

EXCESS Non-COVID-19 All-Cause Mortality
and
Heterologous Protection Against All-Cause Mortality
The UK

Analysed July 15, 2022

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SARS-CoV-2 variants of concern and variants under investigation in England: Technical briefing 43

Figure 4. Variant prevalence of available sequenced episodes for England from 1 February 2021 as of 20 June 2022

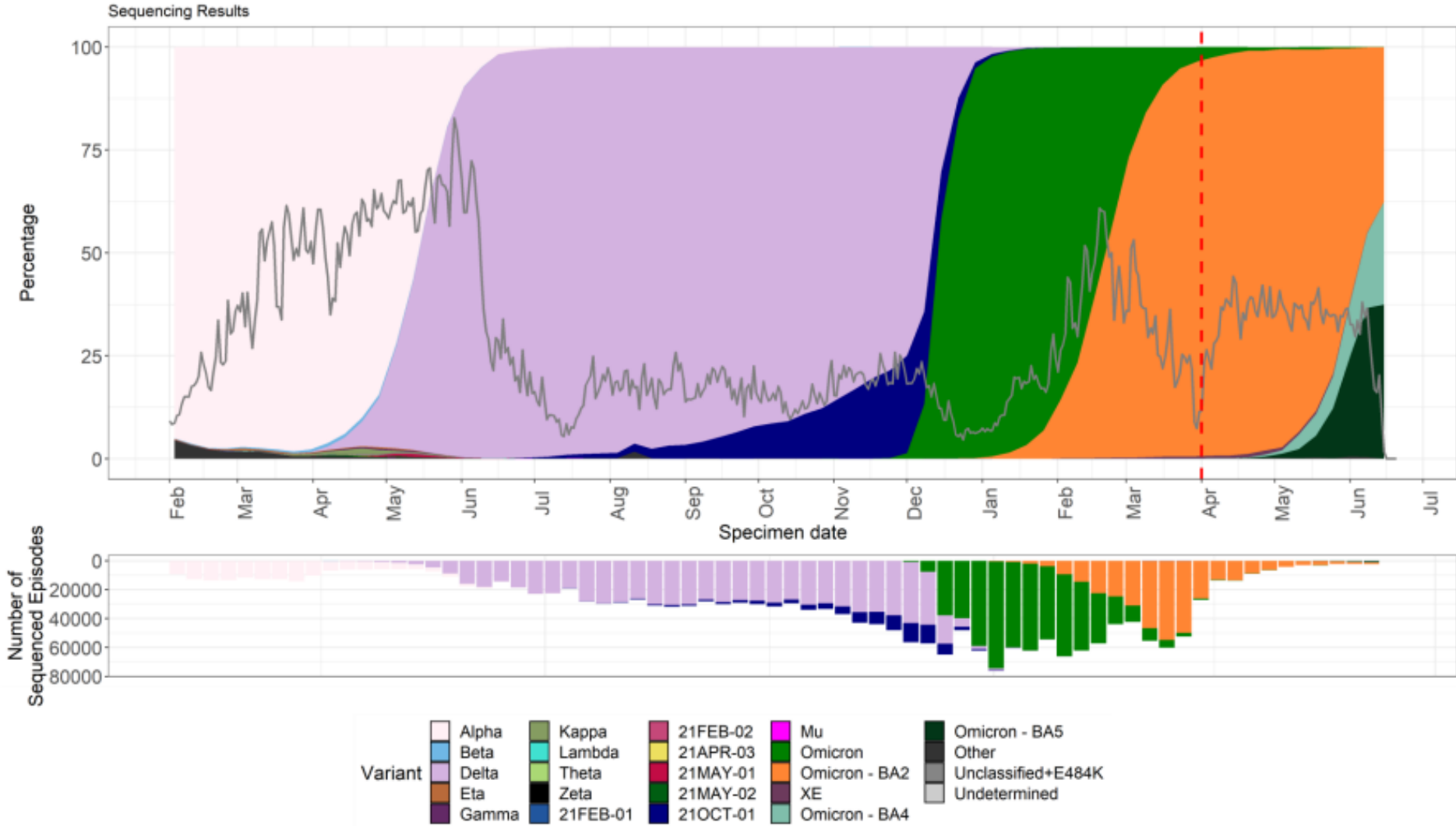
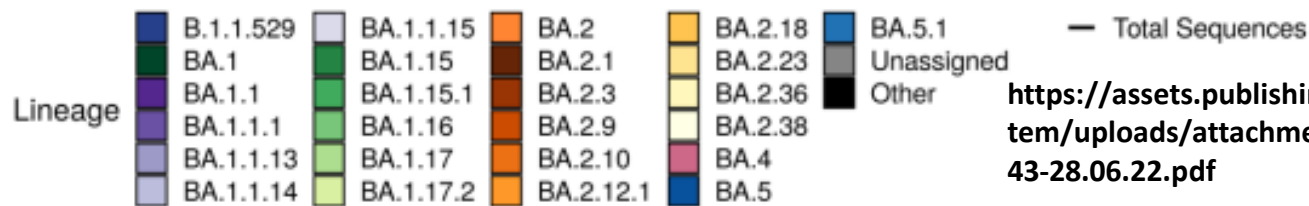
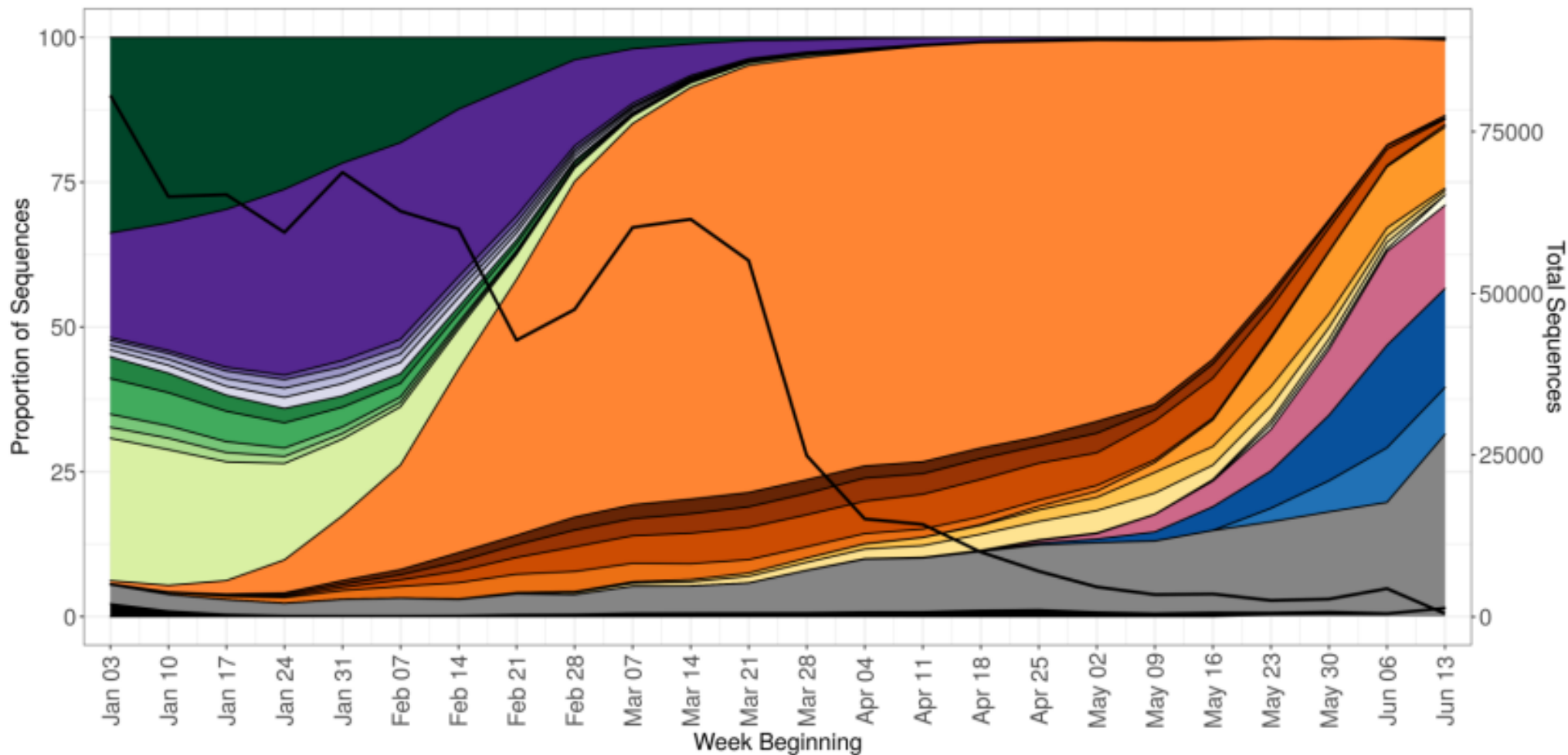


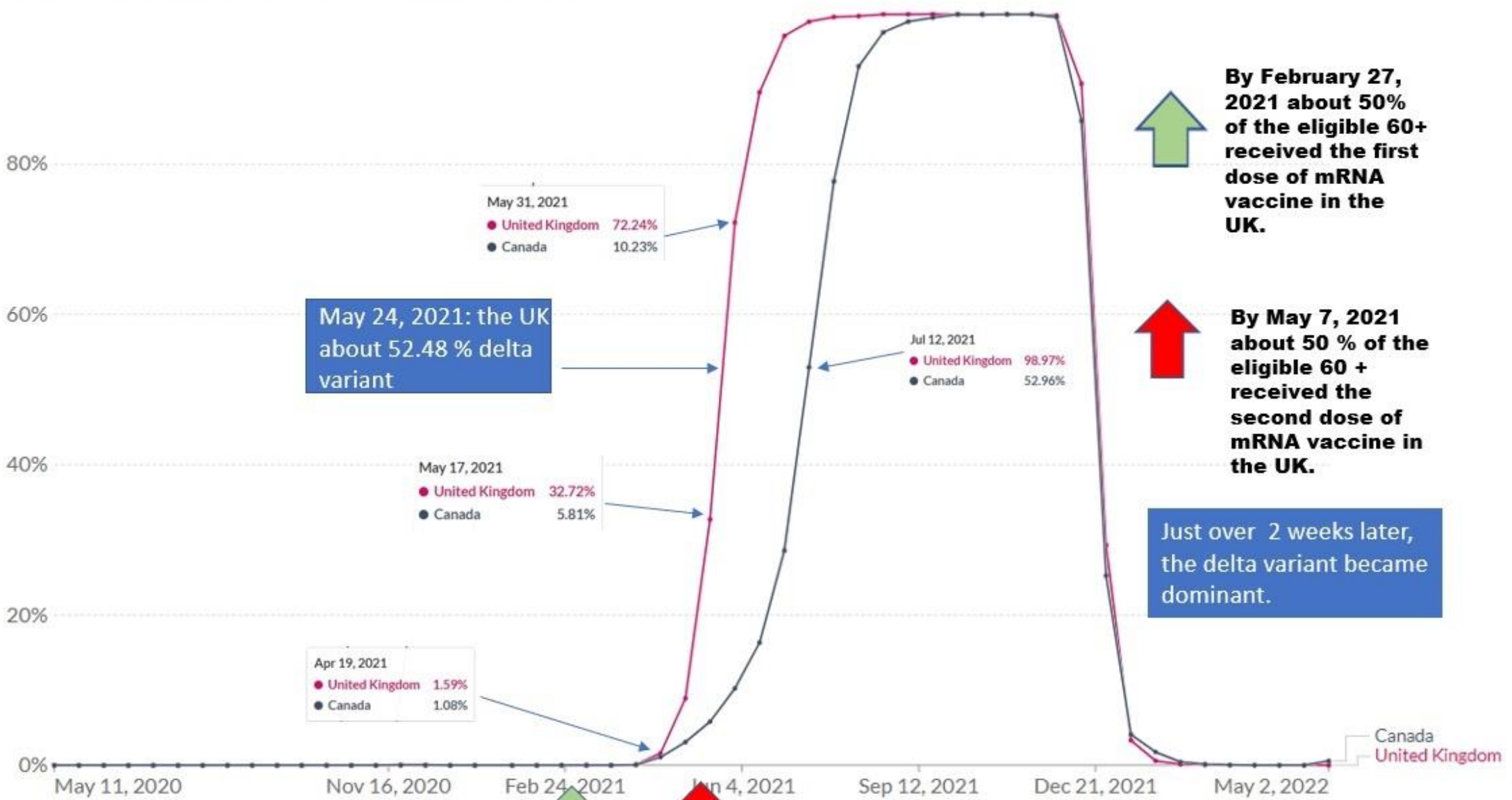
Figure 5. Prevalence of Pangolin lineages in the UK with sequence data from 3 January 2022 to 19 June 2022



https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1086494/Technical-Briefing-43-28.06.22.pdf

Share of SARS-CoV-2 sequences that are the delta variant

Share of delta variant in all analyzed sequences in the last two weeks.



By February 27, 2021 about 50% of the eligible 60+ received the first dose of mRNA vaccine in the UK.



By May 7, 2021 about 50% of the eligible 60+ received the second dose of mRNA vaccine in the UK.



May 24, 2021: the UK about 52.48 % delta variant

Just over 2 weeks later, the delta variant became dominant.

Source: GISAID, via CoVariants.org

Note: This share may not reflect the complete breakdown of cases, since only a fraction of all cases are sequenced. Recently-discovered or actively-monitored variants may be overrepresented, as suspected cases of these variants are likely to be sequenced preferentially or faster than other cases.

CC BY

First DOSE= trained (innate) immunity with “heterologous protection”
Second DOSE= adaptive immunity with “ADE promoting neutralizing antibodies”

In Canada:

when the 2nd DOSE to First DOSE RATIOS first exceeded 0.5, the **ALPHA variant** emerged (**February 22, 2021**).

When the 2nd DOSE to First DOSE RATIOS next exceeded 0.5, the **DELTA variant** became dominant (**July 12, 2021**).

When heterologous protection first became depleted (loss of negative excess all-cause mortality (EACM)) the **Alpha variant** became dominant (>50% of variants sequenced) on **MARCH 22, 2021**.

When the negative EACM turned positive (first time completely reversed) , the **Delta Variant** Emerged on **May 2, 2021**.

Selection pressure was exerted by the second dose of COVID-19 mRNA vaccines, which selected for variants. Protection without selection pressure was mediated by the first dose of the vaccines which generated “heterologous protection” shown as negative Excess All-cause Mortality (EACM).

Two to One Dose Ratios for COVID-19 Vaccine Use In Canada

By Date in 2021 (from Our World in Data)

DATE	% At Least One Dose	% Two Doses	% One Dose	Two / One RATIO	EVENTS	NOTES
22-Dec	0.071	None	0.071	N/A		
29-Dec	0.19	None	0.19	N/A		
3-Jan	0.3	None	0.30	N/A		EACM Decreases
10-Jan	0.84	0.1	0.74	0.135		
17-Jan	1.5	0.6	0.9	0.667		EACM flattened
24-Jan	2.03	0.15	1.88	0.080		
31-Jan	2.3	0.3	2	0.150		
7-Feb	2.4	0.47	1.93	0.244		
8-Feb	2.4	0.5	1.9	0.263		
10-Feb	2.5	0.6	1.9	0.316		Enters Neg EACM
14-Feb	2.59	0.81	1.78	0.455	14 days prior	Feb 14-28
21-Feb	2.9	1.1	1.8	0.611	7 days prior	
22-Feb	3	1.2	1.8	0.667	Alpha emerges	
25-Feb	3.2	1.3	1.9	0.684		
26-Feb	3.4	1.4	2	0.700		
27-Feb	3.5	1.4	2.1	0.667	NACI Intervention on Feb 27?	
28-Feb	3.63	1.41	2.22	0.635		
7-Mar	4.85	1.52	3.33	0.456		Peak In -EACM
8-Mar	5.1	1.6	3.5	0.457		
11-Mar	5.67	1.59	4.08	0.390		
14-Mar	6.5	1.6	4.9	0.327		
15-Mar	6.8	1.6	5.2	0.308	14 days prior	
21-Mar	8.83	1.7	7.13	0.238	7 days prior	Lowest EACM

DATE	% At Least One Dose	% Two Doses	% One Dose	Two / One RATIO	EVENTS	NOTES
21-Mar	8.83	1.7	7.13	0.238	7 days prior	Lowest EACM
22-Mar	9.2	1.7	7.5	0.227	Alpha dominates	
28-Mar	11.81	1.81	10	0.181		Peak In -EACM
4-Apr	15.07	1.92	13.15	0.146		
11-Apr	19.04	2.19	16.85	0.130		Peak In -EACM
18-Apr	24	2.5	21.5	0.116	14 days prior	
19-Apr	25	2.5	22.5	0.111		
25-Apr	29.18	2.75	26.43	0.104	7 days prior	
26-Apr	30	2.8	27.2	0.103		
28-Apr	31	2.9	28.1	0.103		Exit Neg EACM
2-May	33.58	3.05	30.53	0.100	Delta emerges	
3-May	34	3.1	30.9	0.100		
9-May	39	3.4	35.6	0.096		
16-May	45	3.8	41.2	0.092		
17-May	46	3.9	42.1	0.093	Max alpha at 59%	
23-May	51	4.05	46.95	0.086		
30-May	56.69	5.45	51.24	0.106		
2-Jun	58.8	6.11	52.69	0.116		
11-Jun	63.87	10.82	53.05	0.204		
14-Jun	64.86	13.11	51.75	0.253		
20-Jun	66.29	18.85	47.44	0.397		
26-Jun	67.38	26.47	40.91	0.647	14 days prior	
4-Jul	68.31	35.02	33.29	1.052	7 days prior	50% Receive 2nd Dose
12-Jul	69.27	44.33	24.94	1.777	Delta Dominant	
19-Jul	69.99	50.61	19.38	2.993		50% Fully Vaxxed
25-Jul	71	55	16	4.438		
1-Aug	71	59	12	6.083		

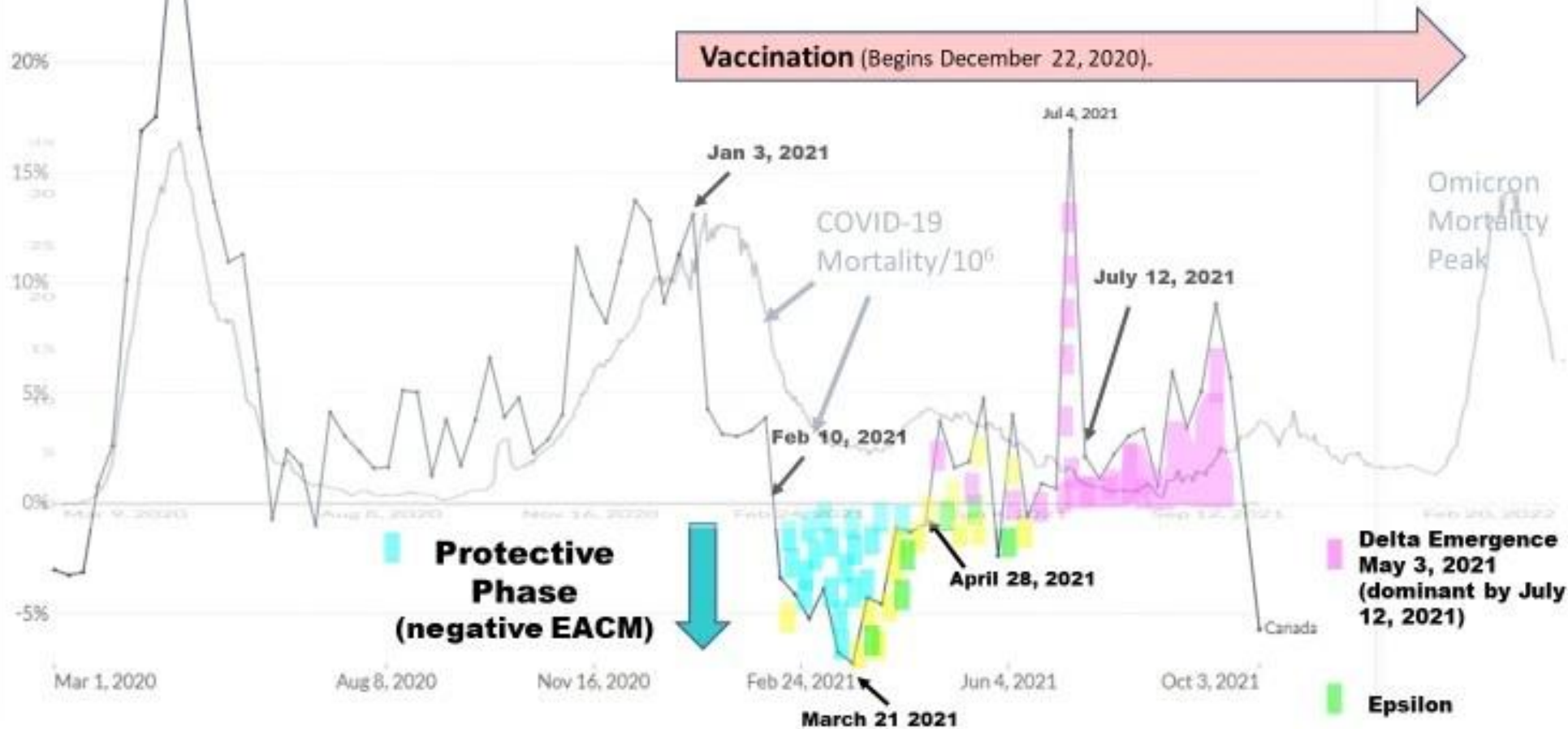
Excess mortality: Deaths from all causes compared to projection based on previous years

The percentage difference between the reported number of weekly or monthly deaths in 2020–2021 and the projected number of deaths for the same period based on previous years. The reported number might not count all deaths that occurred due to incomplete coverage and delays in reporting.

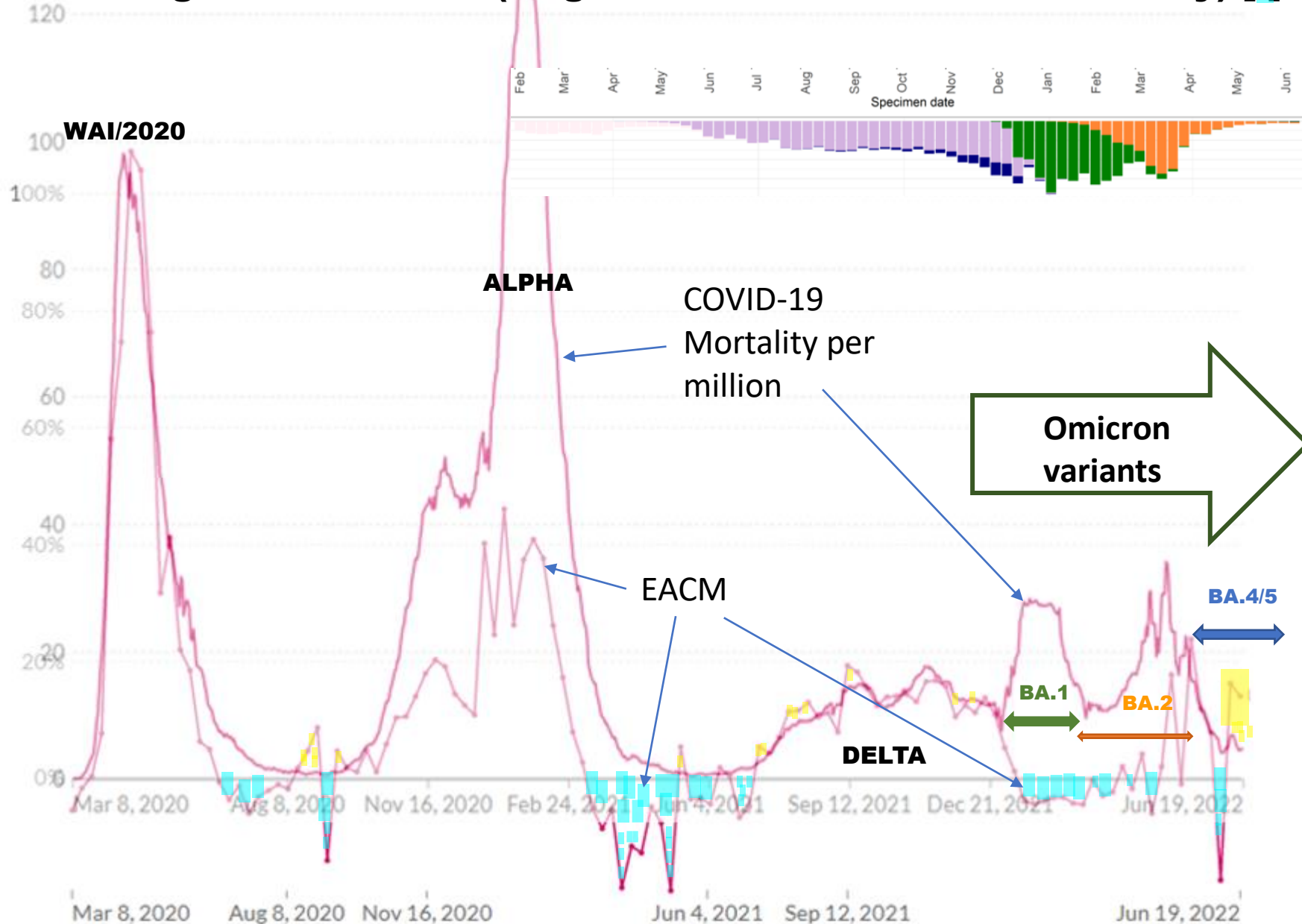
Our World in Data

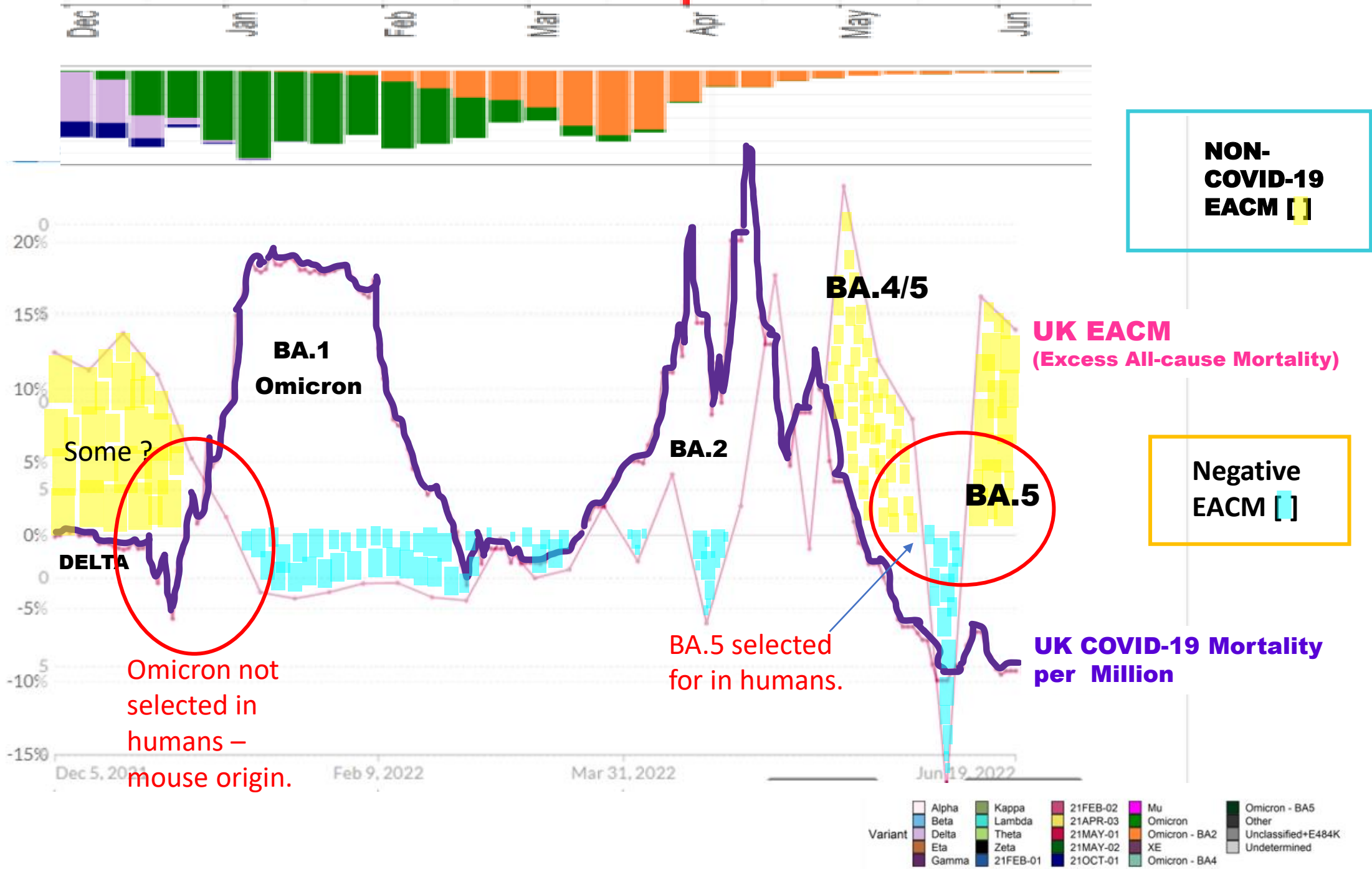
LINEAR LOG

Excess All Cause Mortality (EACM) CANADA



UK: Evidence for Non-COVID-19 EXCESS All-cause Mortality [] and Heterologous Protection (Negative Excess All-cause Mortality) []

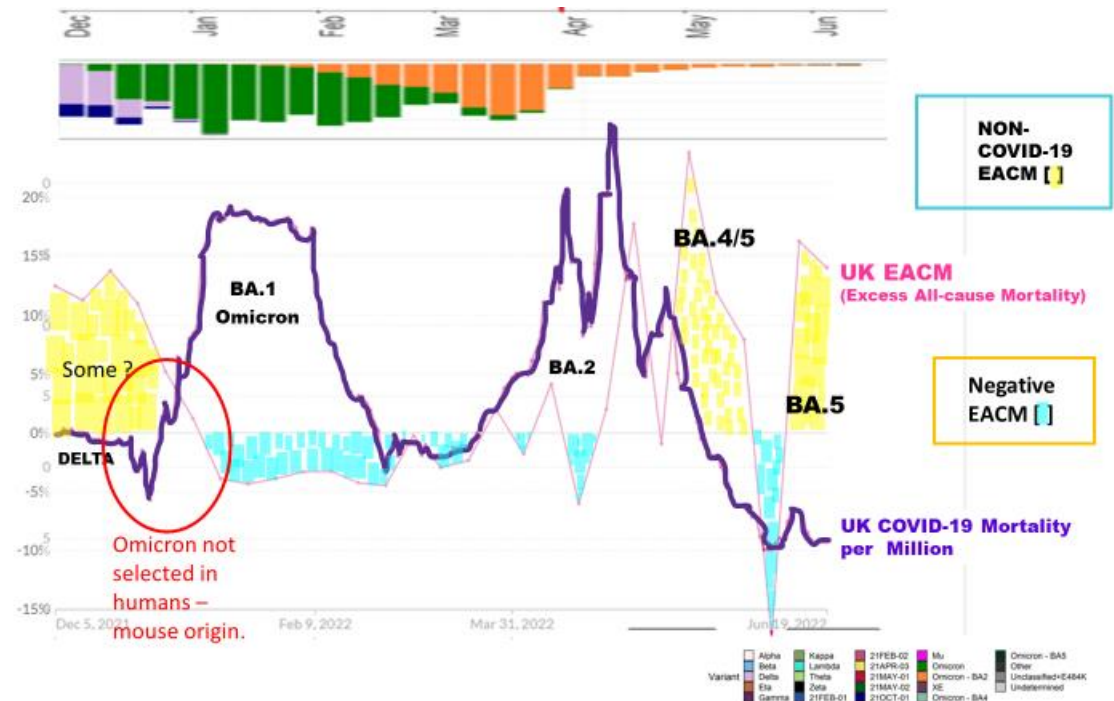




Observations:

1. **Omicron was not selected for in humans.**
2. **Common infections with omicron BA.1 generate lots of ‘heterologous protection’ (negative EACM).**
3. **First booster shots given in Late January and early February 2021 may have selected for BA.2 and diminished trained (innate) immunity caused by natural Omicron BA.1 infection.**
4. **Another round of booster shots given around end of April and early May 2022 may have selected for BA.4/BA.5.**
5. **Children in the UK were administered the vaccine starting Jan 2022 but less likely to experience death (transmitters).**

Most BA.4/5 deaths are not due to severe acute respiratory (lung) disease and so are not coded to COVID-19 (silent phase of the pandemic).



What might it mean when there is an excess of NON-COVID-19 mortality associated with the omicron variants especially BA.4/BA.5 and worsened with BA.5 dominance?
(Maybe the tail end of DELTA too)

1. The vaccines and/or boosters (which are toxic) are directly causing deaths not ascribed to COVID-19 disease (Sudden Adult Death Syndrome, myocarditis or co-morbidity deaths in hospitalized patients).
2. Many deaths in hospitals might involve SARS-CoV-2 infection but either not tested, a false negative or SARS-CoV-2 not attributed to the main cause of death.
3. BA.5 (no difference in spike protein with BA.4) has been selected for increased virulence not involving severe acute respiratory distress.
4. Boosters given and followed by BA.5 infection (such as transmitted at the time of the administration of the booster) may be a higher risk category for elders.
5. All of the above.