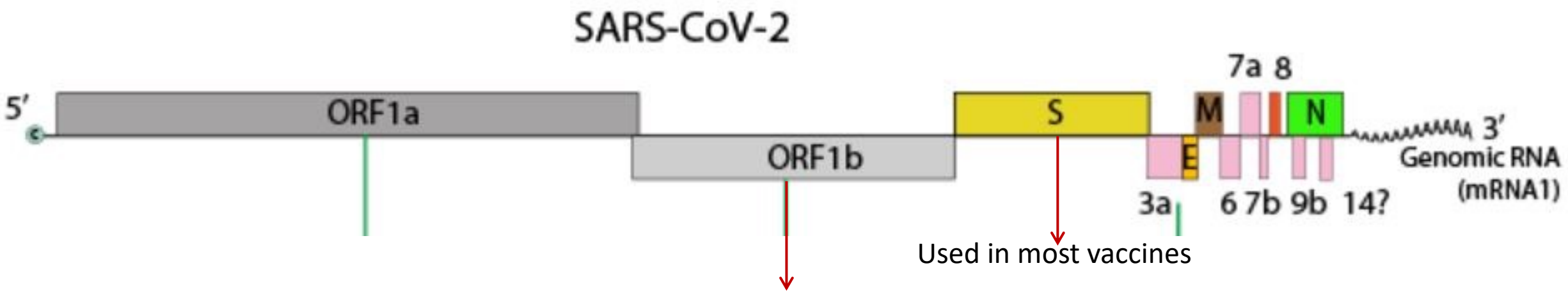
https://viralzone.expasy.org/9076

Why do we see so many viral variants?



The ‘copier’ with a built in ‘text editor’

we ‘see’ more variants because:

(i) there are enormous numbers of infection hence opportunity for the virus to vary

(ii) we are looking

The global scientific community are monitoring viral variants

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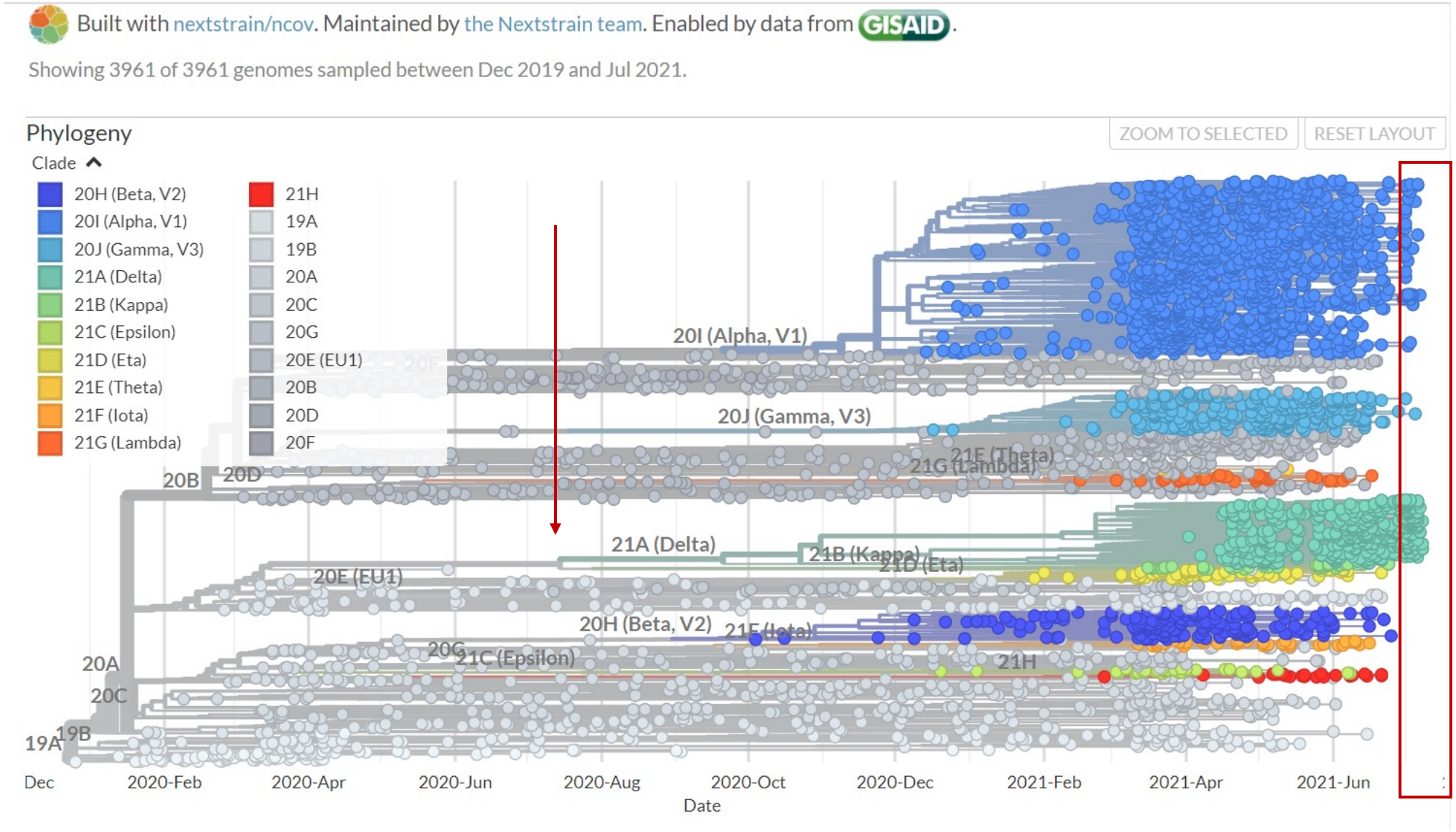
https://viralzone.expasy.org/9076

There are databases to monitor viral variants, based on systems for influenza – GISAID/Nextstrain

https://nextstrain.org/ncov/gisaid



Why are we concerned about particular variants – variants of concern (VOC's)?

Concerns – transmission ? disease severity?

Difficult to delineate in a pandemic setting

what changes are due to the virus and what is due to behaviour, medical practice etc?

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Study of transmission of the delta variant in people in quarantine

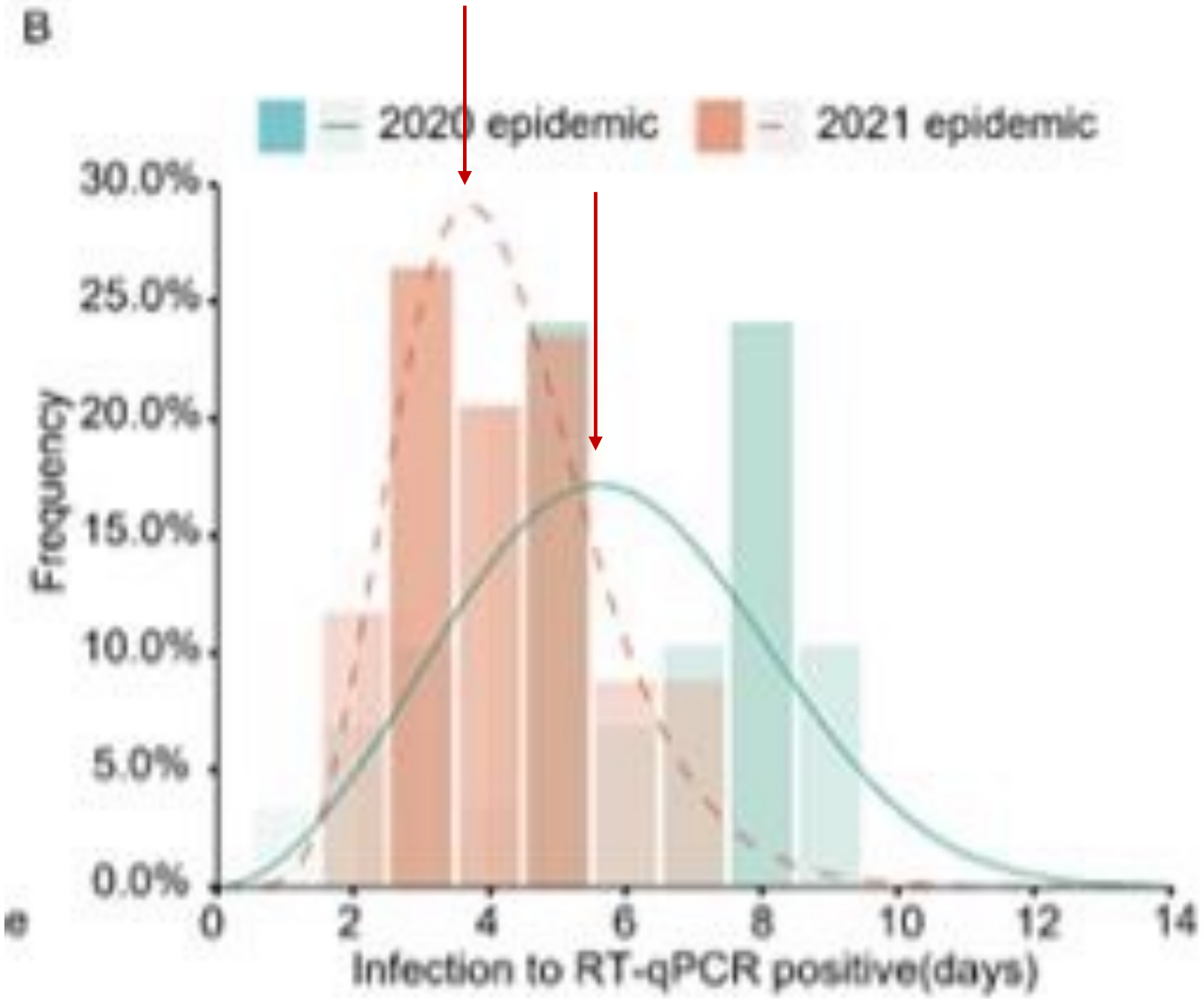
- shorter ‘incubation’ time
- higher viral load in the nose

What might this mean?

Reduced opportunity for asymptomatic spread?

More likely to spread?

Reduced likelihood of severe disease in the lower lung?



Li et al., July 2021
https://virological.org/t/viral-infection-and-transmission-in-a-large-well-traced-outbreak-caused-by-the-delta-sars-cov-2-variant/724

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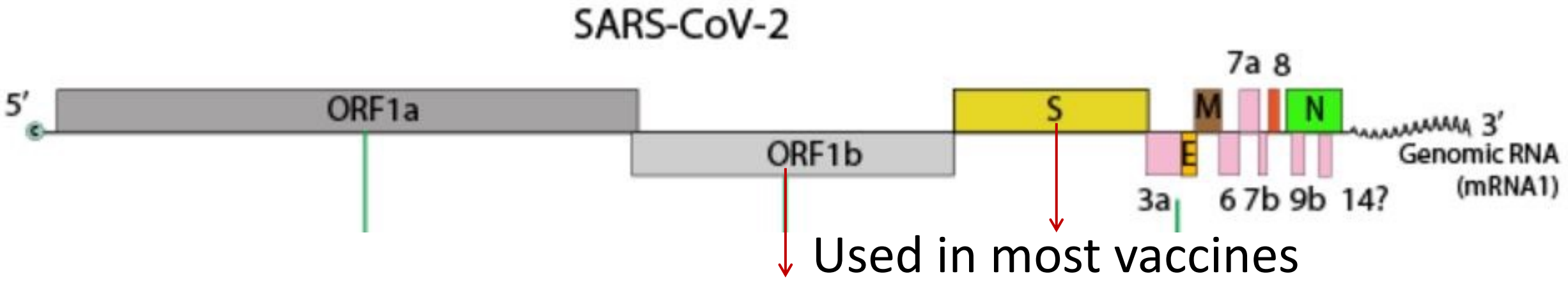
VOC's could impact on our vaccine efficacy

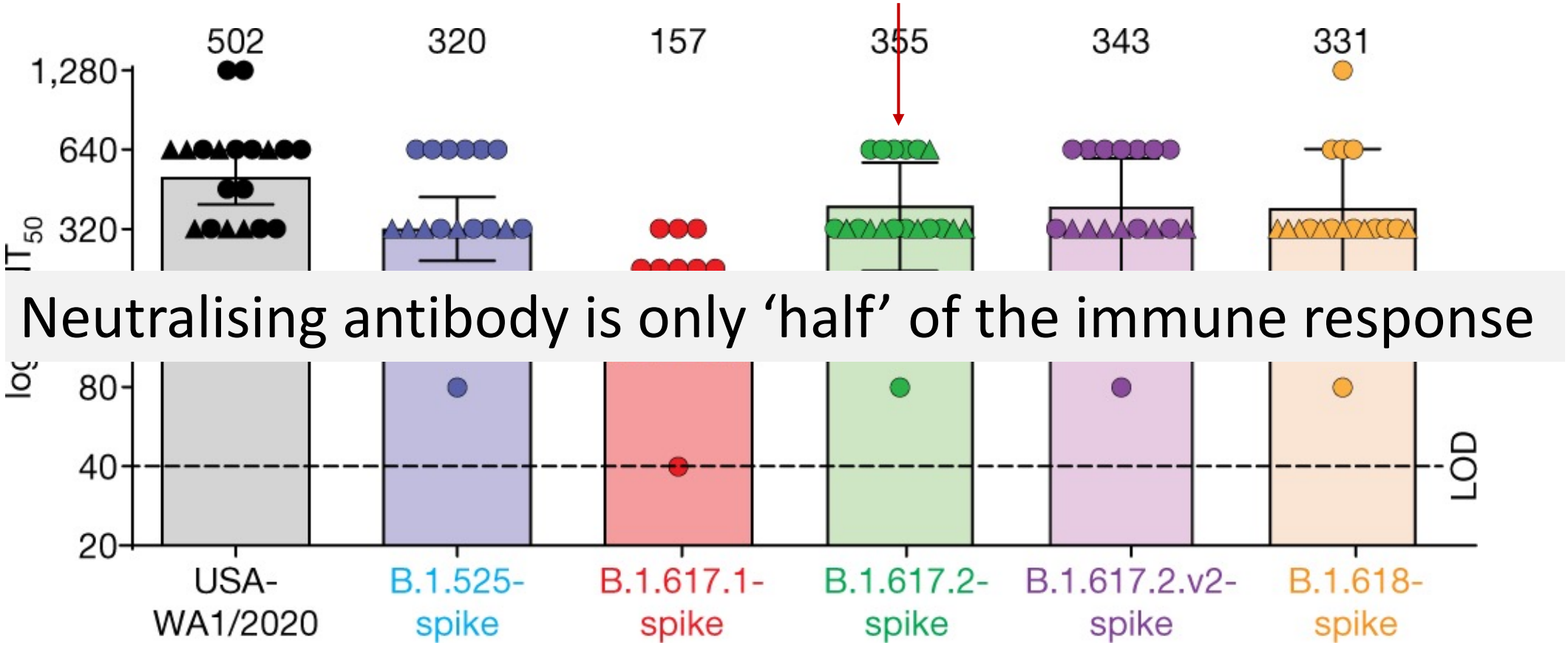


The 'copier' with a built in 'text editor'

Variants in the spike (S) protein – the main target of vaccine strategies are of concern due to the potential for these to evade our immune response

https://viralzone.expasy.org/9076

In the lab: A reduction but still effective ‘neutralisation’ of the Delta variant



Neutralising antibody is only ‘half’ of the immune response

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Liu et al., June 2021, Nature
https://www.nature.com/articles/s41586-021-03693-y

In the community: Still effective protection against the Delta variant; Pfizer/BNT and AstraZeneca comparable

- UK study, 12,365 cases
- No difference in protection against delta variant compared to alpha at first or second dose
- no difference Pfizer vs AstraZeneca

Effectiveness of COVID-19 vaccines against the B.1.617.2 variant

Jamie Lopez Bernal[1,2,3], Nick Andrews[1,2], Charlotte Gower[1], Eileen Gallagher[1], Ruth Simmons[1], Simon Thelwall[1], Julia Stowe[1], Elise Tessier[1], Natalie Groves[1], Gavin Dabrera[1], Richard Myers[1], Colin Campbell[1,2], Gayatri Amirthalingam[1,2], Matt Edmunds[1], Maria Zambon[1,3], Kevin Brown[1,2], Susan Hopkins[1,4], Meera Chand[1,5], Mary Ramsay[1,2]

1. Public Health England, London, United Kingdom
2. NIHR Health Protection Research Unit in Vaccines and Immunisation, London School of Hygiene and Tropical Medicine, London, United Kingdom
3. NIHR Health Protection Research Unit in Respiratory Infections, Imperial College London, United Kingdom
4. Healthcare Associated Infections and Antimicrobial Resistance, University of Oxford, Oxford, UK
5. Guys and St Thomas's Hospital NHS Trust, London, UK

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Bernal et al (MedRxiv) – not peer reviewed yet
https://www.medrxiv.org/content/10.1101/2021.05.22.21257658v1.full.pdf

What's in the future for VOC's and vaccination?

We can expect ongoing antigenic drift of SARS-CoV-2 to generate more variants and VOC's

- We can monitor this and make predictions

At present our vaccines are effective against VOC's but we may need a secondary vaccine or booster strategy in the future

- We are preparing for when/if this is needed

Pfizer/BNT 2nd generation mRNA vaccines & third boost strategy

February 25th https://www.pfizer.com/news/press-release/press-release-detail/pfizer-and-biontech-initiate-study-part-broad-development

July 8th https://cdn.pfizer.com/pfizercom/2021-07/Delta_Variant_Study_Press_Statement_Final_7.8.21.pdf?IPpR1xZjlwvaUMQ9sRn2FkePcBiRPGqw

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Professor Jonathan Craig

Vice-President and Executive Dean

College of Medicine and Public Health

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Audience Questions via Slido

visit Slido.com

Participant Code: **#bravejuly**

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The benefits and adverse effects of vaccination

Why does the health advice keep changing?

How effective are AstraZeneca and Pfizer vaccines for preventing COVID-19?

Is one more effective than the other?

What happens when the dose interval for AZ is shortened?

Does vaccination prevent transmission?

What is the risk of TTS with AstraZeneca?

Can a ‘mixed’ vaccination schedule be used?

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Why does the health advice keep changing?

How effective are AZ and Pfizer vaccines for preventing COVID-19?

Is one more effective than the other?

- The virus keeps changing
- The risk of disease in population groups keeps changing
- Evidence about the vaccines is exploding

→ Changing health advice is ‘healthy’ **but** does create uncertainty

Can a ‘mixed’ vaccination schedule be used?

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March to July

World Health Organization

R&DBlueprint
Powering research to prevent epidemics

February 2021

y of these landscape documents
nted in these landscape documents,
d/or non-infringement of any
f any kind that may arise from or in

300

35%

Clinical trials:

447→ 818

From 3 to 20+ Phase 4 (‘real world’) trials

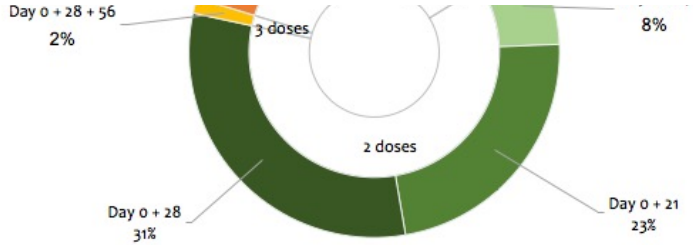
WHO summary:

108 ~~74~~ vaccines in clinical development

182 182 in pre-clinical development

11 ~~10~~ different types of vaccines

3 doses		1	1%
Day 0 + 28 + 56		1	
TBD / No Data (ND)		15	20%
Route of administration			
Oral		2	3%
Injectable		62	84%
SC	Sub cutaneous	2	3%
ID	Intra dermal	3	4%
IM	Intra muscular	57	77%
TBD / No Data (ND)		10	14%



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Can a ‘mixed’ vaccination schedule be used?

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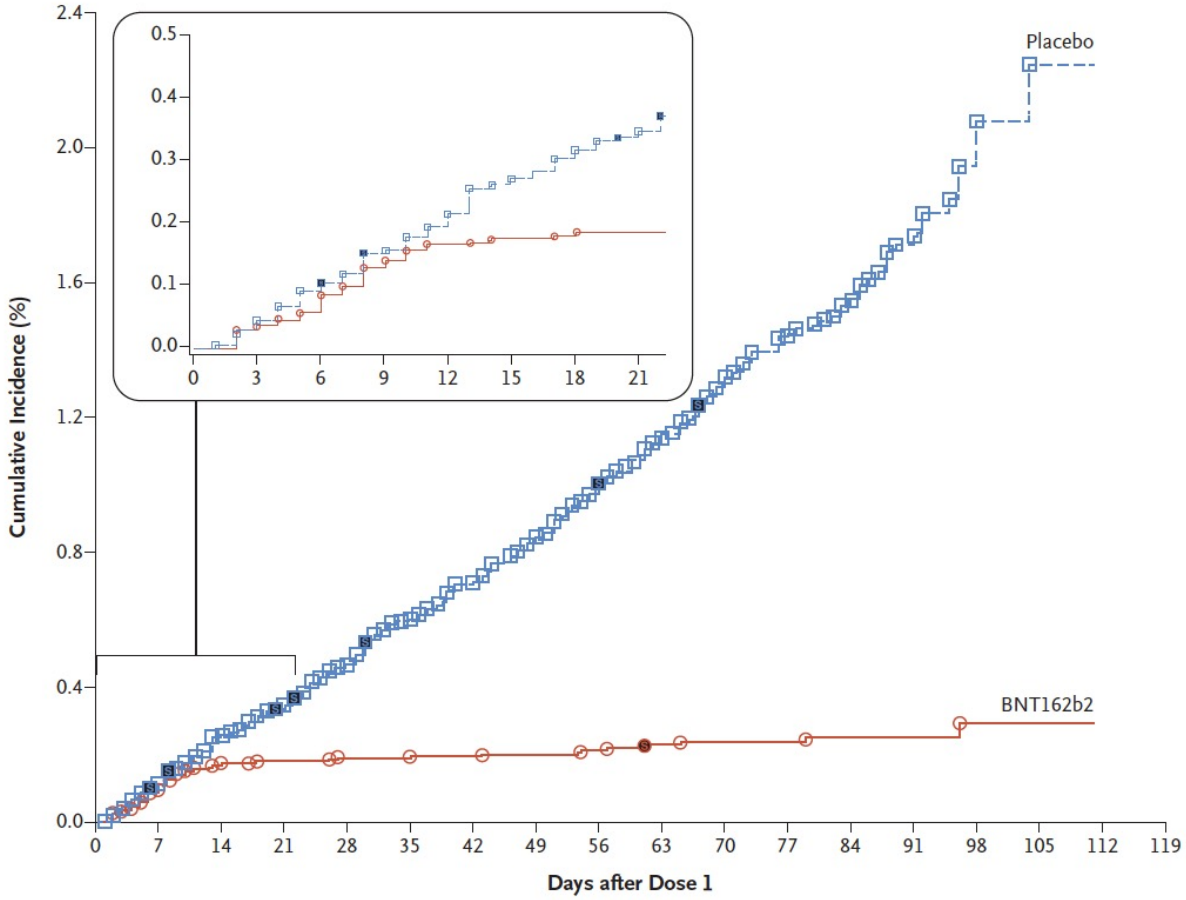
Pfizer

Benefit after 1st dose from day 10 (VE 82%)

Increases to 95% after second dose, from day 7

Maybe as low as 90% or as high as 98%

N Engl J Med 2020;383:2603-15.
DOI: 10.1056/NEJMoa2034577



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)

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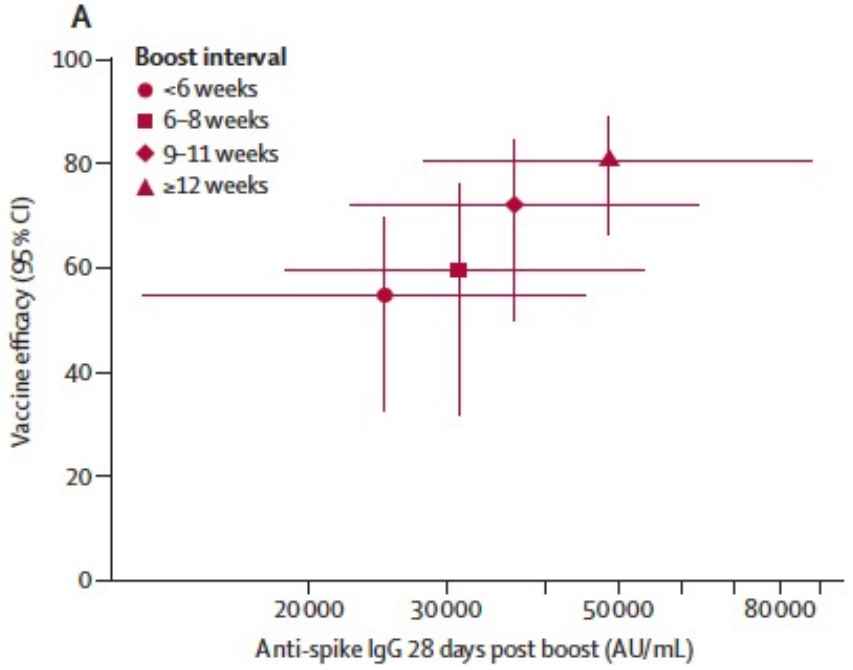
AstraZeneca – more complex

Published Online
February 19, 2021
https://doi.org/10.1016/
S0140-6736(21)00432-3

Prime-boost interval (two standard doses or low dose plus standard dose)				
<6 weeks	111	35/3905 (0·9%)	76/3871 (2·0%)	55·1% (33·0 to 69·9)
6–8 weeks	64	20/1124 (1·8%)	44/1023 (4·3%)	59·7% (31·7 to 76·3)
9–11 weeks	66	14/1530 (0·9%)	52/1594 (3·3%)	72·2% (50·0 to 84·6)
≥12 weeks	91	15/2038 (0·7%)	76/2093 (3·6%)	80·0% (65·2 to 88·5)

- Efficacy increases from 55% if booster given at < 6 weeks to 80% at 12+ weeks
- Could be as low as 65% or as high as 89%

- We do not have a 'head to head' trial
- Different populations/healthcare systems



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Whole of Israel study (Pfizer - mRNA)

	Population	Fully vaccinated*
Age-groups, years		
16–44	3 646 848	2 290 820 (62·8%)
45–64	1 764 098	1 408 492 (79·8%)
≥65	1 127 965	1 015 620 (90·0%)
Sex†		
Female	3 337 693	2 398 547 (71·9%)
Male	3 201 218	2 310 788 (72·2%)

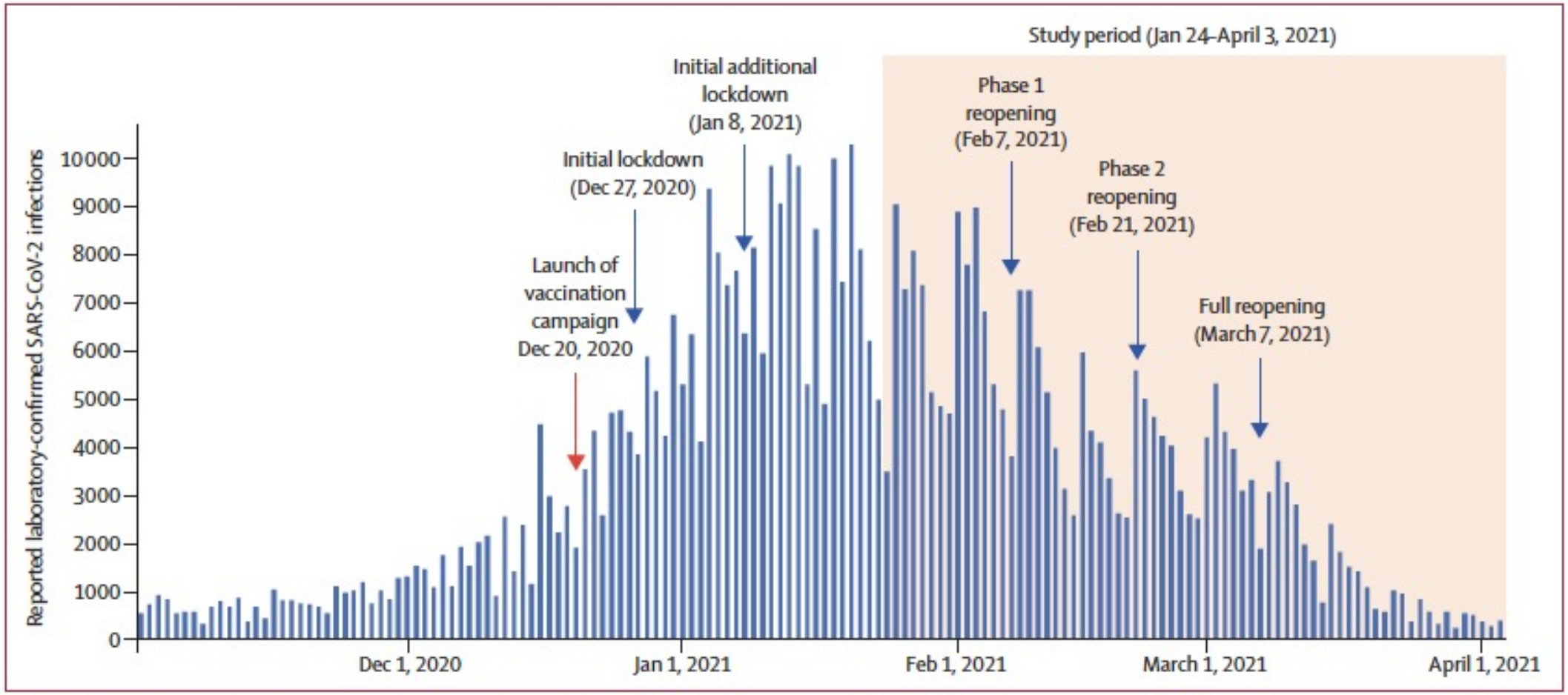

Figure 1: **Daily laboratory-confirmed SARS-CoV-2 infections in Israel (Nov 1, 2020, to April 3, 2021)**

Lancet 2021; 397: 1819–29

Published Online May 5, 2021

92-97% reduction in

- Overall SARS-CoV-2 infection
- Asymptomatic infection
- Hospitalisation
- Death
- Across all ages
- Population level benefit
- Not 100%, but close to it

	Unvaccinated		Fully vaccinated*		Vaccine effectiveness	
	Cases	Incidence rate per 100 000 person-days†	Cases	Incidence rate per 100 000 person-days‡	Unadjusted	Adjusted§
SARS-CoV-2 infection¶						
Age 16–44 years	84 611	95·1	1801	2·3	95·4% (94·0–96·5)	96·1% (95·7–96·5)
Age 45–64 years	19 579	86·1	2264	3·4	93·6% (91·4–95·3)	94·9% (94·2–95·5)
Age ≥65 years	5686	67·7	2201	3·8	93·4% (91·3–95·0)	94·8% (93·9–95·5)
All ages	109 876	91·5	6266	3·1	94·2% (93·2–95·1)	95·3% (94·9–95·7)
Asymptomatic SARS-CoV-2 infection						
Age 16–44 years	40 088	45·1	1174	1·5	92·8% (90·3–94·7)	93·6% (92·8–94·4)
Age 45–64 years	7414	32·6	1343	2·0	89·1% (84·7–92·3)	90·8% (89·6–91·9)
Age ≥65 years	1636	19·5	1115	1·9	85·9% (80·2–89·9)	88·5% (86·4–90·3)
All ages	49 138	40·9	3632	1·8	90·1% (88·0–91·8)	91·5% (90·7–92·2)
Symptomatic COVID-19						
Age 16–44 years	28 196	31·7	352	0·5	97·8% (97·0–98·3)	97·6% (97·3–97·8)
Age 45–64 years	7790	34·3	560	0·8	96·3% (95·0–97·3)	96·7% (96·3–97·0)
Age ≥65 years	3079	36·6	780	1·4	96·1% (94·8–97·1)	96·4% (95·9–97·0)
All ages	39 065	32·5	1692	0·8	96·6% (95·8–97·2)	97·0% (96·7–97·2)
COVID-19-related hospitalisation						
Age 16–44 years	2043	2·3	33	<0·1	98·1% (97·1–98·8)	98·1% (97·3–98·7)
Age 45–64 years	1687	7·4	112	0·2	97·6% (96·9–98·2)	97·6% (97·1–98·1)
Age ≥65 years	1826	21·7	451	0·8	96·6% (95·3–97·6)	96·8% (96·2–97·3)
All ages	5526	4·6	596	0·3	96·7% (95·5–97·6)	97·2% (96·8–97·5)
Severe or critical COVID-19-related hospitalisation						
Age 16–44 years	644	0·7	7	0·01	98·8% (97·3–99·5)	98·9% (97·6–99·5)
Age 45–64 years	1132	5·0	62	0·1	98·1% (97·2–98·6)	98·1% (97·5–98·5)
Age ≥65 years	1425	17·0	295	0·5	97·2% (95·9–98·1)	97·3% (96·8–97·8)
All ages	3201	2·7	364	0·2	97·2% (95·9–98·1)	97·5% (97·1–97·8)
COVID-19-related death						
Age 16–44 years	36	0·04	0	0·0	100	100
Age 45–64 years	125	0·5	14	<0·1	96·2% (92·6–98·0)	95·8% (92·6–97·6)
Age ≥65 years	554	6·6	124	0·2	96·8% (94·6–98·1)	96·9% (96·0–97·6)
All ages	715	0·6	138	0·1	96·6% (93·9–98·1)	96·7% (96·0–97·3)

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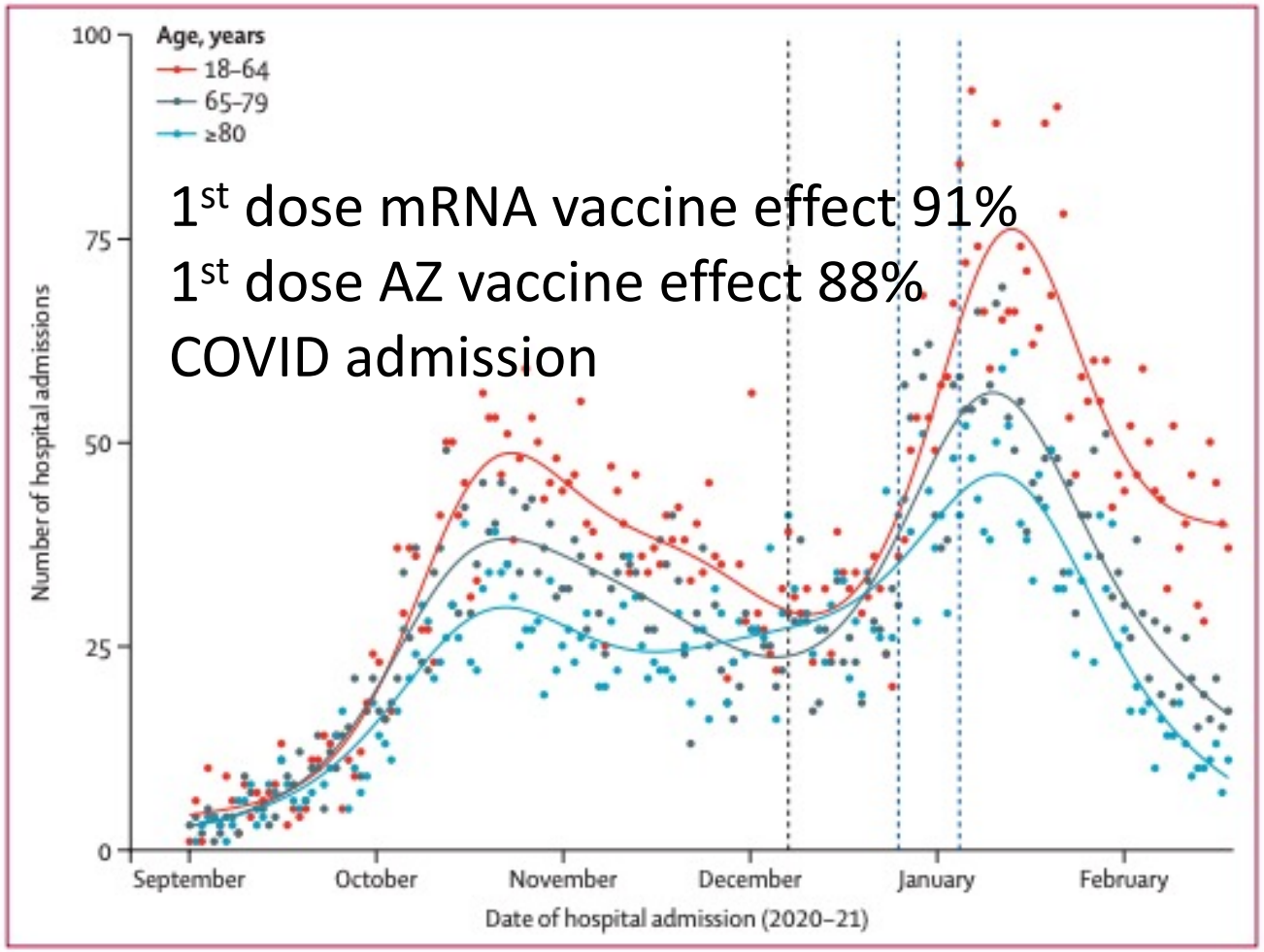
Whole of Scotland study

Lancet 2021; 397: 1646–57
Published Online
April 23, 2021



1st dose mRNA vaccine effect 91%
1st dose AZ vaccine effect 88%
COVID admission

***Figure 3*: COVID-19 hospital admissions by age group from September, 2020, to February, 2021**
The black dotted vertical line represents the start of vaccination (Dec 8, 2020) and the blue dotted lines represent the two lockdowns on Dec 26, 2020, and Jan 5, 2021. The smooth lines are obtained from fitting a generalised additive Poisson model to the admissions.

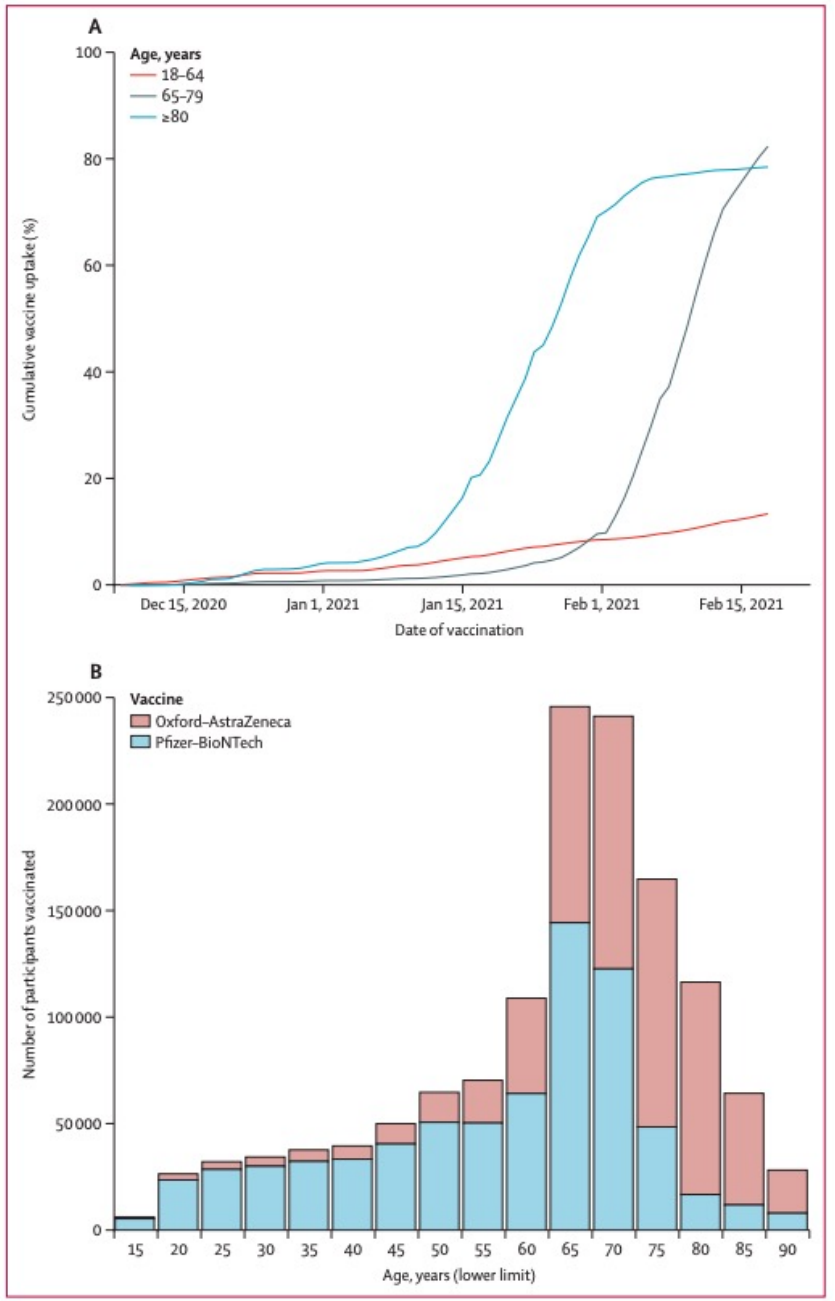


***Figure 1*: COVID-19 vaccine uptake**
(A) Uptake over time by age group. (B) Uptake by age and vaccine type.

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Can a ‘mixed’ vaccination schedule be used?

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TTS – thrombosis with thrombocytopenia (VITT or VIPIT)

- Thrombosis = clot in a blood vessel, occurs in an unusual location
- Thrombocytopenia = low platelets (blood cells which help blood clot by clumping in blood vessels)
- Antibody against PF4 (platelet factor 4), which “activates” platelets
- Associated with two viral vector vaccines (AZ and Janssen)

Risk of TTS (TGA and ATAGI)

Age bracket (years)	Estimated rate (per 100,000 AZ vaccinations)	
<50	3.3	1 in 30,000
50-59	2.5	1 in 40,000
60-69	1.5	1 in 67,000
70-79	1.8	1 in 56,000
≥80	1.8	1 in 56,000

- 83 cases from 5.4M doses – 32,129
- Median time 12 days (1-54)
- 24 treated in ICU – 29 COVID19 (now)
- 3 deaths - 915 COVID19 (total)

- Very very low risk
- Every intervention has adverse events
- We don't comprehend very low risk easily
- We put more weight on events that happen now than in the future

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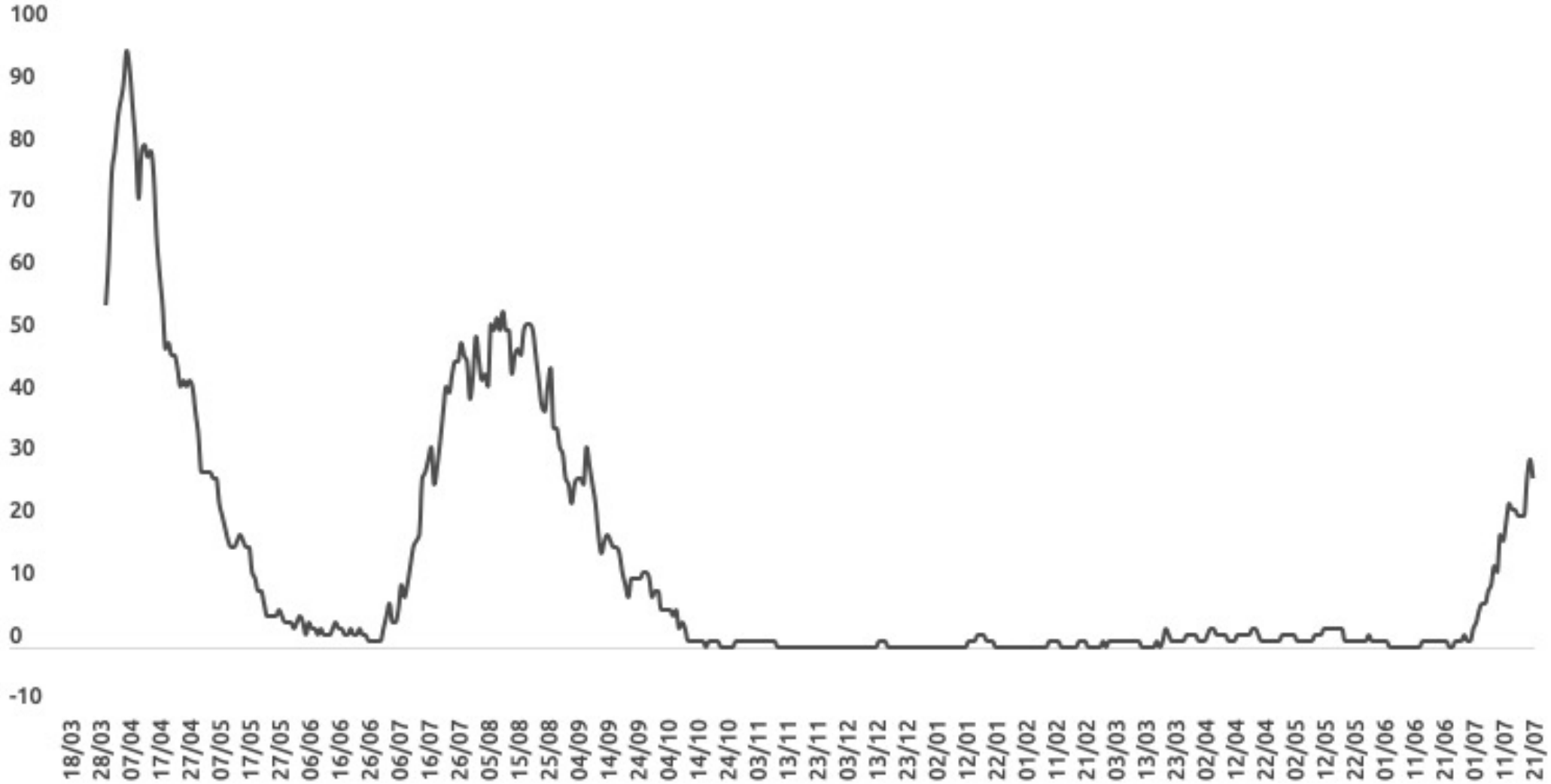
https://www.tga.gov.au/periodic/covid-19-vaccine-weekly-safety-report-15-07-2021
https://www.health.gov.au/news/atagi-statement-on-use-of-covid-19-vaccines-in-an-outbreak-setting

Total cases of COVID19 in ICU over time



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Heterologous vaccination (AZ → Pfizer)

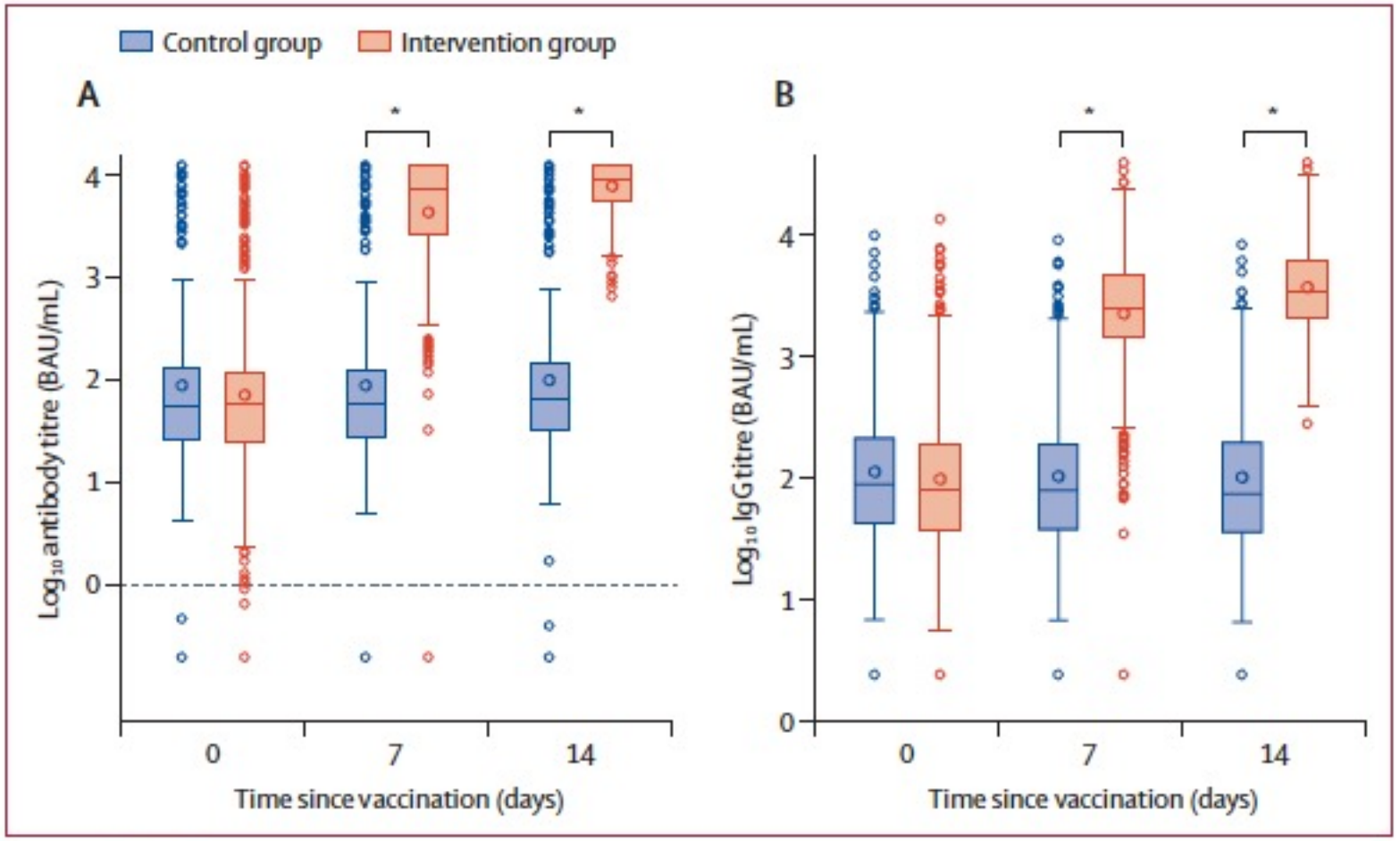

Figure 2: **Antibody titres**
Receptor-binding domain (anti-spike protein) antibody titres (A), and trimeric spike protein antibody titres (B), measured in both intervention and control groups on days 0, 7, and 14. *p<0·0001.

- Good antibody response
- Small (n = 676)
- Antibody only
- Did not compare against booster with AZ
- Relevant if unable to receive second AZ
- Not recommended in Australia (to date)

Lancet 2021; 398: 121–30
Published Online
June 25, 2021

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COVID-19 vaccinations

- In Australia, two vaccines: AstraZeneca (AZ) and Pfizer
- Prevention of severe illness
- TGA approve medicines & vaccines
- ATAGI make recommendations for administering vaccines

Understanding risk

- Every therapeutic agent (e.g., a vaccine or medicine) carries a risk of unintended consequences (e.g., side effects)
- Probability of a side effect + severity of the resulting harm
- Subjective perceptions of risk

How do we assess risk and benefits of the vaccine?

1. What are your chances of getting sick from COVID-19 without the vaccine, and from that, what **benefit** does the vaccine offer to you in preventing severe disease?
2. What are the **risks** or chances of experiencing side effects or complications if you have the vaccine?

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https://www.science.org.au/curious/people-medicine/should-i-get-covid-19-vaccine-how-weigh-your-risks-and-benefits

What are the risks of the vaccine?

Both vaccines carry risk of mild side effects, allergic reactions

- **AZ serious effects**
  Thrombosis with Thrombocytopenia Syndrome (TTS)
  'Suspected': Immune Thrombocytopenia (IT) Guillain Barre Syndrome

- **Pfizer serious effects**
  'Suspected': Myocarditis and pericarditis

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https://www.tga.gov.au/periodic/covid-19-vaccine-weekly-safety-report-15-07-2021

In summary, in Australia

10 million vaccine doses (almost 6 million AZ)

- TTS: 83 confirmed or probable cases (3 deaths)
- ITP: 31 ‘suspected’ cases
- GBS: 52 ‘suspected’ cases
- Myocarditis/pericarditis (Pfizer): 50 ‘suspected’ cases

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https://www.health.gov.au/initiatives-and-programs/covid-19-vaccines
https://www.tga.gov.au/periodic/covid-19-vaccine-weekly-safety-report-15-07-2021

What are the benefits of the vaccine?

- Main benefit is protection against COVID-19
- In Australia – total 32,017 cases of COVID-19 and 914 deaths (18 July)
- Other poor outcomes of COVID-19 include hospitalisations, ICU, “long COVID”

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https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/coronavirus-covid-19-case-numbers-and-statistics

Current outbreak in Australia (18 July)

- Total cases: 1,360
- Hospitalised: 128
- ICU: 21
- Ventilated: 7
- Deaths: 5

https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/coronavirus-covid-19-case-numbers-and-statistics
https://www.covid19data.com.au/hospitalisations-icu

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Potential benefits change according to:

- How likely you are to be exposed to the virus
- How likely you are to have a poor outcome if you are exposed (affected by age and health)

https://wintoncentre.maths.cam.ac.uk/news/communicating-potential-benefits-and-harms-astra-zeneca-covid-19-vaccine/

Potential benefits and harms of COVID-19 Vaccine AstraZeneca

Rates of blood clots (TTS) are based on Australian data as at 16 June 2021.

Scenario 1: Low exposure risk – infection rate similar to first wave of COVID-19 in Australia (29 infections per 100,000 people in a 16-week period)

For every 100,000 people vaccinated				
Age group	**Cases of TTS due to COVID-19 Vaccine AstraZeneca**	**Hospitalisations prevented**	**ICU admissions prevented**	**Deaths prevented**
18–29 years	1.9[a]	1.0	0.1	0.0
30–39 years	1.6[a]	1.9	0.5	0.0
40–49 years	5.0[a]	2.6	0.8	0.0
50–59 years	2.7	4.6	1.4	0.1
60–69 years	1.4	7.2	2.1	0.4
70–79 years	1.8	8.8	3.4	1.5
≥80 years	1.9	11.5	1.6	6.2

TTS = thrombosis with thrombocytopenia syndrome

a Estimates of risk are uncertain as rates are based on small numbers of vaccinations in people under 50 in Australia.

Note: Potential benefits calculated from confirmed data from ACT, NSW, Tasmania and Victoria.

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https://www.health.gov.au/sites/default/files/documents/2021/06/covid-19-vaccination-weighing-up-the-potential-benefits-against-risk-of-harm-from-covid-19-vaccine-astrazeneca_2.pdf

Scenario 2: Medium exposure risk – infection rate similar to second wave of COVID-19 in Victoria (275 per 100,000 people in a 16-week period)

For every 100,000 people vaccinated				
Age group	**Cases of TTS due to COVID-19 Vaccine AstraZeneca**	**Hospitalisations prevented**	**ICU admissions prevented**	**Deaths prevented**
18–29 years	1.9[a]	10.6	1.3	0.1
30–39 years	1.6[a]	10.7	1.2	0.2
40–49 years	5.0[a]	16.7	2.6	0.1
50–59 years	2.7	24.3	6.5	1.3
60–69 years	1.4	30.4	7.0	3.0
70–79 years	1.8	63.1	8.6	21.4
≥80 years	1.9	260.5	5.2	183.6

TTS = thrombosis with thrombocytopenia syndrome

a Estimates of risk are uncertain as rates are based on small numbers of vaccinations in people under 50 in Australia.

Note: Potential benefits calculated from confirmed data from Victoria.

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Scenario 3: High exposure risk – infection rate based on data from Europe in January 2021 (3,544 infections per 100,000 people in a 16-week period)

For every 100,000 people vaccinated				
Age group	**Cases of TTS due to COVID-19 Vaccine AstraZeneca**	**Hospitalisations prevented**	**ICU admissions prevented**	**Deaths prevented**
18–29 years	1.9[a]	64	6	0
30–39 years	1.6[a]	81	8	3
40–49 years	5.0[a]	122	15	10
50–59 years	2.7	208	28	14
60–69 years	1.4	324	50	45
70–79 years	1.8	547	78	172
≥80 years	1.9	1239	110	733

TTS = thrombosis with thrombocytopenia syndrome

a Estimates of risk are uncertain as rates are based on small numbers of vaccinations in people under 50 in Australia.

Note: Potential benefits calculated from confirmed data from Europe.

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Current ATAGI recommendations (13 July)

- The benefits to people aged 60 + of being vaccinated with the AZ vaccine strongly outweigh the risks – and that vaccination is essential for this group in the context of an outbreak.

- Recommends the Pfizer vaccine is the preferred vaccine for those aged 16 to 59 years, but the AZ vaccine can be provided to people aged 18 to 59 years of age.

- In the context of a COVID-19 outbreak where the supply of Pfizer is constrained, adults younger than 60 years old who do not have immediate access to Pfizer should re-assess the benefits to them and their contacts from being vaccinated with AstraZeneca, versus the rare risk of a serious side effect.

https://www.health.gov.au/news/atagi-statement-on-use-of-covid-19-vaccines-in-an-outbreak- setting

Conclusions

- Two vaccines to protect against serious illness and death due to COVID-19 are available
- Common vaccine side effects are mild and serious effects are rare
- Assessment of risks and benefits needs to be discussed for individual circumstances
- Re-assessment of risks and benefits required in changing circumstances (eg, outbreaks, new variants)

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Good resources and information

- Weekly ATAGI report: https://www.tga.gov.au/periodic/covid-19-vaccine-weekly-safety-report-15-07-2021
- ATAGI current recommendations: https://www.health.gov.au/news/atagi-statement-on-use-of-covid-19-vaccines-in-an-outbreak-setting
- Risk benefit assessment tool for AstraZeneca: https://www.health.gov.au/sites/default/files/documents/2021/06/covid-19-vaccination-weighing-up-the-potential-benefits-against-risk-of-harm-from-covid-19-vaccine-astrazeneca_2.pdf

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The University of Sydney

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COVID-19 vaccine decision making

Professor Julie Leask

Susan Wakil School of Nursing and Midwifery,

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Visiting Fellow, National Centre for Immunisation Research and Surveillance

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BRAVE | For the greater good - Part 2
Flinders University 21 July 2021

Outline

- Making quality personal decisions
- Helping others make decisions

Re-generation, Haystack Ridge Dharug Country, Blue Mountains, July 2020. J Leask

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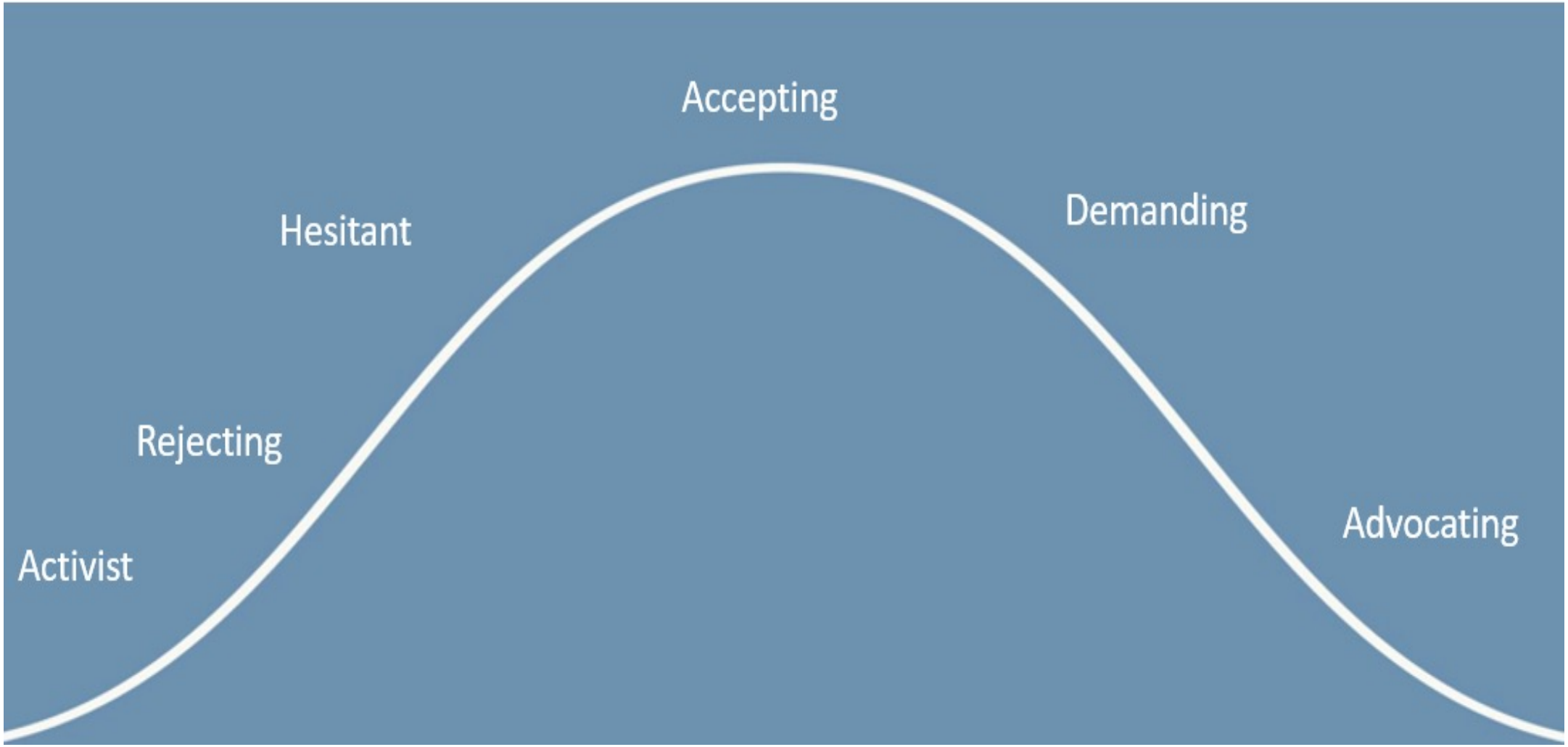
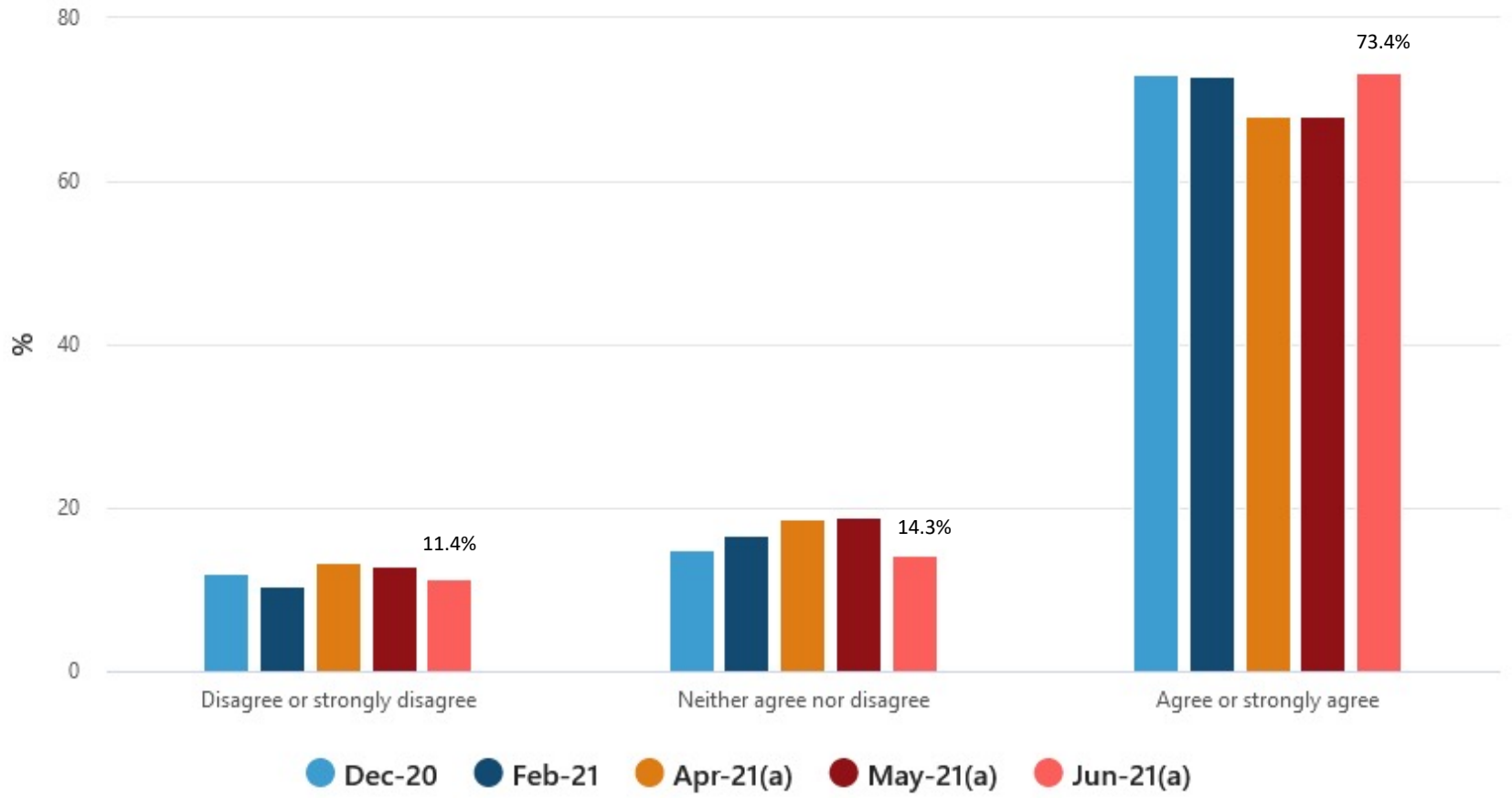
Range of vaccination positions

Source: Covid-19 vaccines: safety surveillance manual communication module
https://www.who.int/publications/i/item/10665338400



Vaccine intentions

Persons aged 18 years and over, whether would get a COVID-19 vaccine when it becomes available and is recommended, by time of reporting



a. In April, May and June 2021 respondents who indicated they already had a COVID-19 vaccination were coded as 'strongly agree'

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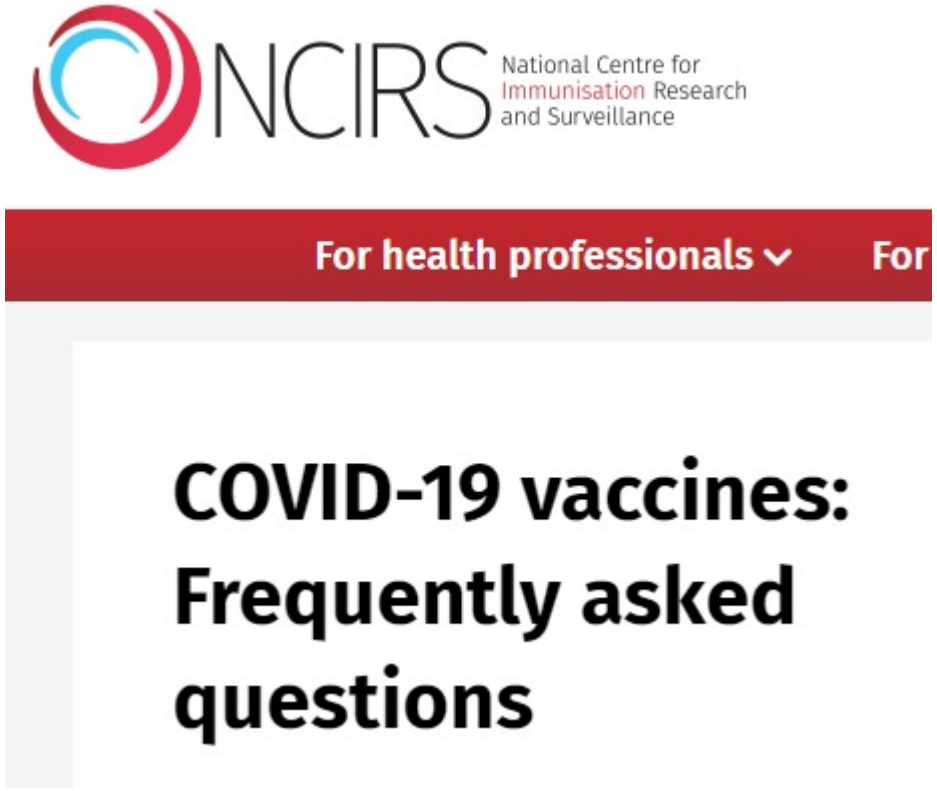
Attitudes about COVID-19 vaccines, Household Impacts of COVID-19 Survey, June 2021
https://www.abs.gov.au/statistics/people/people-and-communities/household-impacts-covid-19-survey/latest-release

Specific concerns at present

- Wanting a choice of vaccine
- Being concerned about COVID
- Common side effects and managing time off
- Protection from variants
- Vaccine interactions with pre-existing conditions
- Risk of TTS – 10% waiting for Pfizer
- mRNA vaccine concerns



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https://www.ncirs.org.au/covid-19/covid-19-vaccines-frequently-asked-questions

Making quality personal decisions

What does a quality vaccination decision look like?

- What is being recommended to me?
- What disease is being prevented?
- What are my options?
- What are the benefits and harms of each option?
- What do I value?

BING GUAN / BLOOMBERG VIA GETTY IMAGES

https://fivethirtyeight.com/features/the-ethical-dilemmas-prompted-by-the-vaccine-rollout/

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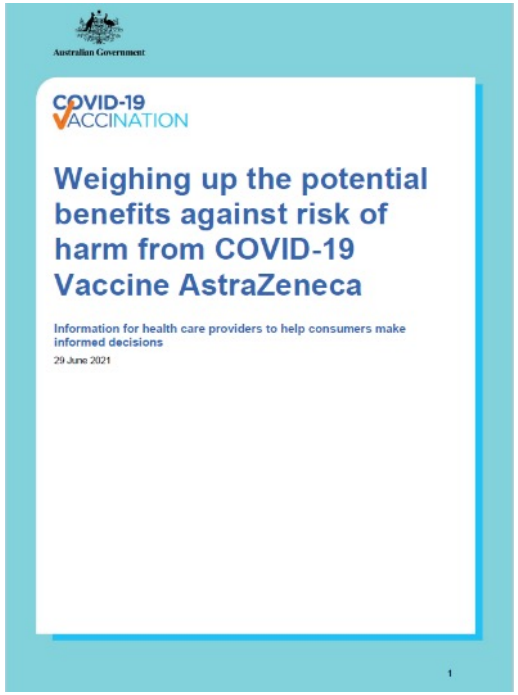
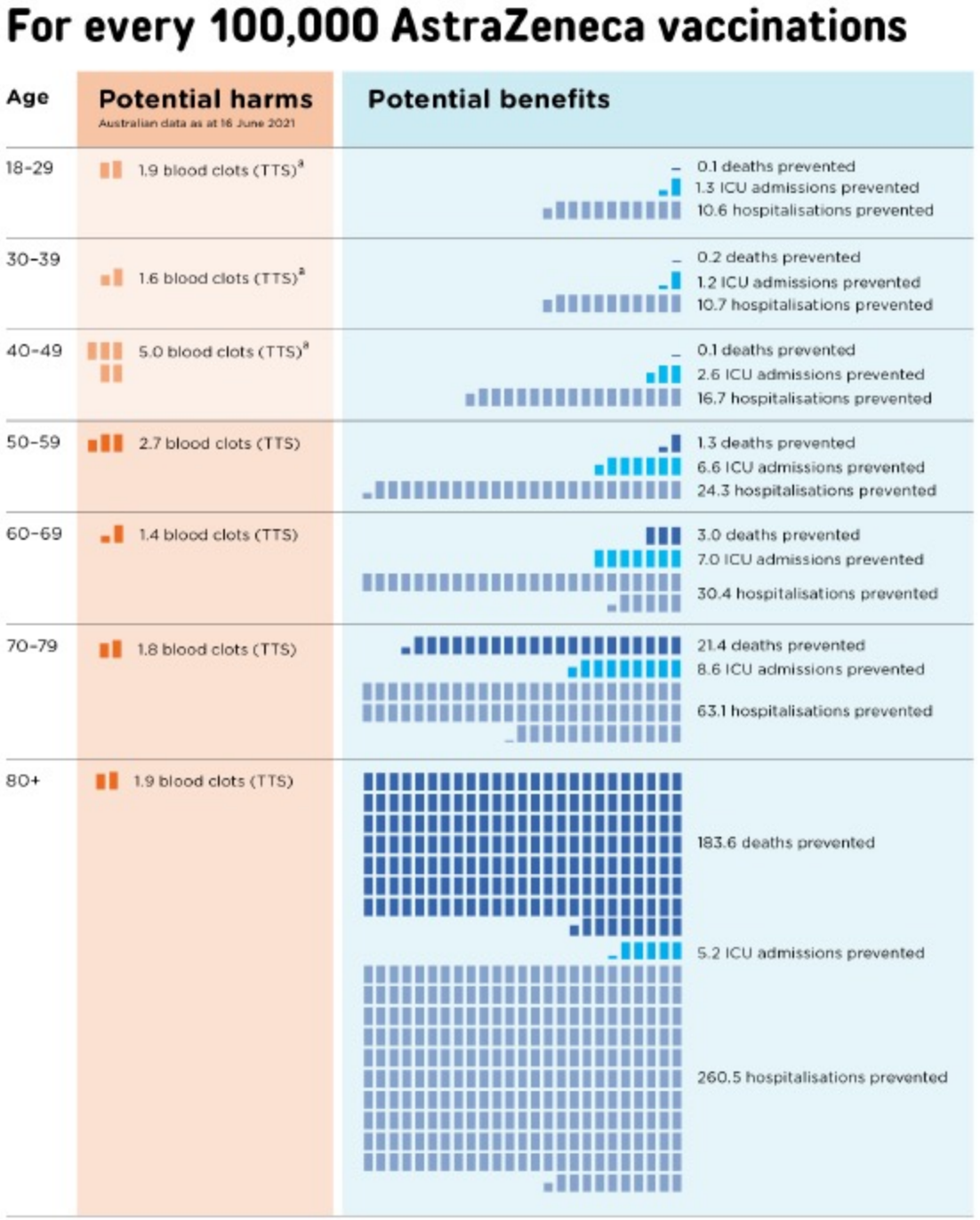
Weighing clinical probabilities



https://www.health.gov.au/resources/publications/covid-19-vaccination-weighing-up-the-potential-benefits-against-risk-of-harm-from-covid-19-vaccine-astrazeneca



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Should I have the COVID-19 AstraZeneca vaccine?

A COVID-19 vaccine was developed by AstraZeneca™ and Oxford University. It is approved for use in Australia. This leaflet answers some questions about the AstraZeneca vaccine. It is meant for use during a visit with your health professional. It is based on the latest research and will be updated as necessary. There is more detailed information at www.health.gov.au

What is involved in getting the AstraZeneca vaccine?

Getting the AstraZeneca vaccine involves having an injection in your arm two times, about 12 weeks apart. The person giving the vaccine must record it on the Australian Immunisation Register. You can access your immunisation record through Medicare, myGov, or your GP.

What are your options?

You can't usually choose which COVID-19 vaccine you are offered. If you are offered the AstraZeneca vaccine, you can choose to **have it** or **not have it**. It is safe to have the vaccine if you have had COVID-19 and it may make you less likely to get it again.

Who should not have the AstraZeneca vaccine?

You should NOT have the AstraZeneca vaccine if you:

- are currently unwell, especially if you have a fever,
- are under 18 years (this may change once there is more research),
- have had another vaccine (for example, the flu shot) in the past two weeks,
- have had allergen immunotherapy or venom immunotherapy injections in the past 48 hours,
- have a history of heparin-induced thrombocytopenia syndrome (HITS), or
- have a history of cerebral venous sinus thrombosis (CVST)

If you are under 50 years, the Pfizer COVID-19 vaccine is preferred. If the Pfizer vaccine is not available, you may wish to talk with your doctor about whether to have the AstraZeneca vaccine.

About this leaflet

This leaflet was prepared by Professor Lyndal Trevena from the 'Ask Share Know' (ASK) NHMRC Centre of Research Excellence.

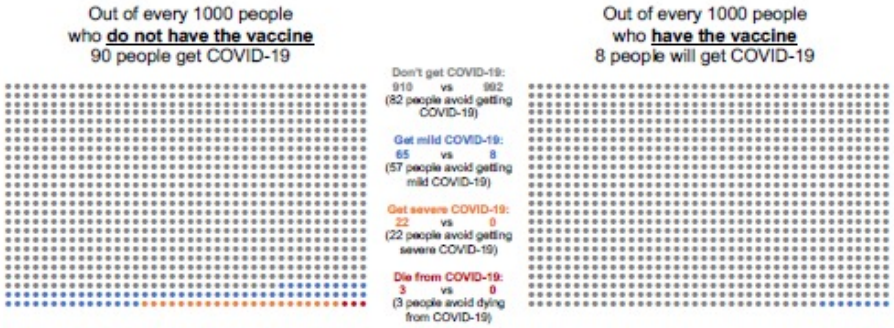
It is based on the following research paper: Voysey M et al. Safety and efficacy of the ChAdOx1 nCoV-19 vaccine (AZD1222) against SARS-CoV-2: an interim analysis of four randomised controlled trials in Brazil, South Africa, and the UK. The Lancet 2021; 397:99-111

Version: 27 April 2021

https://askshareknow.com.au/resources/immunisation/covid19vaccination/

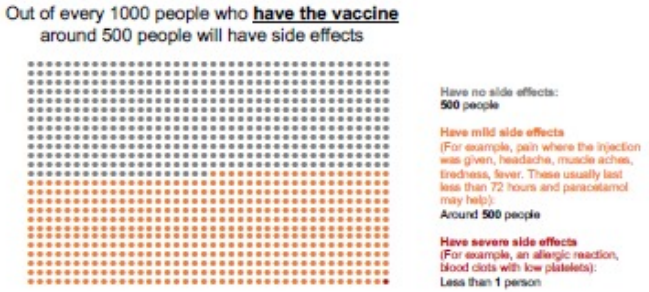
What are the benefits of the AstraZeneca vaccine?

The benefits of vaccines depend on how much COVID-19 there is in Australia. We can never be sure about the size of future COVID-19 outbreaks. The numbers below give an idea of the benefits of the AstraZeneca vaccine when there is a large outbreak (similar to the USA in 2020).



What are the side effects of the AstraZeneca vaccine?

The numbers below give an idea of the side effects of the AstraZeneca vaccine.



What is most important to you?

To help you decide, you can tick the boxes you think are important and/or add your own reasons.

For getting the vaccine:	Against getting the vaccine:
☐ Avoiding getting COVID-19 myself	☐ Avoiding vaccine side effects
☐ Helping others to avoid getting COVID-19	☐ Other reasons:
☐ Helping to reduce the need for restrictions (for example, border closures, lockdowns, masks)	
☐ Other reasons:	

Youtube explainer https://youtu.be/wScGUNSkLZA

Don't vaccinate now	Vaccinate now
Serious side effect	COVID-19 impacts
Worry	Protecting others
Inconvenience	Certain freedoms

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Reflect on your mental shortcuts - heuristics

- Compression – overestimating low probability outcomes
- Availability – greater weighting to rare serious outcomes when they are highly publicised
- Anticipated regret – avoid taking a course of action in anticipation of a negative emotion from an outcome
- Omission bias – accept a higher risk from doing nothing than a lower risk from an action
- Ambiguity aversion – avoiding a risk when the outcome is uncertain

Worried about AstraZeneca? Me too. The way we think about risk might be the problem

By Liam Mannix
July 20, 2021 — 7.45pm

Save | Share | A A A | 106 View all comments

For our free coronavirus pandemic coverage, learn more here.

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My vaccination decision

- Public good
- Feeling grateful for any vaccine
- Waking the talk
- Trusting colleagues on ATAGI
- Accepting a trade-off: TTS is serious and rare 2/100,000 at the time
- Considering the gain frame 99,998/100,000 people are fine
- Learning about what to look out for and access to good care

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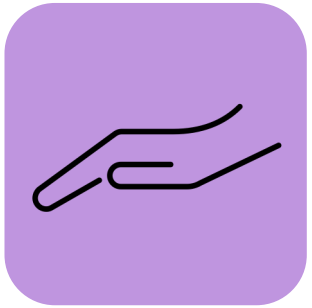
What motivates other people to vaccinate?

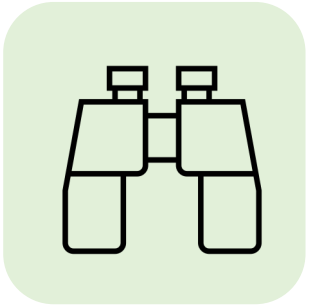
High perceived risk of developing COVID-19 disease

Confidence in effectiveness and safety

Trust in vaccine development processes



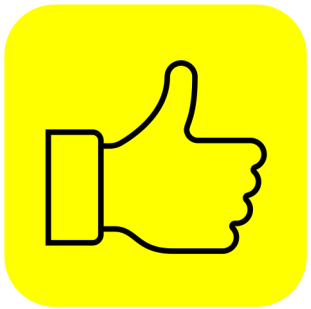
Desire to protect vulnerable people



Role models

Trust in government and health systems

Healthcare provider recommendation



Vaccination is convenient

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NCIRS Report: Factors influencing COVID-19 vaccine acceptance

Helping others make decisions

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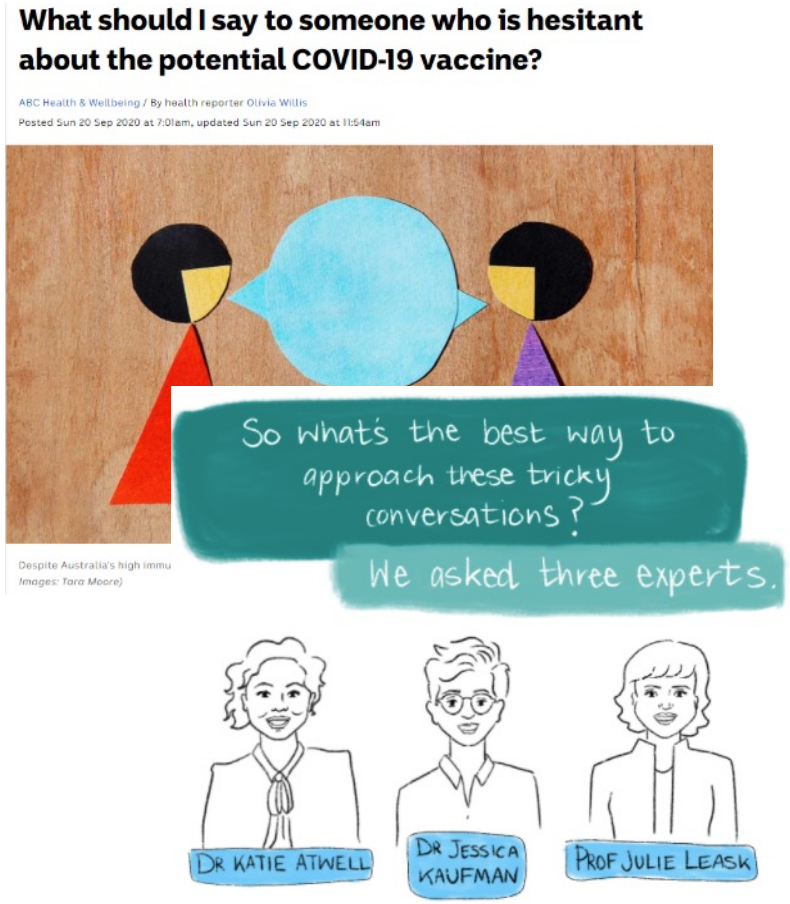
Talking about the vaccines with friends or family



https://www.abc.net.au/news/health/2021-03-29/coronavirus-vaccines-concernes-conversation-guide/100018588

By Jessica Kaufman & Margie Danchin
https://theconversation.com/everyone-can-be-an-effective-advocate-for-vaccination-heres-how-111828

1. Where are they at?
2. Listen, acknowledge concerns
3. Address information needs
4. Act as a role model
5. Keep the conversation going

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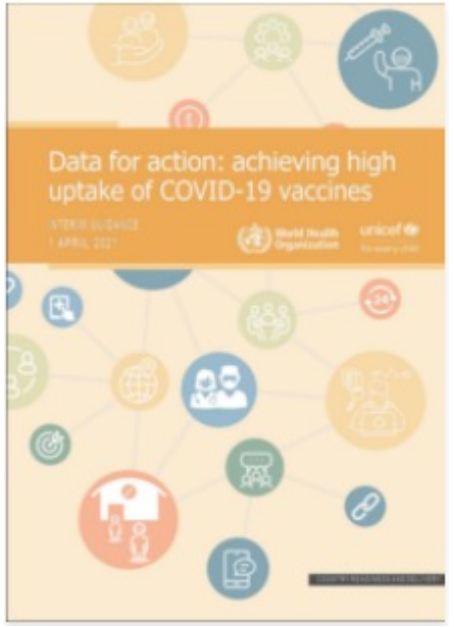
Slide courtesy of Jessica Kaufman, MCRI

Influences on vaccination uptake



Thinking and feeling

Social processes

Motivation

Practical issues

Vaccination

Based on: Brewer NT, Chapman GB, Rothman AJ, Leask J, and Kempe A (2017). Increasing vaccination: Putting psychological science into action. *Psychological Science for the Public Interest*. 18(3): 149-207
https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccination-demand-planning-2021.1

World Health Organization

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Requirements
Incentives
Reducing out-of-pocket costs

Community-based in combination

On-site vaccination
Provider support, assessment, feedback & reminders
Recommendation
Standing orders
On-site vaccination
Default appointments
Home visits

Descriptive norm messages

Reminder/recall systems
Implementation intention interventions
Education when used in combination

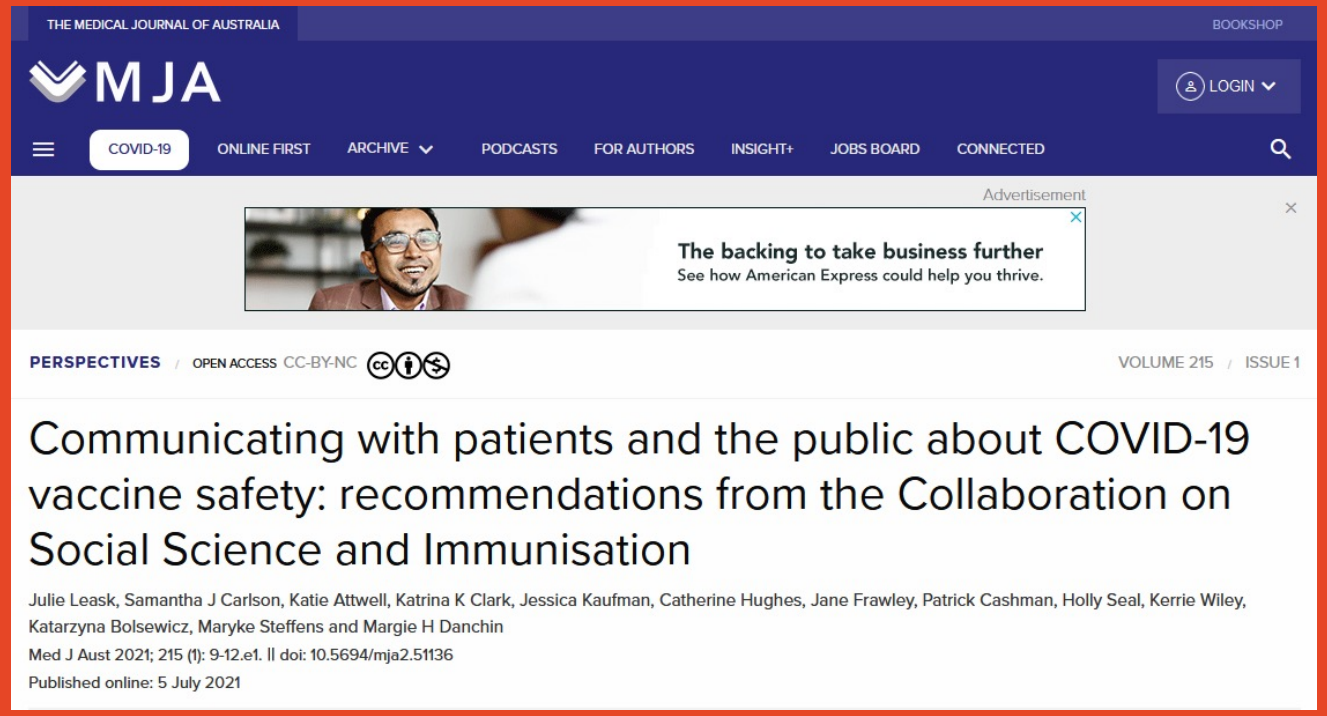
Sources:
Universally recommended vaccinations: community-based interventions implemented in combination www.thecommunityguide.org/vaccines/universally/communityinterventions.html
Ward K et al. Strategies to improve vaccination uptake in Australia, a systematic review of types and effectiveness. *Aust NZ J Public Health* 2012; 36(4):369–77.
Brewer NT, Chapman GB, Rothman AJ, Leask J, and Kempe A (2017). Increasing vaccination: Putting psychological science into action. *Psychological Science for the Public Interest*. 18(3): 149-207

Acknowledgements

NCIRS social science team

Collaboration on Social Science in Immunisation

http://cossi.org.au



https://www.mja.com.au/journal/2021/215/1/communicating-patients-and-public-about-covid-19-vaccine-safety-recommendations

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