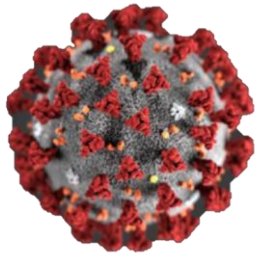

New Hampshire Coronavirus Disease 2019 Weekly Partner Call

July 1, 2021

Ben Chan
Elizabeth Talbot
Beth Daly
Lindsay Pierce

Thursday noon-time partner calls will focus on science, medical, and vaccine updates with time for Q&A

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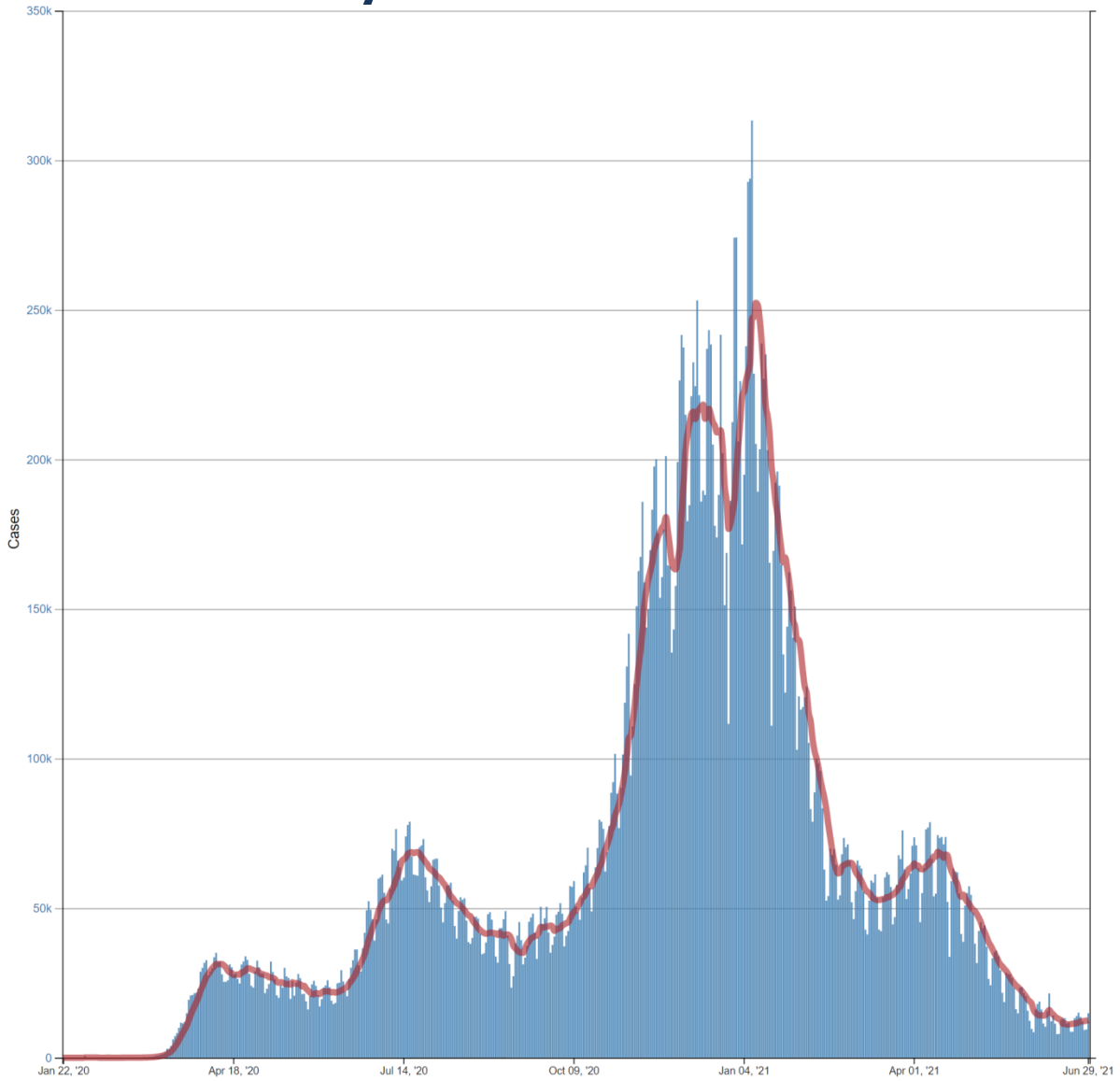
Agenda

- Epidemiology update
- MMWR Publication: COVID-19 Vaccination Coverage Among Adults – U.S.
- MMWR Publication: COVID-19 Vaccination Coverage and Intent Among Adults Aged 18-39 years – U.S.
- Lancet Publication: RCT on the safety and immunogenicity of mixed-brand COVID-19 vaccine series
- Questions & Answers (Q&A)

U.S. National Daily Incidence of COVID-19



https://covid.cdc.gov/covid-data-tracker/#trends_dailytrendscases

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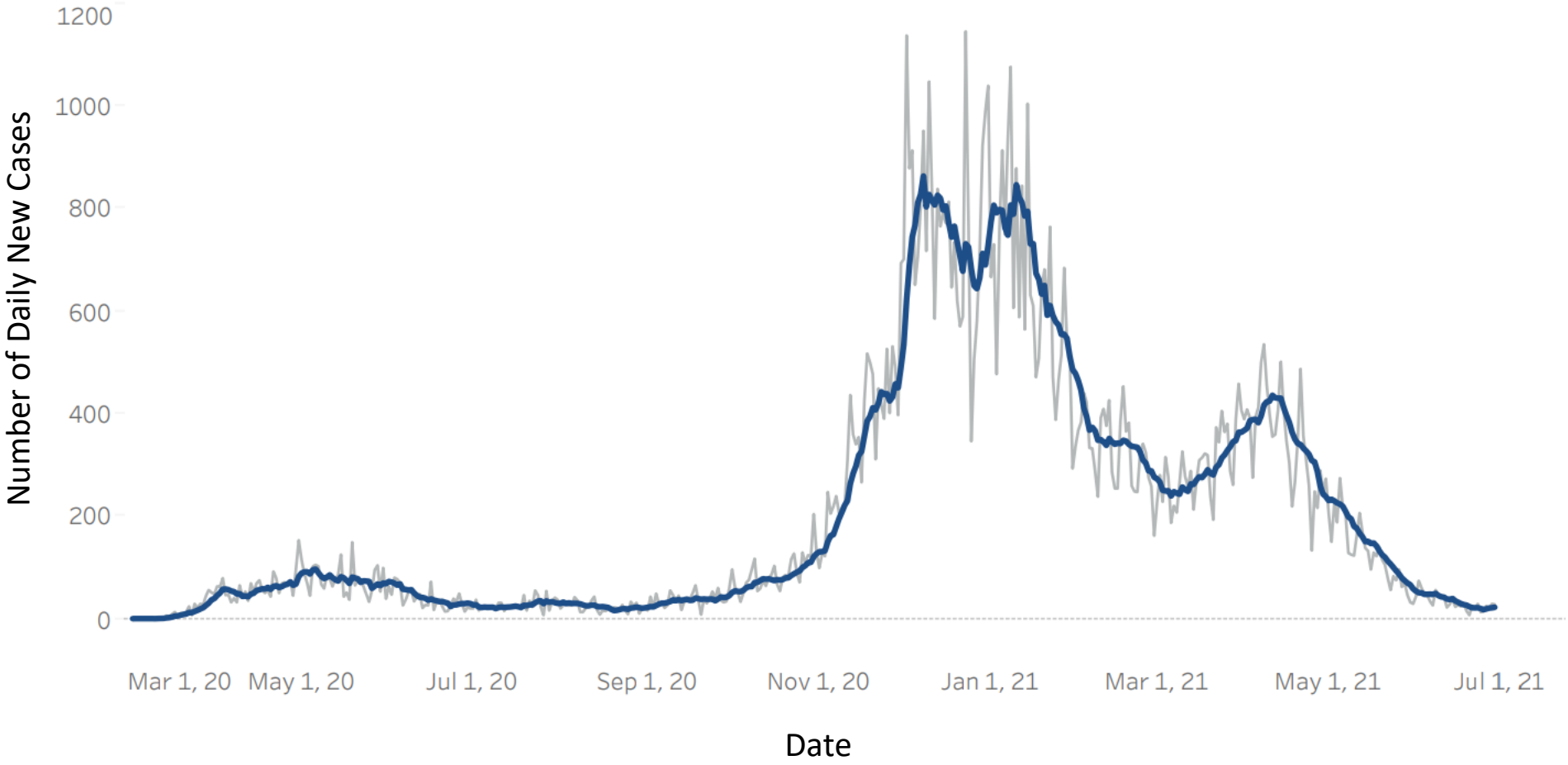
Number of New COVID-19 Cases per Day in NH



https://www.nh.gov/covid19/dashboard/overview.htm#dash

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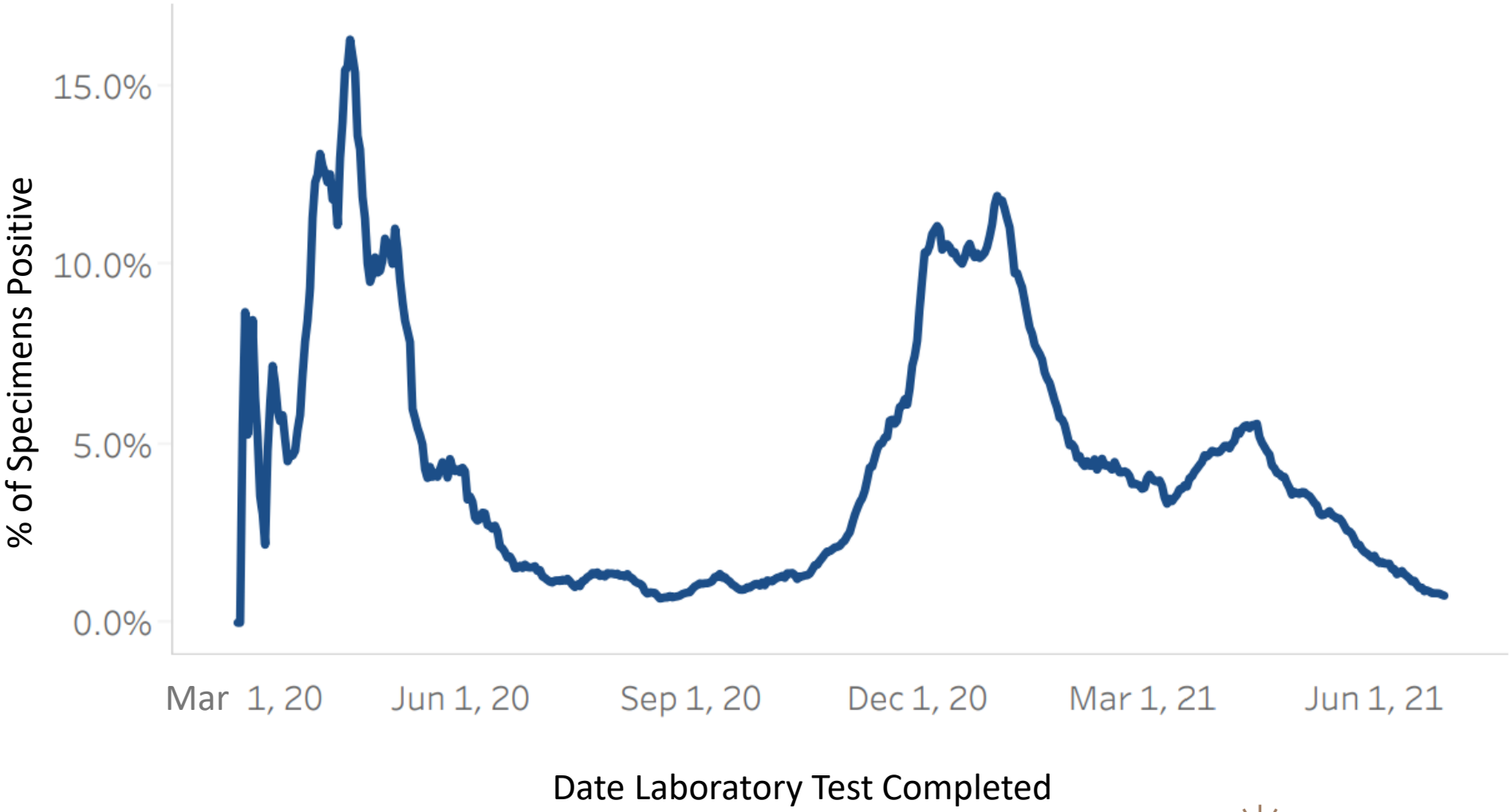
% of Tests (Antigen and PCR) Positive for COVID-19 (7-Day Average)



https://www.nh.gov/covid19/dashboard/overview.htm#dash

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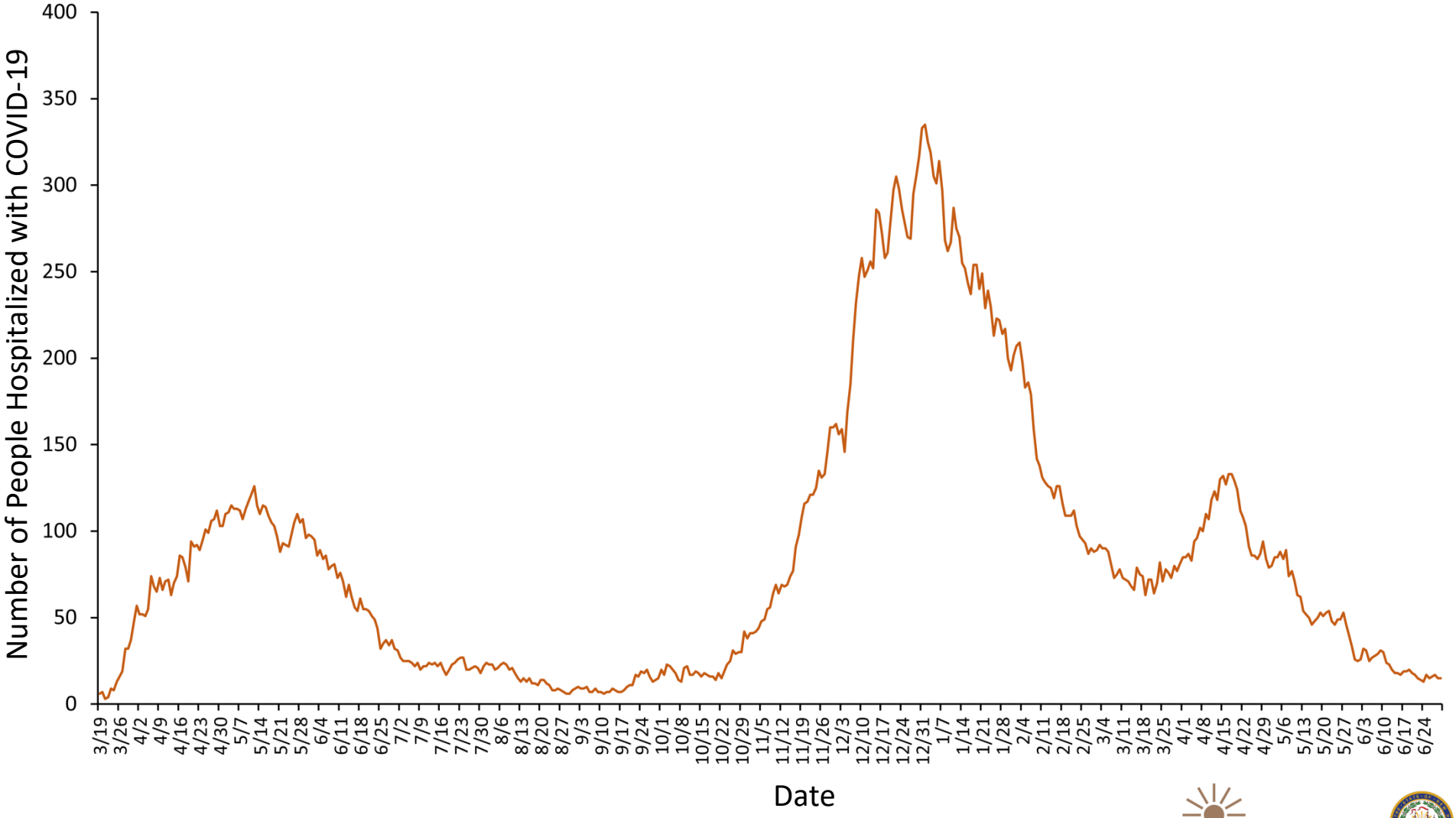
Number of People Hospitalized with COVID-19 Each Day in NH (Hospital Census)



https://www.nh.gov/covid19/dashboard/overview.htm#dash

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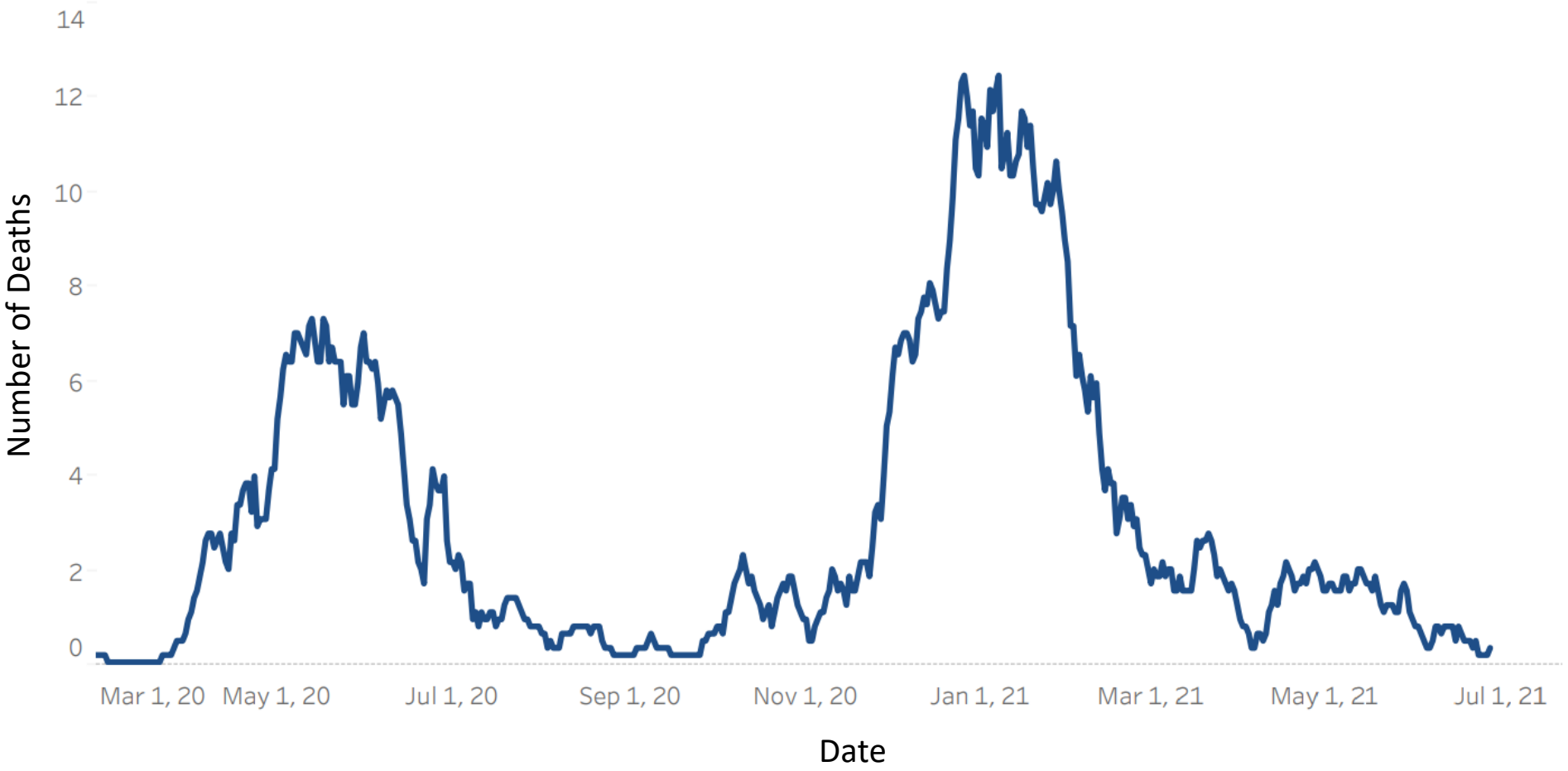
Average Number of COVID-19 Deaths per Day in NH (Based on Date of Death)



https://www.nh.gov/covid19/dashboard/overview.htm#dash

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Level of Community Transmission

Statewide
Level of
Transmission

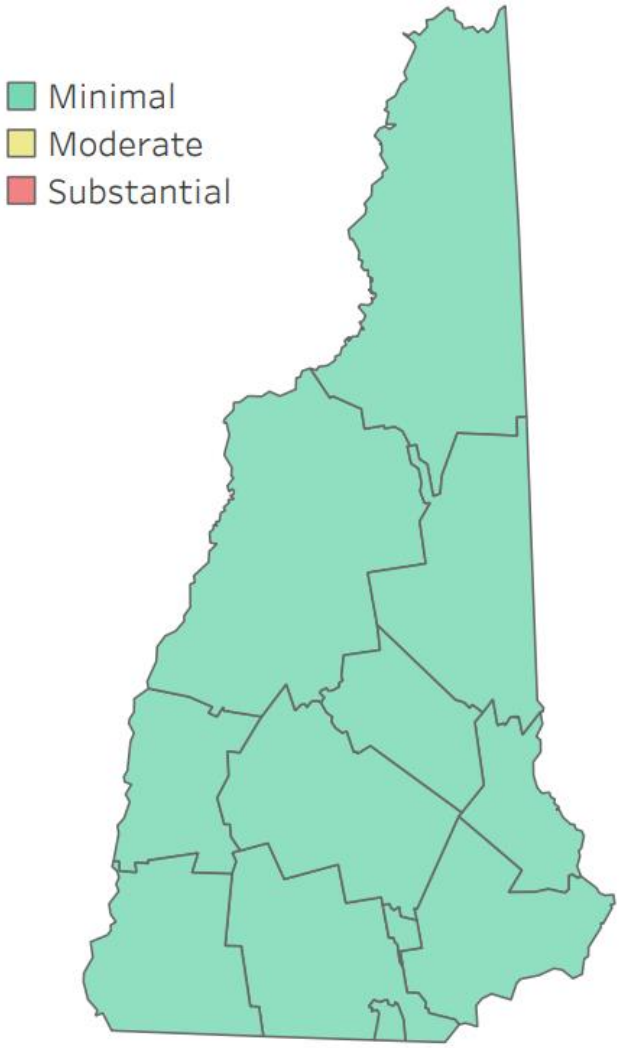
Minimal

7-Day Total Test Positivity Rate

0.8%

New Cases per 100k over 14 days

22.4



https://www.covid19.nh.gov/dashboard/schools

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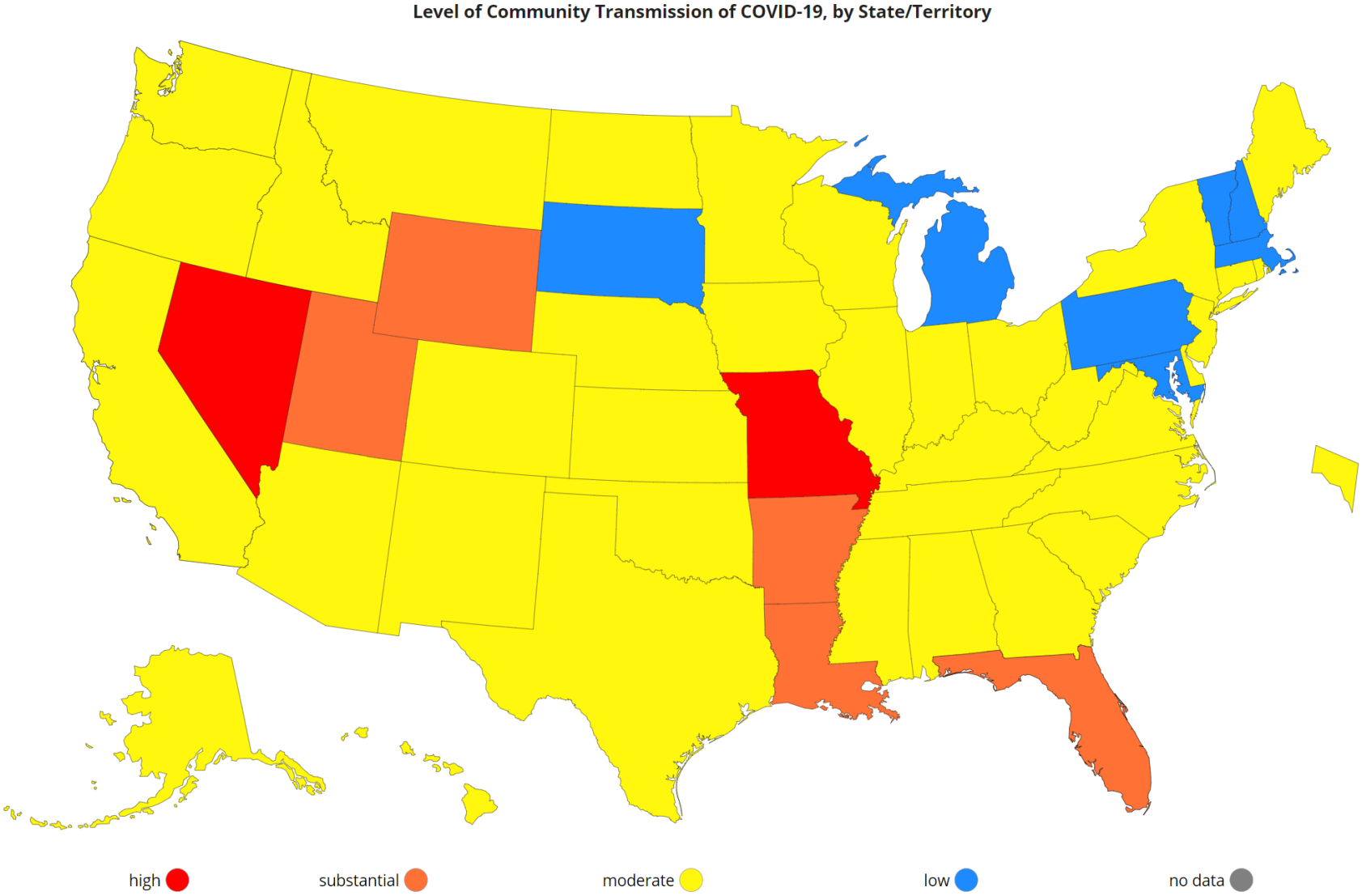
Level of Community Transmission by State



https://covid.cdc.gov/covid-data-tracker/#cases_community

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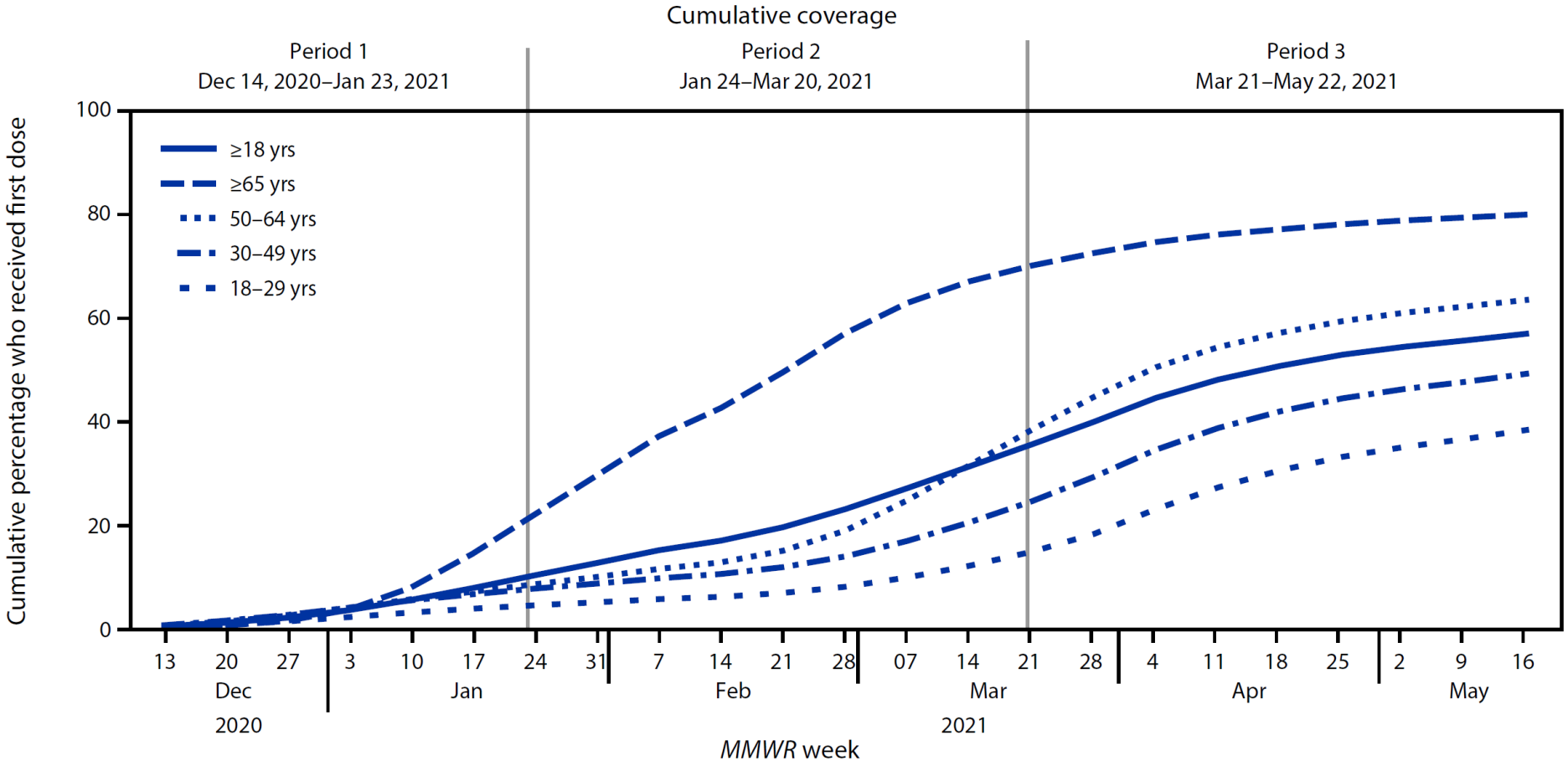
COVID-19 Vaccination Coverage Among Adults — United States, December 14, 2020–May 22, 2021

- By May 22nd, 57% of persons aged 18+ years had received 1 or more doses of a COVID-19 vaccine
  - Persons aged 65+ years: 80%
  - Persons aged 18-29 years: 38%
- Projected vaccine coverage by end of August: 78% of persons aged 18+ years estimated will receive 1 or more doses of a COVID-19 vaccine
  - Persons aged 65+ years: 95%
  - Persons aged 18-29 years: 58%

Percent Vaccinated by Age Group

FIGURE 1. Trends in COVID-19 vaccination cumulative coverage* and weekly initiation among adults, by epidemiologic week† and age group — United States, December 14, 2020–May 22, 2021



https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7025e1-H.pdf

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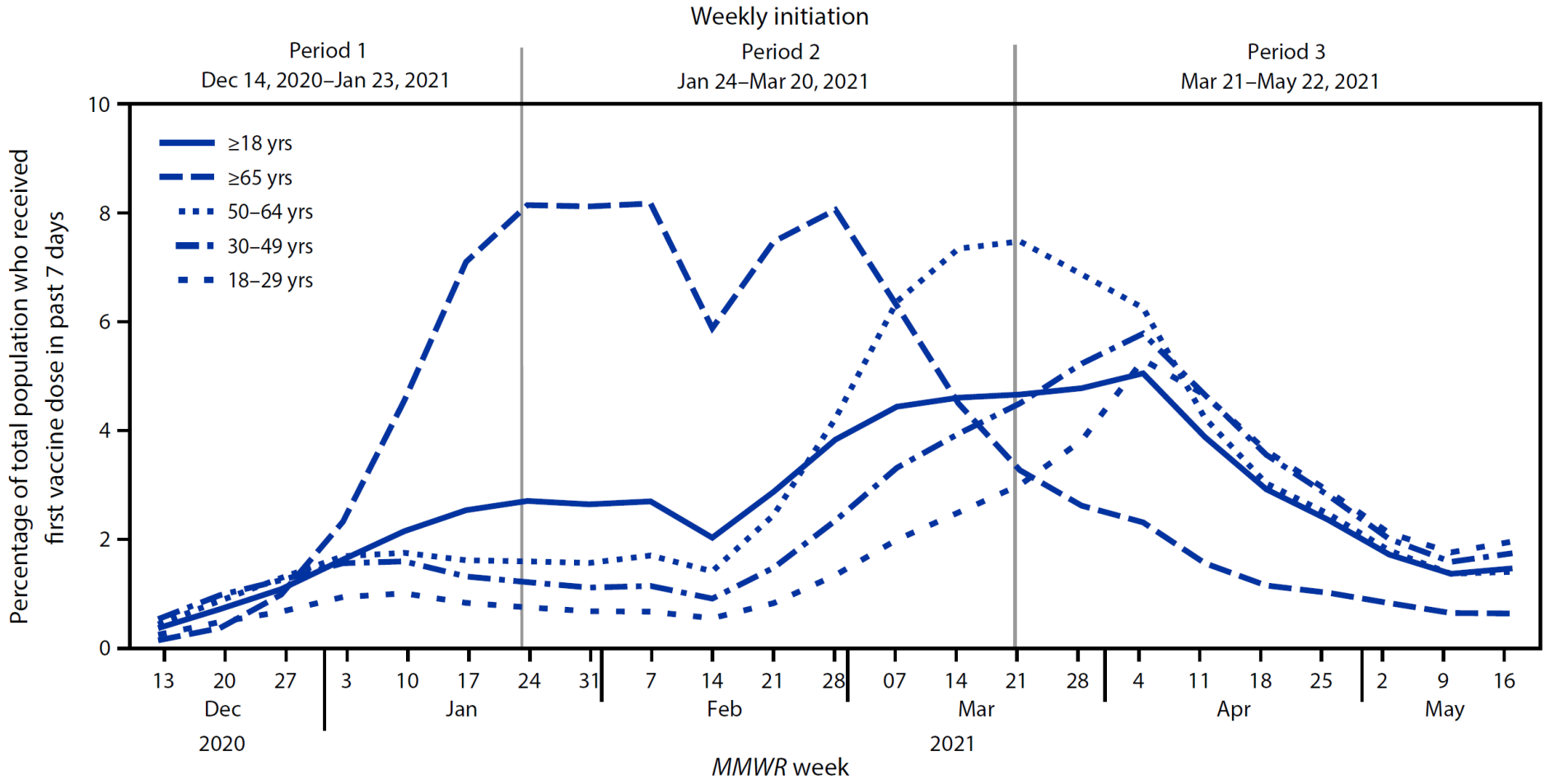
Weekly Initiation of Vaccination by Age



https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7025e1-H.pdf

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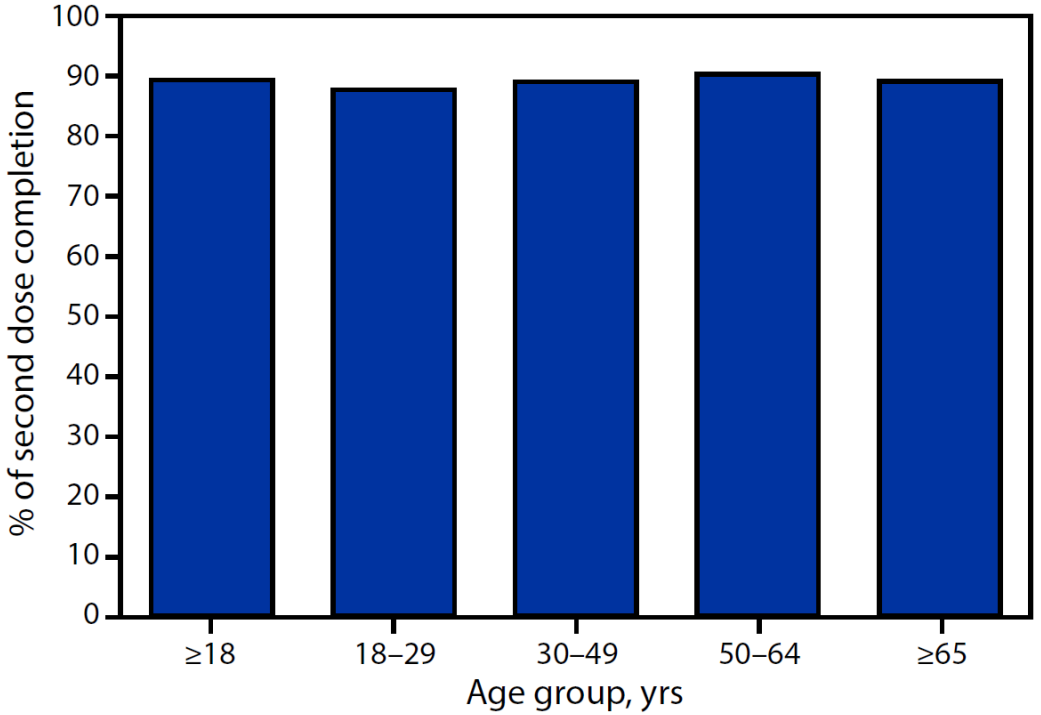
2nd Dose Completion (mRNA Vaccines)

- Among adults who initiated a 2-dose series (i.e., Pfizer or Moderna vaccine), 89% received their second dose
- Similar across age groups and over time

FIGURE 2. COVID-19 vaccination second dose completion among adults who received ≥1 COVID-19 dose and had sufficient time to receive the second dose,* by age group — United States,† December 14, 2020–May 22, 2021



* Analysis for second dose completion was restricted to persons who had received their first dose of a 2-dose vaccine (Pfizer-BioNTech or Moderna) during December 14, 2020–March 31, 2021. All persons included in the analysis for second dose completion were ≥42 days past their first dose.

https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7025e1-H.pdf

Other Factors Affecting Vaccination

- Men had lower vaccine coverage than women
- Persons living in less urban counties were less likely to be vaccinated
- People living in counties with higher social vulnerabilities (e.g., higher poverty, more uninsured, etc.) were less likely to be vaccinated

https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7025e1-H.pdf

Study Conclusions

- Younger adults have lower vaccination
- For vaccination to improve in young adults, there is a need for further messaging that:
  - Targets/engages this age group
  - From trusted sources
  - Explains the importance of vaccination
  - Addresses concerns about safety

https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7025e1-H.pdf

COVID-19 Vaccination Coverage and Intent Among Adults Aged 18–39 Years — United States, March–May 2021

- As of May 30th, about 50% of U.S. adults were fully vaccinated
- CDC conducted nationally representative household surveys from March-May 2021 to inquire about vaccine intentions
  - "Have you received a COVID-19 vaccine?"
  - If no, "Once a vaccine to prevent COVID-19 is available to you, would you: definitely… probably… be unsure… probably not… or definitely not get a vaccine"

https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7025e2-H.pdf

Results for adults aged 18-39 years (N=2,726)

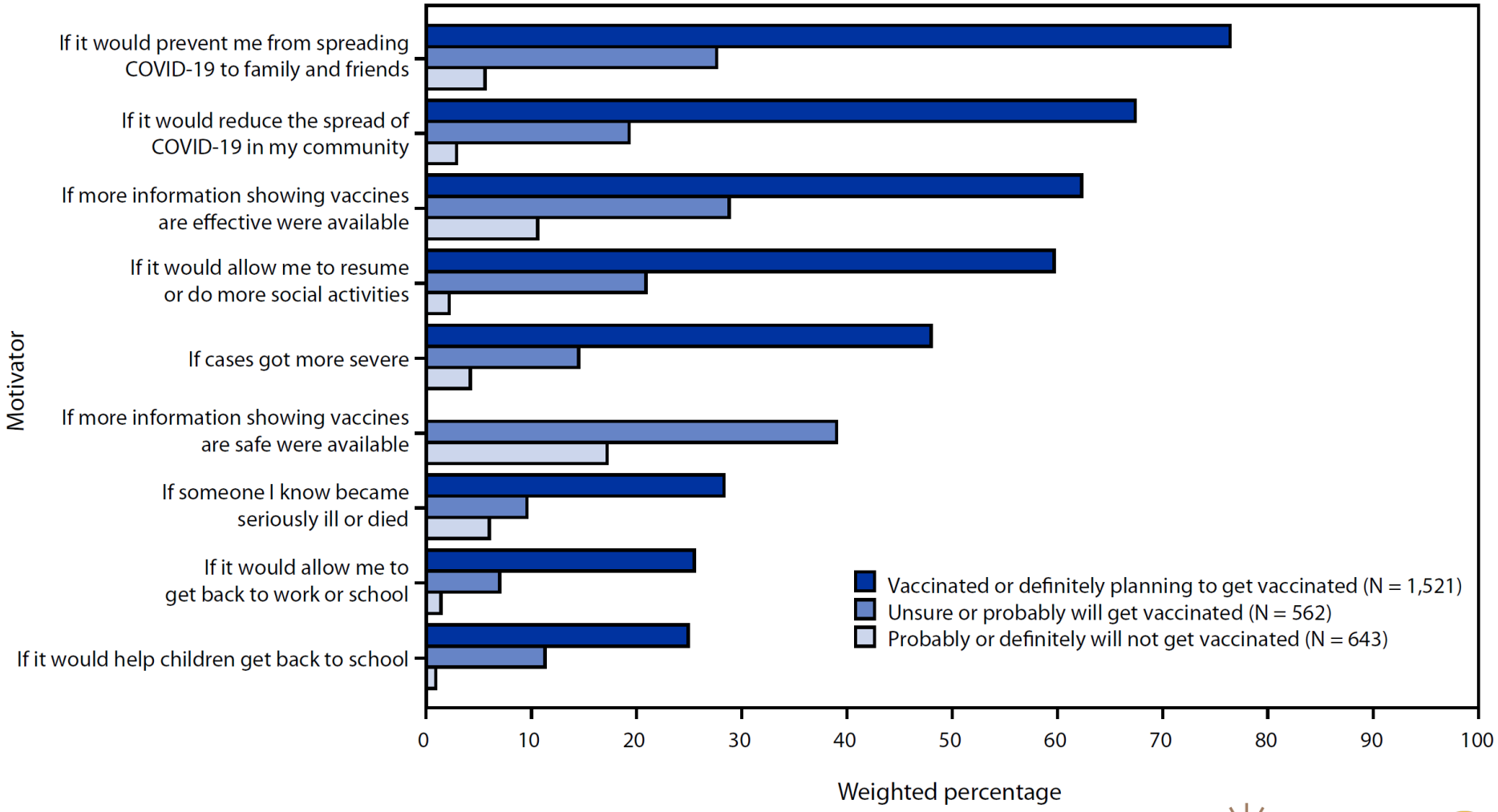
- 52% were already vaccinated or definitely intending to be vaccinated
- 23% were probably going to get vaccinated or were unsure
- 25% reported they probably or definitely would NOT get vaccinated
- Primary concerns/reasons reported for not getting vaccinated focused on trust in the vaccines (safety and effectiveness), and also need for vaccination

Attitudes & Perceptions by Vaccination Intent

Attitudes and perceptions	Unsure or probably will get vaccinated (N = 562)	Probably or definitely will not get vaccinated (N = 643)
Reason for not intending to get vaccinated		
Concerned about possible side effects	56.2 (51.3–61.1)	56.3 (50.9–61.5)
Plan to wait and see if it is safe and might get it later	52.9 (47.4–58.3)	31.2 (26.5–36.2)
Think other people need it more than I do right now	39.5 (34.8–44.3)	14.1 (11.0–17.8)
Concerned about having an allergic reaction	23.5 (18.9–28.6)	23.4 (19.6–27.5)
Do not know if it will work	19.0 (15.1–23.4)	29.3 (24.1–35.0)
Do not trust COVID-19 vaccines	18.0 (14.1–22.3)	56.5 (51.7–61.2)
Concerned about the cost	8.9 (5.9–12.9)	2.6 (1.4–4.5)
Do not believe I need a vaccine	7.2 (4.7–10.6)	36.4 (31.8–41.2)
Do not think COVID-19 is that big of a threat	6.7 (4.2–10.0)	27.4 (23.4–31.7)
Concern about COVID-19		
Somewhat/Very concerned about getting COVID-19	42.7 (37.8–47.7)	26.1 (21.8–30.8)
Mask-wearing behavior		
Always or often wore a mask in public during the past week	89.5 (86.3–92.2)	66.5 (61.6–71.2)

https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7025e2-H.pdf

FIGURE. Motivators* for COVID-19 vaccination among adults aged 18–39 years, by intent status — United States, March–May 2021



https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7025e2-H.pdf

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Mixing Vaccine Presentations

Are heterologous prime-boost schedules safe and effective?

Heterologous vs Homologous Vaccine Series

- Ease logistical problems inherent in vaccine programs
- Meet clinical needs
- Induce enhanced or more durable immune response
- Be effective against greater range of variants
- Be appropriate for boosters when the time comes

Cov-Boost Heterologous Booster Study

- Cov-Boost is UK study at 18 sites that will inform UK's fall booster program
  - 7 vaccines as booster doses for people ≥30yo who are already fully vaccinated with 2 doses of different authorized vaccine
    - AztraZeneca, Pfizer, Moderna, Novavax, Valneva, Curevac, Janssen plus control formulation
  - May 19 began enrolling 2886 volunteers
    - Initial safety and immunologic results by September
    - Follow up 1y

Com-COV

Prime Boost AZ and Pfizer SAFETY

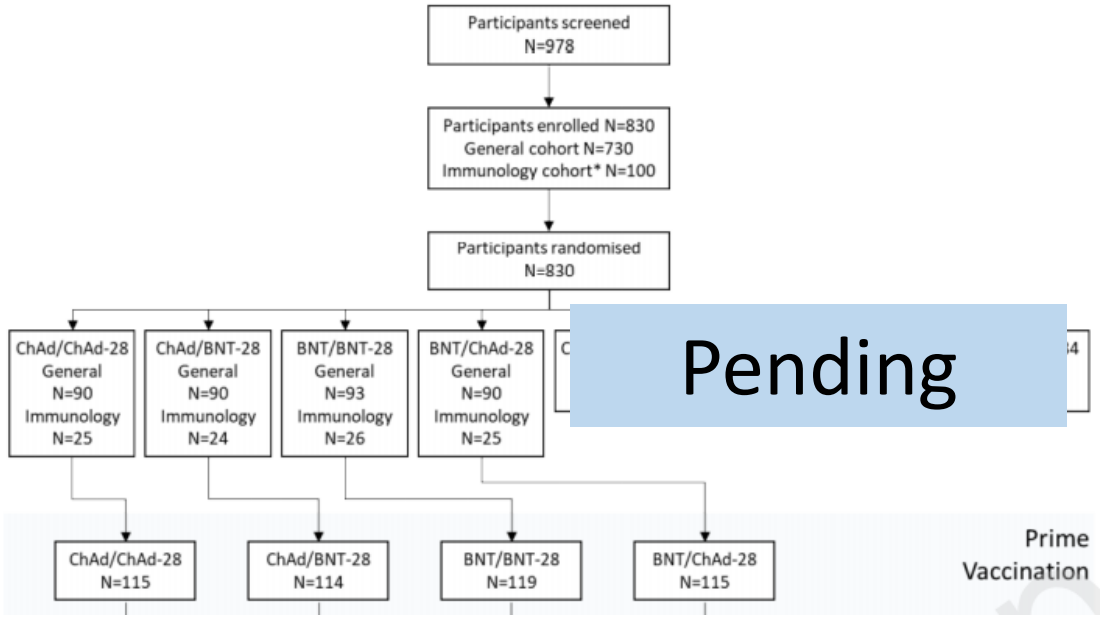
- UK researchers (Univ Oxford) studied Pfizer-BioNTech (BNT) and AstraZeneca-Oxford (ChAd) vaccines
- Study of 978 screened and 830 seronegative participants ≥50y blinded to their assignment to one of eight schedules of 2 vaccines separated by 28d or 84d
- Lancet publication May 29 showed heterologous schedules at 4w interval more reactogenic. Example:
  - Feverishness 34% ChAd/BNT c/w 10% ChAd/ChAd
  - Feverishness 41% BNT/ChAd c/w 21% BNT/BNT
- No hospitalizations and most within 48h

Com-COV

Prime Boost AZ and Pfizer Part 2

- Now reporting primary immunologic outcome
- Endpoints one month after second dose (84d pending)
  - Geometric mean concentration of anti-spike IgG
    - ELISA
  - Geometric mean of T cell response
    - Spot forming cells (Tspot)

"Safety and immunogenicity report from the Com-COV study – A single-blind randomised non-inferiority trial comparing heterologous and homologous prime-boost schedules with an adenoviral vectored and mRNA COVID-19 vaccine"



Pending

463 in 28d interval group

- Mean 57.8 years, 45.8% female, 25.3% ethnic minorities
- Half homologous series
  - BNT/BNT or ChAd/ChAd
- Half heterologous series
  - BNT/ChAd and ChAd/BNT

Com-COV Anti-Spike IgG Results

ChAd/BNT non-inferior to ChAd/ChAd

	Prime with ChAd			Prime with BNT		
	ChAd/ChAd-28	ChAd/BNT-28	GMR[§]	BNT/BNT-28	BNT/ChAd-28	GMR[§]
Per-protocol analysis	**N=104**	**N=104**		**N=109**	**N=109**	
SARS-CoV-2 anti-spike IgG, ELU/ml	1392 (1188-1630) [n=104]	12906 (11404-14604) [n=104]	9.2 (97.5% CI:7.5,∞)	14080 (12491-15871) [n=109]	7133 (6415-7932) [n=109]	0.51 (97.5% CI:0.43, ∞)
Modified ITT	**N=105**	**N=108**		**N=110**	**N=109**	
SARS-CoV-2 anti-spike IgG, ELU/ml	1387 (1186-1623) [n=105]	12995 (11520-14660) [n=108]	9.3 (95% CI:7.7,11)	13938 (12358-15719) [n=110]	7133 (6415-7932) [n=109]	0.51 (95% CI:0.44,0.6)
Pseudotype virus neutralising antibody, NT_{50}	61 (50-73) [n=101]	515 (430-617) [n=101]	8.5 (95% CI:6.5,11)	574 (475-694) [n=102]	383 (317-463) [n=104]	0.67 (95% CI:0.51,0.88)
Cellular response, SFC/10^6 PBMCs	50 (39-63) [n=104]	185 (152-224) [n=108]	3.8 (95% CI:2.8,5.1)	80 (63-102) [n=110]	99 (77-126) [n=109]	1.2 (95% CI:0.88,1.7)

Com-COV Anti-Spike IgG Results

BNT/ChAd not as strong as BNT/BNT

Higher than ChAd/ChAd

	Prime with ChAd			Prime with BNT		
	ChAd/ChAd-28	ChAd/BNT-28	GMR[§]	BNT/BNT-28	BNT/ChAd-28	GMR[§]
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Com-COV Cellular Immunity and Safety

- Geometric mean of T cell response SFC/106 PBMCs
  - ChAd/BNT 185
  - ChAd/ChAd 50
  - BNT/BNT 80
  - BNT/ChAd 99
- “Anticipate 84d boost may generate an increased immune response as previously seen”
- No serious adverse events were attributed to vaccination in any study group: increase in systemic reactogenicity after boost in participants receiving heterologous schedules in comparison to homologous schedules

Conclusions?

Despite the BNT/ChAd regimen not meeting non-inferiority criteria, the GMCs of both heterologous schedules were higher than that of licensed vaccine schedule (ChAd/ChAd) with proven efficacy against COVID-19 disease and hospitalization

"These data support flexibility in use of heterologous prime-boost vaccination using ChAd and BNT vaccines"

CDC: "The safety and efficacy of a mixed-product series have not been evaluated. Both doses of the series should be completed with the same product."

CDC Guidance Re Non-FDA Vaccines

- COVID-19 vaccines not authorized by FDA but listed for emergency use by WHO*
  - If completed series, no need for FDA-authorized vaccine
  - If incomplete, offer FDA-authorized vaccine series
- Vaccines not authorized by FDA or WHO
  - Offer FDA-authorized vaccine series
  - Minimum interval between last dose of non-FDA/WHO and FDA-authorized vaccine is 28 days

World Health Organization

*Pfizer, AZ, J&J, Moderna, Sinopharm, Sinovac

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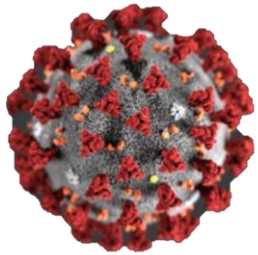

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