8-5-2021

Covid-19 Clinical Update 8/05/2021

George Washington University

COVID-19 UPDATE

HANA AKSELROD, MD, MPH

DIVISION OF INFECTIOUS DISEASES

GW MFA COVID-19 LEAD

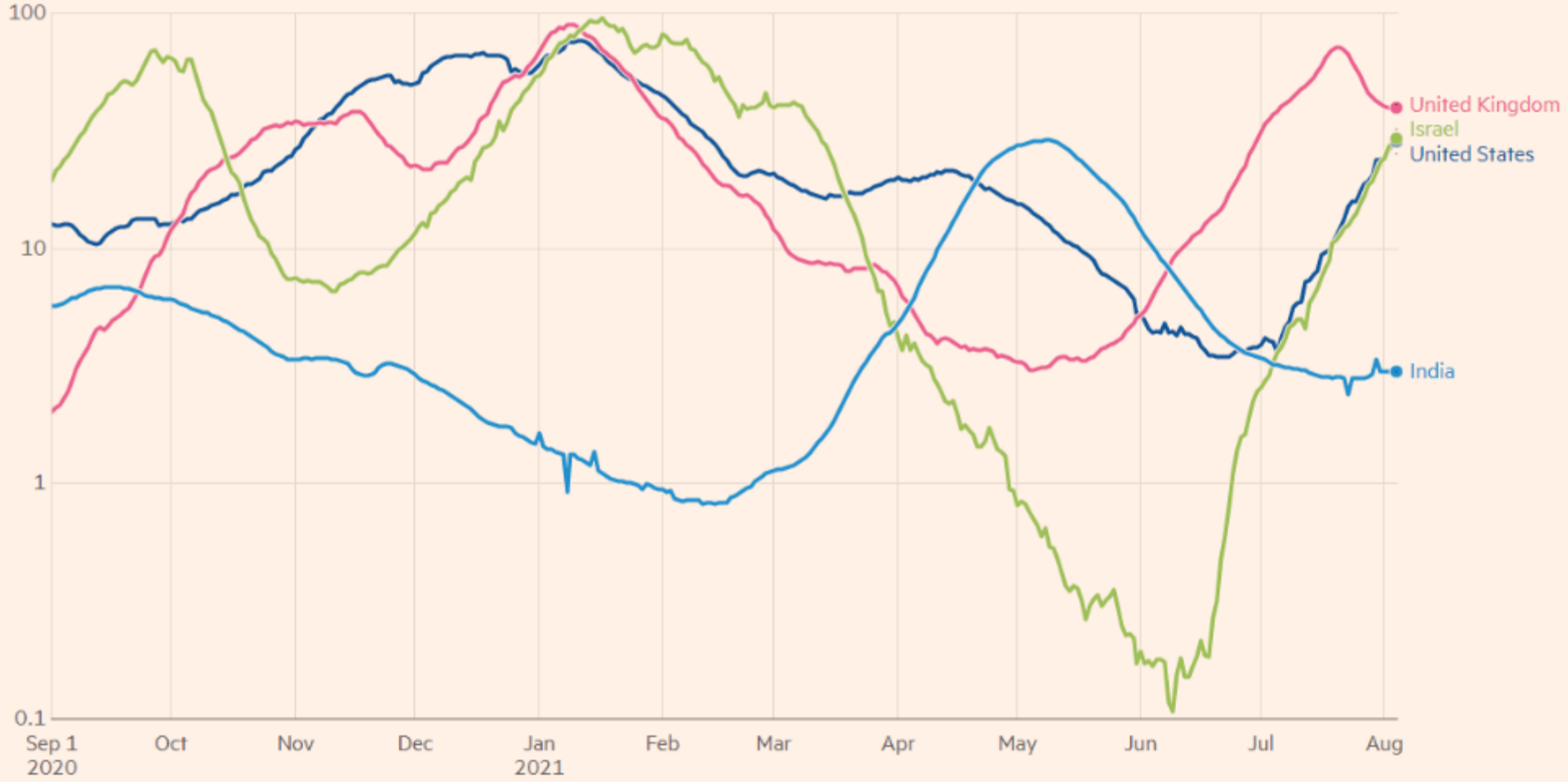
8/5/2021

1. EPIDEMIOLOGY
2. TREATMENT
3. PREVENTION
4. GW UPDATES

No Financial COI. Investigator on ongoing clinical trials as part of GW ID Division and Clinical Trials Unit.

New confirmed cases of Covid-19 in United States, United Kingdom, Israel and India

Seven-day rolling average of new cases (per 100k)



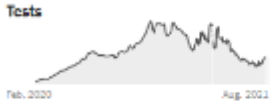
Source: Financial Times analysis of data from Johns Hopkins CSSE, World Health Organization, UK Government coronavirus dashboard, Government of Peru, Public Health France and the Swedish Public Health Agency.
Data updated August 5 2021 11.28am BST. Interactive version: ft.com/covid19

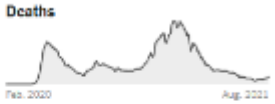
FINANCIAL TIMES

https://ig.ft.com/coronavirus-chart/

Updated Aug. 5, 2021

New reported cases





	DAILY AVG. ON AUG. 4	14-DAY CHANGE	TOTAL REPORTED
Cases	96,036	+131%	35,438,424
Tests	769,691	+41%	—
Hospitalized	51,661	+87%	—
Deaths	410	+65%	614,834

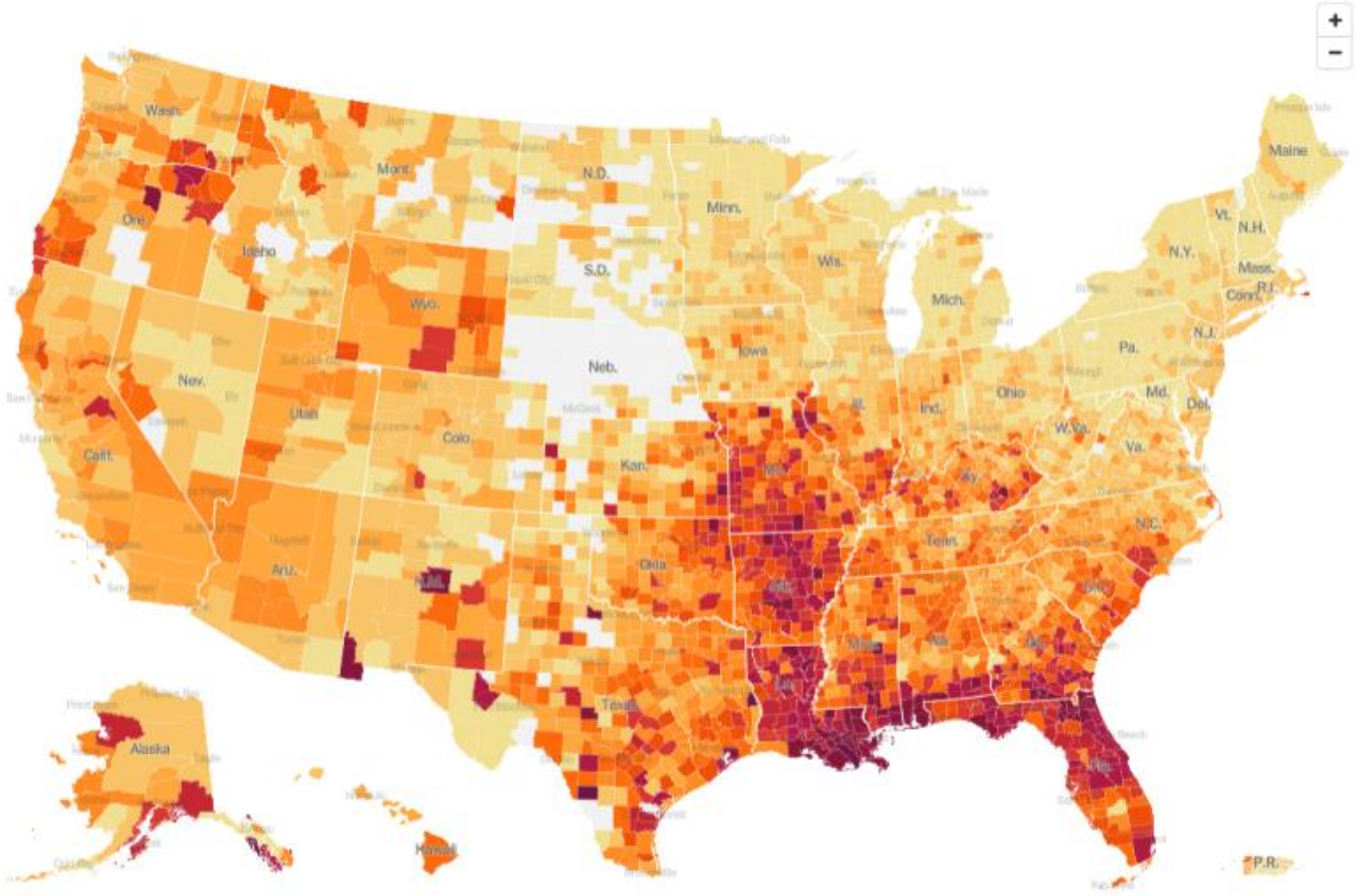
Vaccinations

	AT LEAST ONE DOSE	FULLY VACCINATED
All ages	58%	50%
18 and up	70%	61%
65 and up	90%	80%

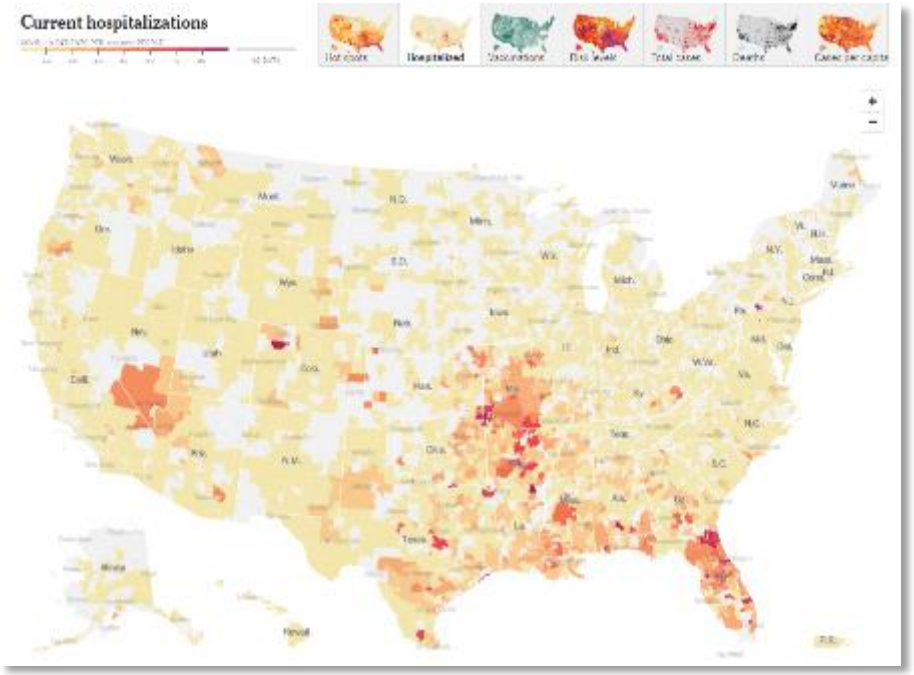
Hot spots

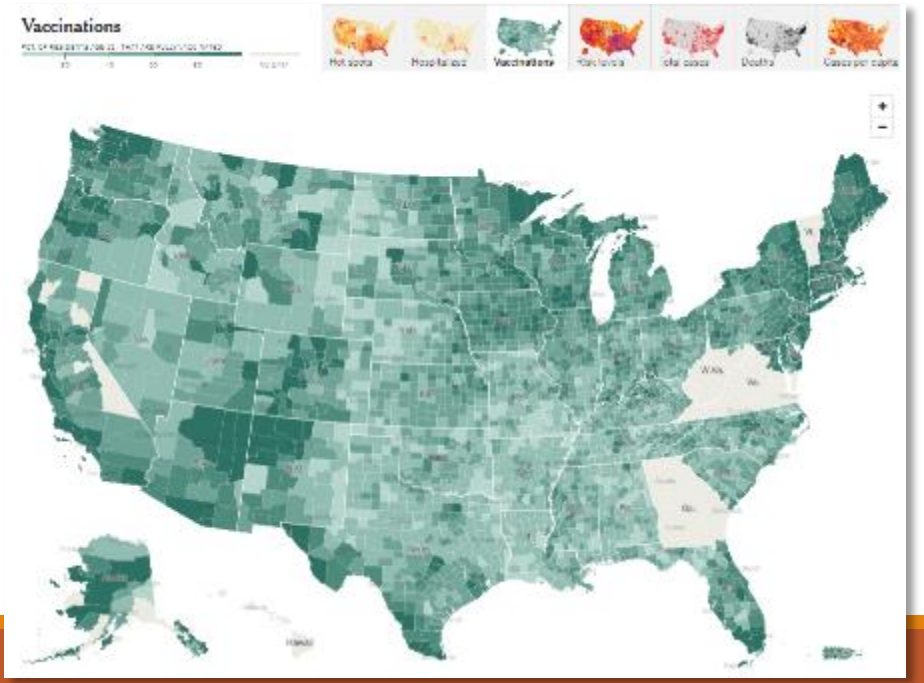
AVERAGE DAILY CASES PER 100,000 PEOPLE IN PAST WEEK

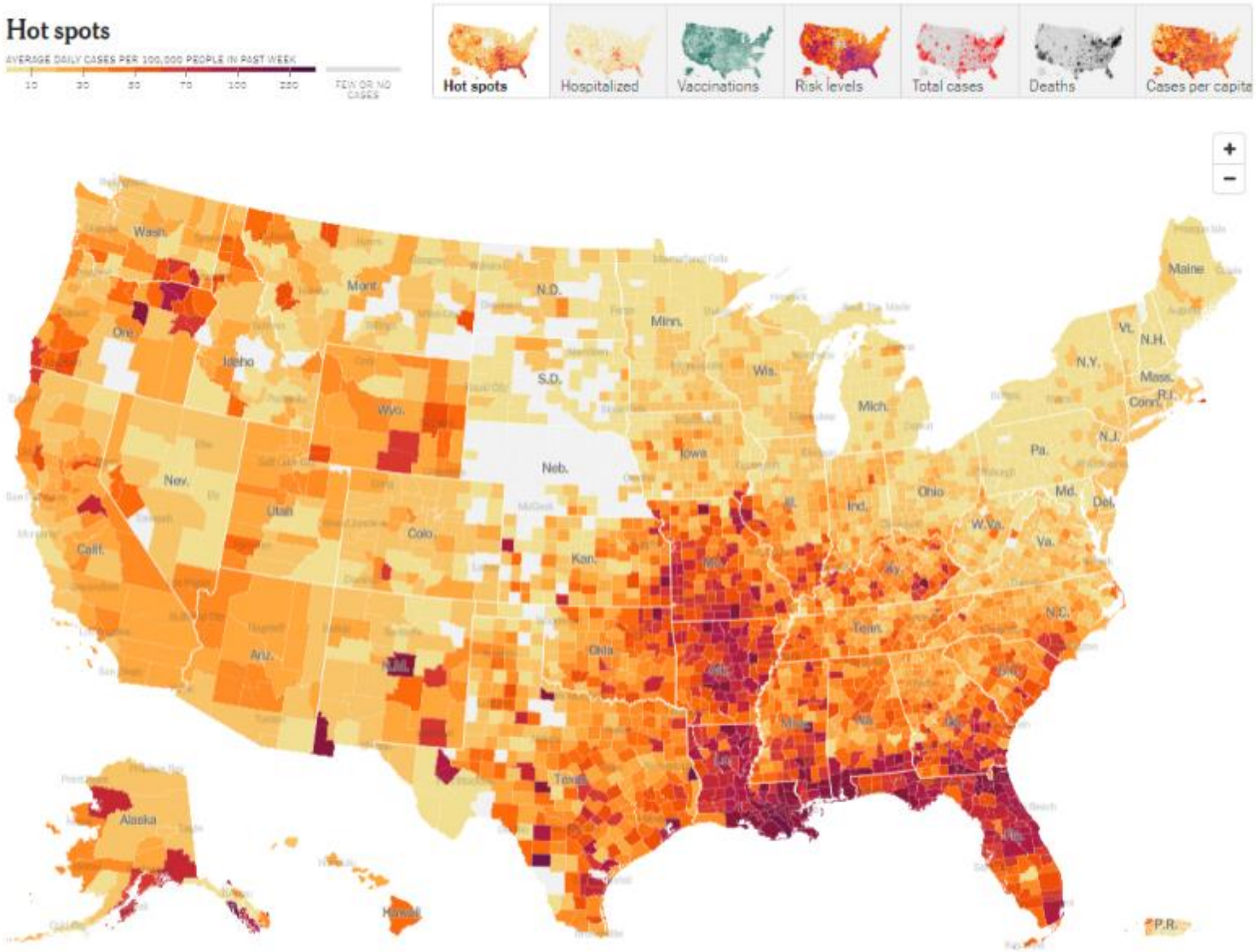
10 30 50 70 100 250 FEW OR NO CASES



https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html







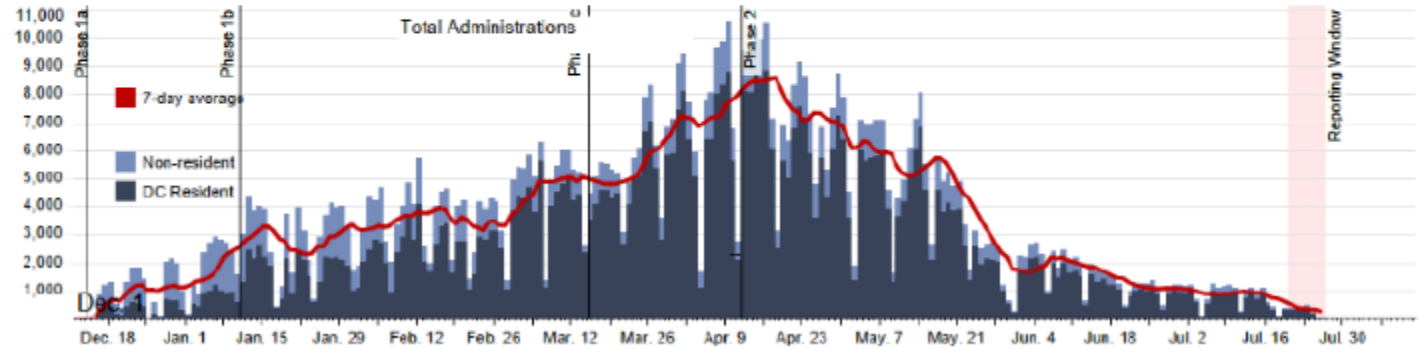
https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html

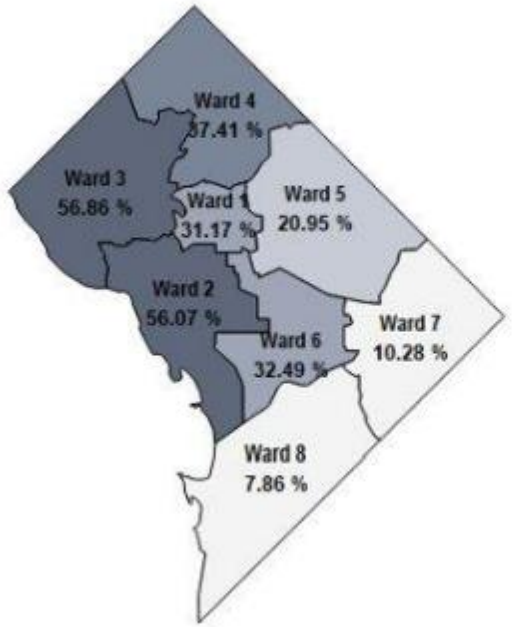
District of Columbia COVID-19 Daily Case Rate

per 100,000 population (7-day average)

TOTAL DOSES ADMINISTERED WITHIN DC	ESTIMATED % RESIDENTS PARTIALLY OR FULLY VACCINATED**	ESTIMATED % RESIDENTS FULLY VACCINATED**	ESTIMATED % OF BREAKTHROUGH CASES***
885,972	72.7%	62.7%	0.05%

Individuals Partially or Fully Vaccinated within DC by Administration Date





Age Group

- [ ] Null
- [x] 12-15
- [x] 16-17
- [ ] 18-24
- [ ] 25-29
- [ ] 30-39
- [ ] 40-49
- [ ] 50-64
- [ ] 65-74
- [ ] 75-84
- [ ] 85+

https://coronavirus.dc.gov/page/reopening-metrics

COVID-19 in Virginia: Cases by Vaccination Status

VDH VIRGINIA DEPARTMENT OF HEALTH

Dashboard Updated: 7/30/2021, Updated Weekly on Friday

Select Health Region: All

Select Date Range (Click on Dates for Calendar Icon): January 21, 2021 – July 30, 2021

Fully Vaccinated People: **4,602,156**

Percent of Cases In People Not Fully Vaccinated	Percent of Hospitalizations In People Not Fully Vaccinated	Percent of Deaths In People Not Fully Vaccinated
99.24%	**98.03%**	**98.33%**
203,217 Total Cases Not Fully Vaccinated^	**7,230** Total Hospitalizations Not Fully Vaccinated	**2,471** Total Deaths Not Fully Vaccinated

Total Breakthrough* Cases	Total Breakthrough Hospitalizations	Total Breakthrough Deaths
1,566	**145****	**42**
0.034% Percent of Fully Vaccinated People who Developed COVID-19	**0.0032%** Percent of Fully Vaccinated People Who Were Hospitalized for COVID-19	**0.0009%** Percent of Fully Vaccinated People Who Died of COVID-19

Total Cases: **204,829** Total Hospitalizations: **7,375** Total Deaths: **2,513**

https://www.vdh.virginia.gov/coronavirus/covid-19-data-insights/covid-19-cases-by-vaccination-status/

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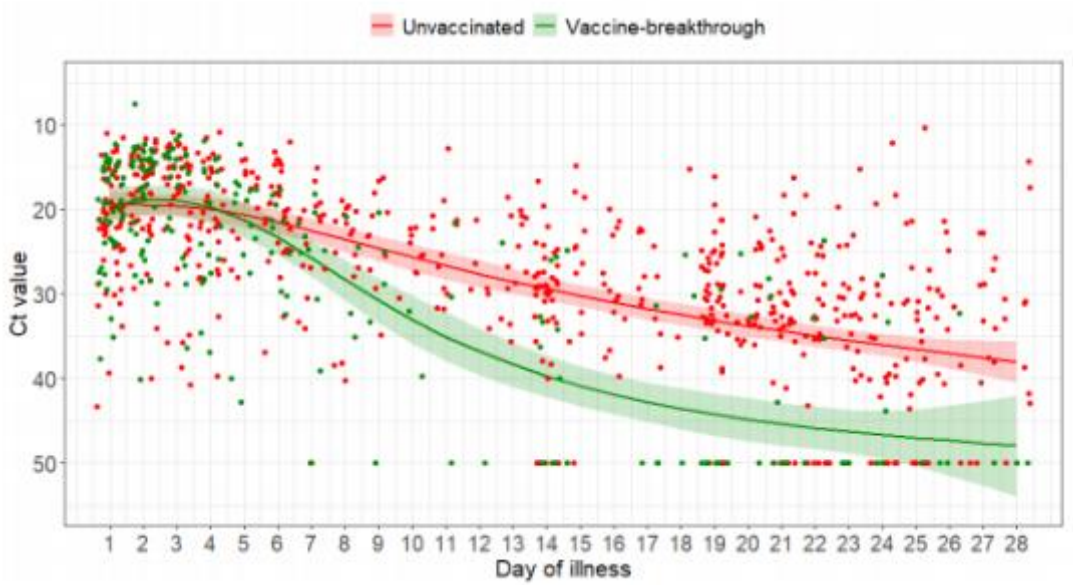
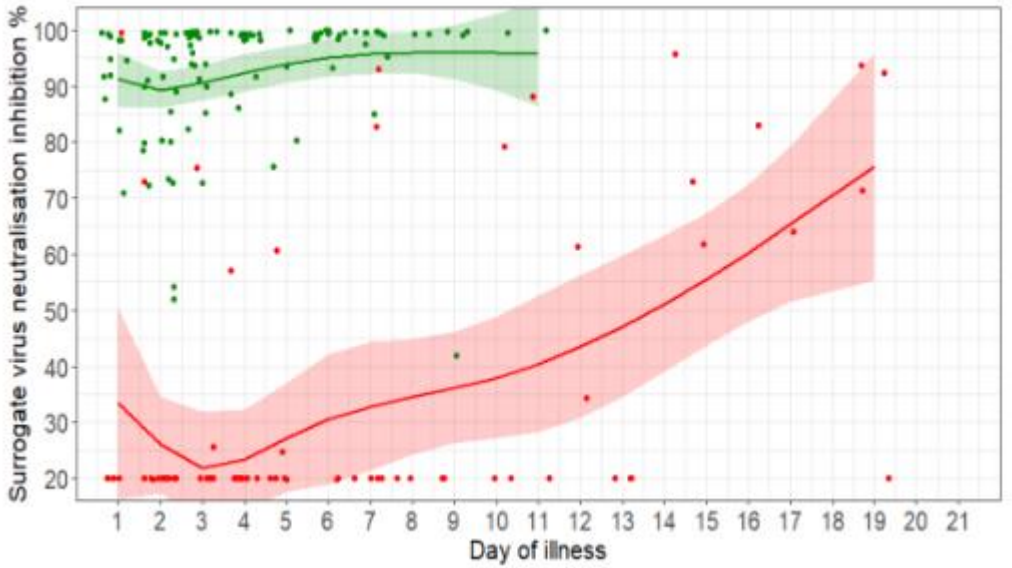
Comments (4)

Virological and serological kinetics of SARS-CoV-2 Delta variant vaccine-breakthrough infections: a multi-center cohort study

Po Ying Chia, Sean Wei Xiang Ong, Calvin J Chiew, Li Wei Ang, Jean-Marc Chavatte, Tze-Minn Mak, Lin Cui, Shirin Kalimuddin, Wan Ni Chia, Chee Wah Tan, Louis Yi Ann Chai, Seow Yen Tan, Shuwei Zheng, Raymond Tzer Pin Lin, Linfa Wang, Yee-Sin Leo, Vernon J Lee, David Chien Lye, Barnaby Edward Young

- Of 218 individuals with B.1.617.2 infection, 84 had received a mRNA vaccine of which 71 were fully vaccinated, 130 were unvaccinated and 4 received a non-mRNA. Despite significantly older age in the vaccine breakthrough group, the odds of severe COVID-19 requiring oxygen supplementation was significantly lower following vaccination (aOR 0.07 95%CI: 0.015-0.335, p=0.001).
- PCR Ct values were similar between both vaccinated and unvaccinated groups at diagnosis, but viral loads decreased faster in vaccinated individuals. Early, robust boosting of anti-spike protein antibodies was observed in vaccinated patients, however, these titers were significantly lower against B.1.617.2 as compared with the vaccine strain.





NIH COVID-19 Treatment Guidelines: Non-Hospitalized Adults

Updated: July 8, 2021

PATIENT DISPOSITION	PANEL'S RECOMMENDATIONS
Not Requiring Hospitalization or Supplemental Oxygen, As Determined by a Health Care Provider in ED or an In-Person or Telehealth Visit	Anti-SARS-CoV-2 monoclonal antibody products are recommended for outpatients with mild to moderate COVID-19 who are at high risk of disease progression, as defined by the EUA criteria (treatments are listed in alphabetical order):[a] • **Casirivimab plus imdevimab**; *or* • **Sotrovimab** At this time, the Panel **recommends against** the use of **bamlanivimab plus etesevimab** in these patients due to an increase in the proportion of potentially resistant variants **(AIII)**.[a] See text for details. The Panel **recommends against** the use of **dexamethasone** or **other systemic glucocorticoids** in the absence of another indication **(AIII)**.[b]
Discharged From Hospital Inpatient Setting in Stable Condition and Does Not Require Supplemental Oxygen	The Panel **recommends against** continuing the use of **remdesivir (AIIa)**, **dexamethasone (AIIa)**, or **baricitinib (AIIa)** after hospital discharge.
Discharged From Hospital Inpatient Setting and Requires Supplemental Oxygen *For those who are stable enough for discharge but who still require oxygen*[c]	There is insufficient evidence to recommend either for or against the continued use of remdesivir, dexamethasone, and/or baricitinib. Review the text below when considering the use of any of these agents after hospital discharge.
Discharged From ED Despite New or Increasing Need for Supplemental Oxygen *When hospital resources are limited, inpatient admission is not possible, and close follow-up is ensured*[d]	The Panel recommends using **dexamethasone** 6 mg PO once daily for the duration of supplemental oxygen (dexamethasone use should not exceed 10 days) with careful monitoring for adverse events **(BIII)**. There is insufficient evidence to recommend either for or against the use of remdesivir. When considering the use of remdesivir, review the text below for further discussion. The Panel **recommends against** the use of **baricitinib** in this setting, except in a clinical trial **(AIII)**.

https://www.covid19treatmentguidelines.nih.gov/

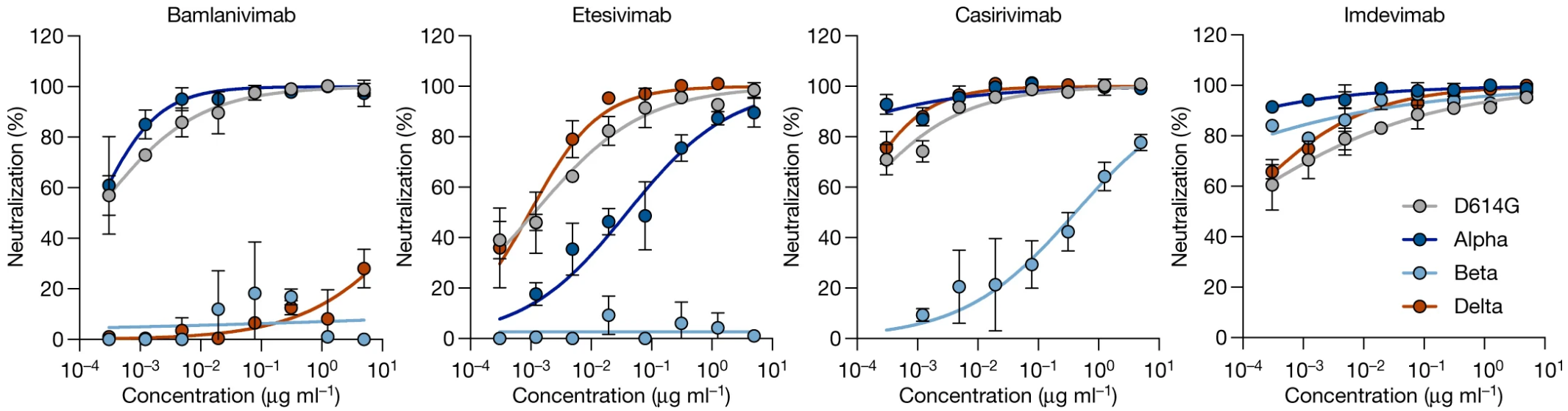
NIH COVID-19 Treatment Guidelines: Hospitalized Adults

Updated: July 8, 2021

DISEASE SEVERITY	PANEL'S RECOMMENDATIONS
Hospitalized but Does Not Require Supplemental Oxygen	The Panel **recommends against** the use of **dexamethasone (AIIa)** or other **corticosteroids (AIII)**.[a] There is insufficient evidence to recommend either for or against the routine use of remdesivir. For patients who are at high risk of disease progression, the use of remdesivir may be appropriate.
Hospitalized and Requires Supplemental Oxygen	Use one of the following options: • **Remdesivir**[b,c] (e.g., for patients who require minimal supplemental oxygen) **(BIIa)** • **Dexamethasone**[d] **plus remdesivir**[b,c] (e.g., for patients who require increasing amounts of supplemental oxygen) **(BIII)** • **Dexamethasone**[d] (when combination therapy with remdesivir cannot be used or is not available) **(BI)**
Hospitalized and Requires Oxygen Delivery Through a High-Flow Device or Noninvasive Ventilation	Use one of the following options: • **Dexamethasone**[d] **(AI)** • **Dexamethasone**[d] **plus remdesivir**[b,c] **(BIII)** For patients who were recently hospitalized[e] with rapidly increasing oxygen needs and systemic inflammation: • Add either **baricitinib**[f,g] **(BIIa)** or **tocilizumab**[f,h] **(BIIa)** to one of the two options above
Hospitalized and Requires IMV or ECMO	For most patients: • **Dexamethasone**[d,i] **(AI)** For patients who are within 24 hours of admission to the ICU: • **Dexamethasone**[d,i] **plus tocilizumab**[f,h] **(BIIa)**

https://www.covid19treatmentguidelines.nih.gov/

Monoclonals vs. Delta



- Bamlanivimab/etesevimab: poor performance against earlier VOC, no longer offered.
- Casirivimab/imdevimab: maintains efficacy against VOC including Delta. Available.
- Sotrovimab also available. (Not part of this study.)

https://www.nature.com/articles/s41586-021-03777-9

Are Breakthrough Cases A Problem?

ORIGINAL ARTICLE

Covid-19 Breakthrough Infections in Vaccinated Health Care Workers

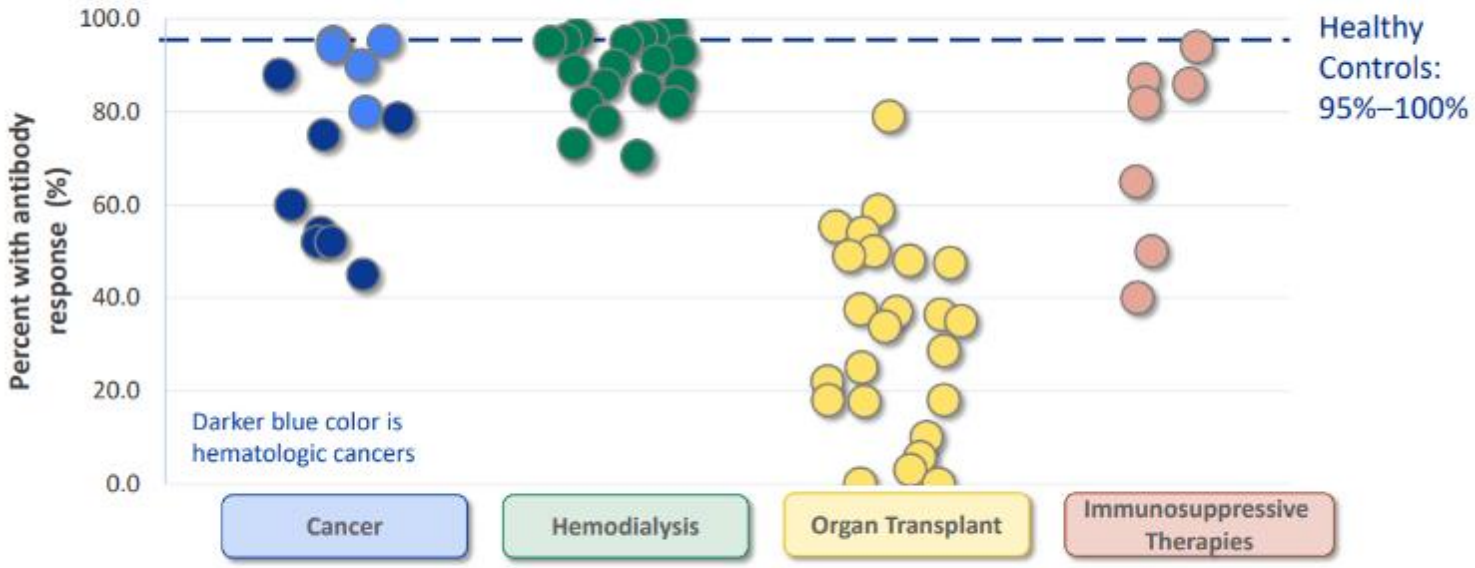
Moriah Bergwerk, M.B., B.S., Tal Gonen, B.A., Yaniv Lustig, Ph.D., Sharon Amit, M.D., Marc Lipsitch, Ph.D., Carmit Cohen, Ph.D., Michal Mandelboim, Ph.D., Einav Gal Levin, M.D., Carmit Rubin, N.D., Victoria Indenbaum, Ph.D., Ilana Tal, R.N., Ph.D., Malka Zavitan, R.N., M.A., et al.

- 39/1497 = 2.6% breakthrough rate for Jan-Apr 2021 in Israel
- Breakthrough infections had Ct < 30 in 74% of cases, of these 59% had positive virus antigen
- All breakthrough infections were mild, 33% were asymptomatic. It is possible there were more asymptomatic cases which were missed.
- Mean age was 43-45 yo, no one with BMI>30, one immunosuppressed case
- No secondary infections were documented, possibly thanks to ongoing masking
- Study done during Alpha wave, expect higher breakthrough incidence with Delta
- Of symptomatic cases, 19% reported symptoms lasting 6 weeks or longer

https://www.nejm.org/doi/full/10.1056/NEJMoa2109072

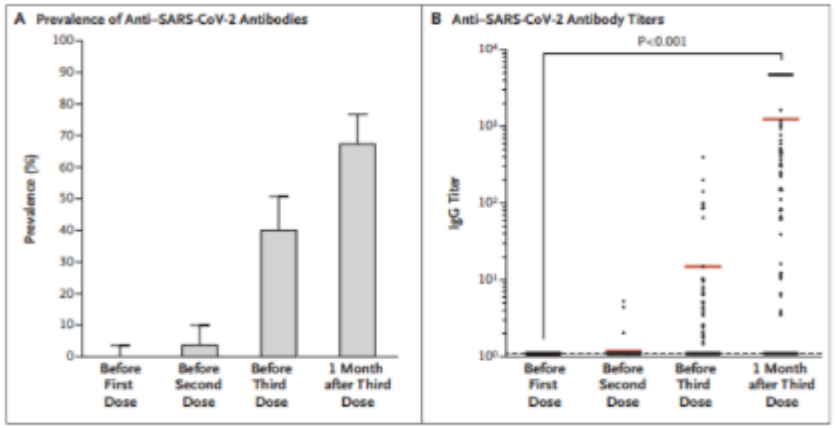
Are Boosters Necessary?

Percent of subjects with antibody response after two mRNA vaccine doses by immunocompromising condition and study (n=63)



- Studies that compared response after 1st and 2nd dose demonstrated poor response to dose 1
- Antibody measurement and threshold levels vary by study protocol

See reference list at end



https://www.nejm.org/doi/pdf/10.1056/NEJMc2108861

https://www.cdc.gov/vaccines/acip/meetings/slides-2021-07-22.html

Are Boosters Necessary?

- Study in Israel, early mass rollout of Pfizer mRNA
- Nationwide healthcare system, EHR data
- 33,993 fully vaccinated adults tested 05-07/2021
- Significantly higher rate of positive results among patients who received second vaccine dose ≥146 days before the RT-PCR test compared to patients who have vaccinated <146 days before. Severity not included.
- OR for infection: Overall 2.23 (95% CI: 1.87-2.66)
  - 3.00 for patients aged ≥60 (95% CI: 1.86-5.11)
  - 2.29 for patients aged 40-59 (95% CI: 1.67-3.17)
  - 1.74 for patients aged 18-39 (95% CI: 1.27-2.37)
- "Interpretation of study findings is limited by the observational design; but may warrant the consideration of an additional vaccine dose in individuals at risk for severe disease."

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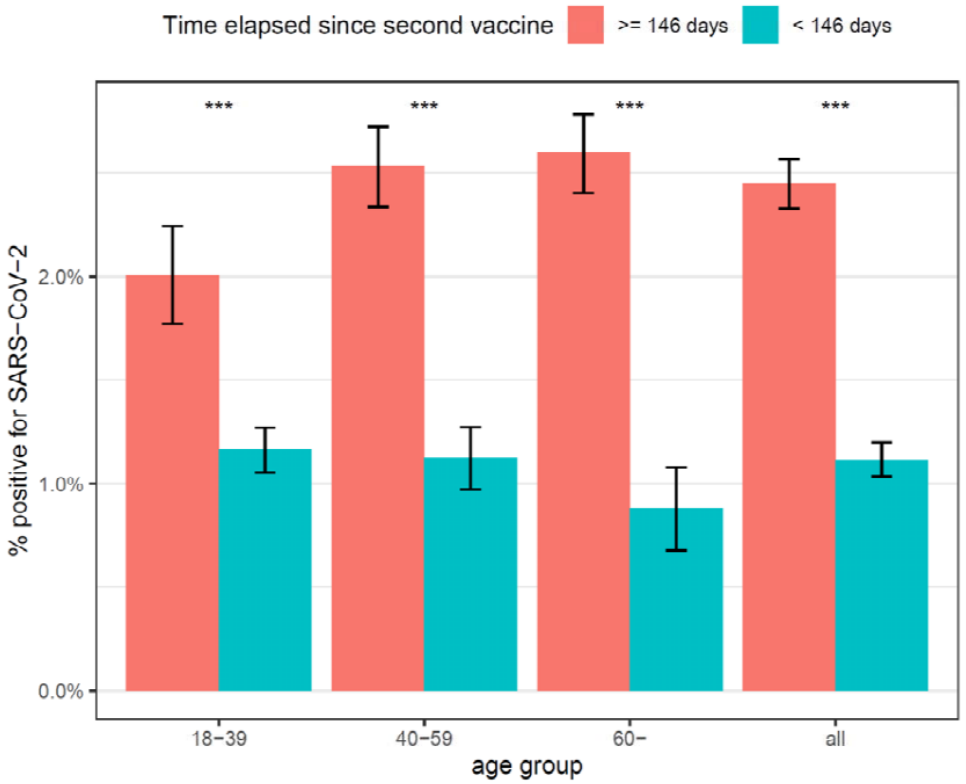
Elapsed time since BNT162b2 vaccine and risk of SARS-CoV-2 infection in a large cohort

Ariel Israel, Eugene Merzon, Alejandro A Schäffer, Yotam Shenhar, Ilan Green, Avivit Golan-Cohen, Eytan Ruppin, Eli Magen, Shlomo Vinker

doi: https://doi.org/10.1101/2021.08.03.21261496



https://www.medrxiv.org/content/10.1101/2021.08.03.21261496v1

Current Recommendations

CDC: A patient is considered fully vaccinated ≥2 weeks after a 2-dose mRNA COVID-19 vaccine series or ≥2 weeks after a single dose of Janssen COVID-19 Vaccine. The need for and timing of COVID-19 booster doses have not been established. No additional doses are recommended at this time (https://www.cdc.gov/vaccines/covid-19/hcp/faq.html).

The CDC and FDA do not currently recommend boosters for any population group. However, clinicians can make individual assessments of their patients' risk based on clinical factors.

CLINICIAN JUDGMENT:

- Transplant, cancer, AIDS, immunomodulators: discuss with specialist.
  Serologic tests can be difficult to interpret.
- Immunocompetent patient aged >65: shared decision making around risks vs. benefits.
  Can check SARS-CoV2 semi-quantitative antibodies to spike protein in LabCorp.
- If decision is made for third dose of mRNA (or a dose of mRNA after initial adenovirus vaccine): document as an individual decision based on risk factors, previous non-response to vaccine.

GW Updates:

- Consider mAb in high-risk patients
- Please remain vigilant with masking and PPE
- Minimize crowding in enclosed spaces
- Eat outside or in turns whenever possible
- Exposure concerns: Occupational Health
- Vaccines work! And are mandatory now
- If interested in boosters:
- Immunocompromised, older, high-risk: discuss with PCP, specialist, or ID
- All others: trials available
- Layer safety measures
- Be kind to self and others