NORTHEAST

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Medical Director NEBGH

Monday June 27th, 2022

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BUSINESS GROUP ON HEALTH

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2020-2022

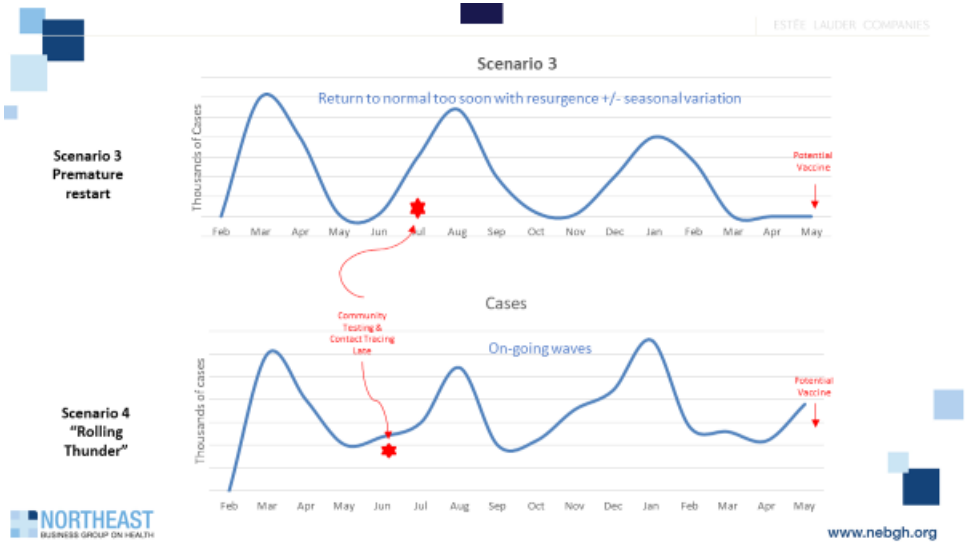
COVID-19 Updates

DR MARK'S 2¢ FOREVER

NEBGH PANDEMIC SERIES

What we got right!

- Suspend business travel and WFH and follow the data – March 2020
- Effectiveness if masks and there's no one COVID-19: there are innumerable different viruses evolving over time – April 2020
- Mental health as a major issue, speed to get vaccines and testing – May 2020
- Reopening too soon, antigen testing, and future waves – May 2020
- Clusters and super spreader events, waning immunity, and Layers of control – June 2020
- Treatments, surface survival, pandemic fatigue and employer's role in vaccine communications – Oct 2020



What we got right!

- Winter surge of 2020 and surveillance testing strategies– October 2020
- Long-COVID and aerosol spread – November 2020
- Vaccine hesitancy, vaccination safe in pregnancy – December 2020
- Virus, vaccines, testing and behaviors impact pandemic; effectiveness of vaccines; prediction US would follow UK/Europe – Jan 2021
- New more infectious variants and hidden variant surges – Feb 2021
- Vulnerable populations; health impacts of the pandemic and focus on reinvigorating preventative and wellness programs– March 2021
- “There’s still a pandemic raging out there!” – April 2021
- Immunity is not an On/Off switch – June 2021
- Summer surge and risks from Delta – July 2021
- The need for boosters and need to vaccinate the world – August 2021
- Endemic state and disease burden – Oct 2021
- Omicron is coming cancel those end of year parties!– November 2021
- Vaccinated people may get symptoms before testing positive – Dec 2021
- Challenges of RTW with a tsunami of Omicron – January 2022
- Caution with CDC community risk map – April 2022

What we got less right!

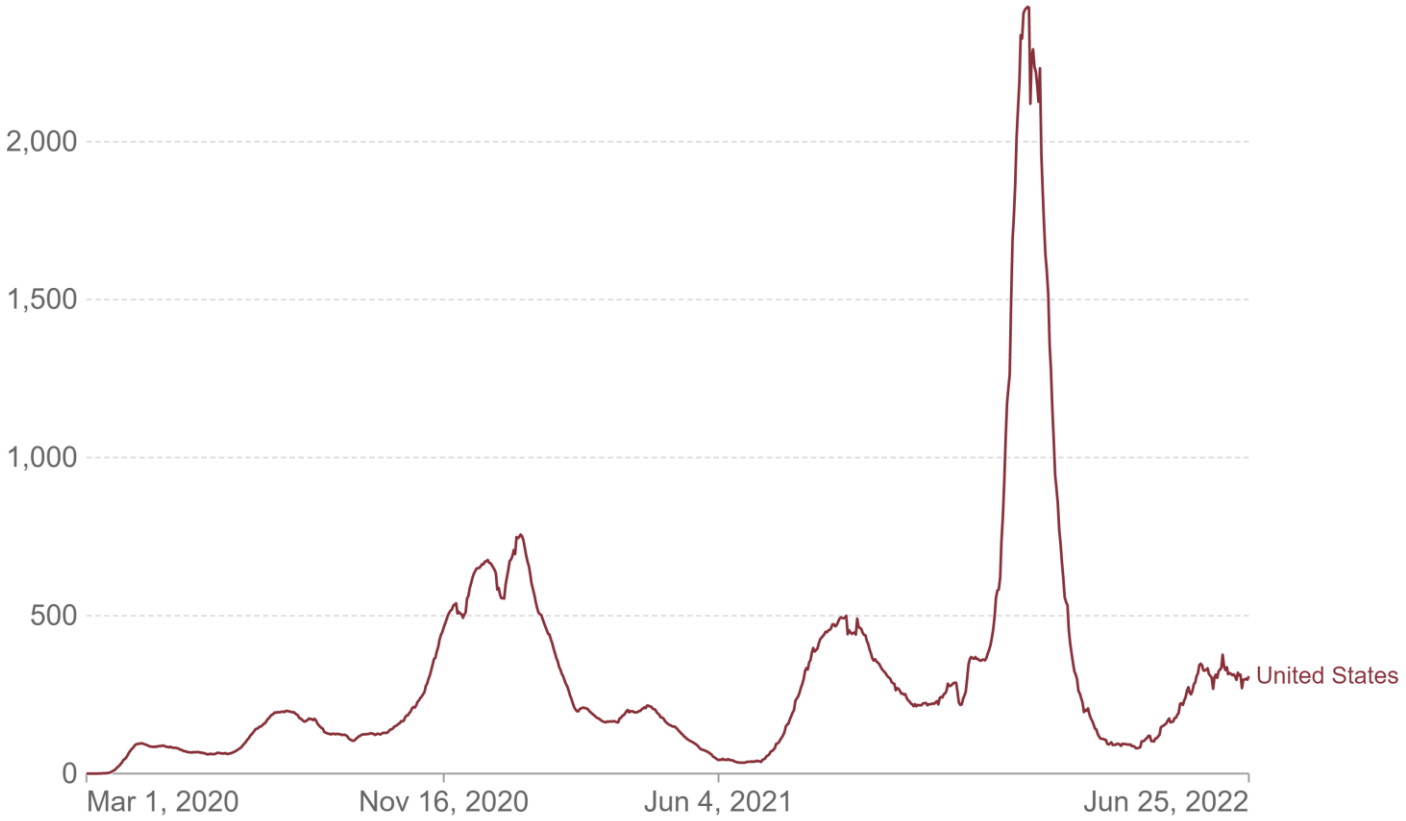
- Surface transmission and PCR testing post infection – March 2020
- Someone was unlikely to get COVID more than once! – April 2020
- Return to work – May 2020!
- Antibody testing and contact tracing apps – June 2020
- “Light at the end of the tunnel” – November 2020!
- Resurgence of low value care – Jan 2021
- Travel passports (US) – Jan 2021
- China’s ability to maintain a Zero-COVID policy – March 2022

Where are we in the pandemic?

Daily new confirmed COVID-19 cases per million people

7-day rolling average. Due to limited testing, the number of confirmed cases is lower than the true number of infections.

Our World in Data

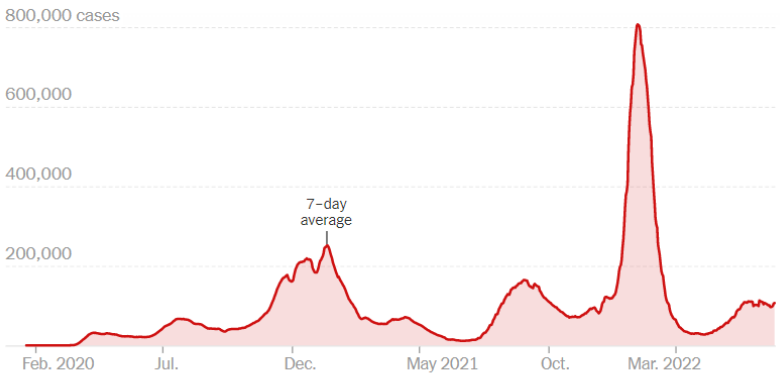


Source: Johns Hopkins University CSSE COVID-19 Data

U.S. trends

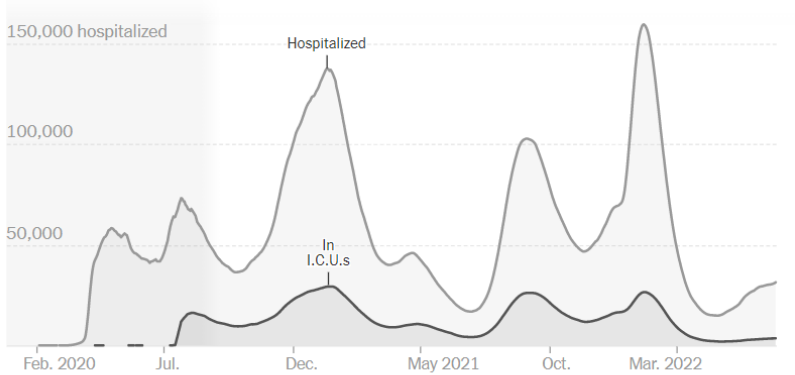
All time | Last 90 days

New reported cases by day

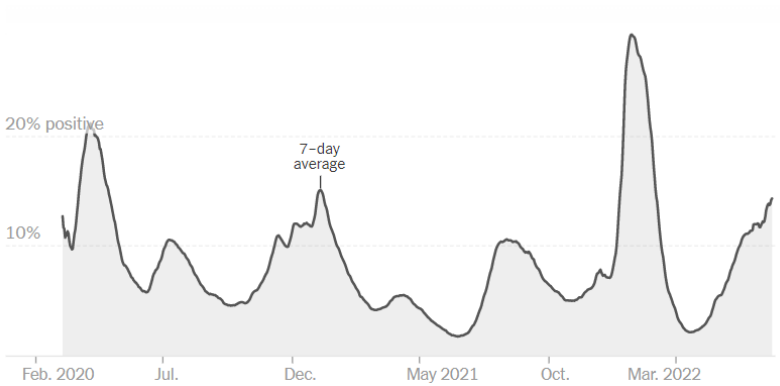


Covid patients in hospitals and I.C.U.s

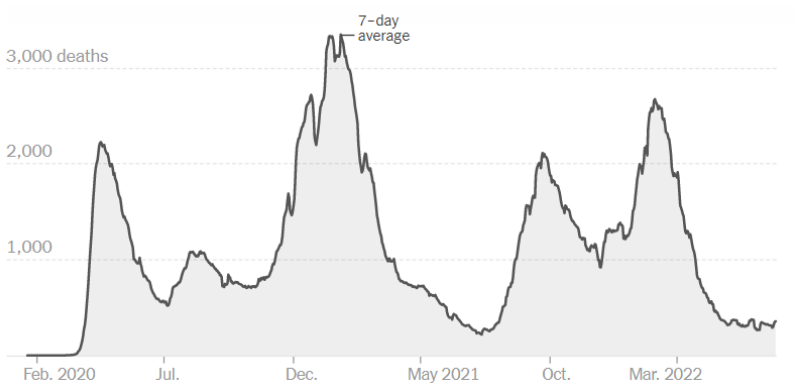
Early data may be incomplete.

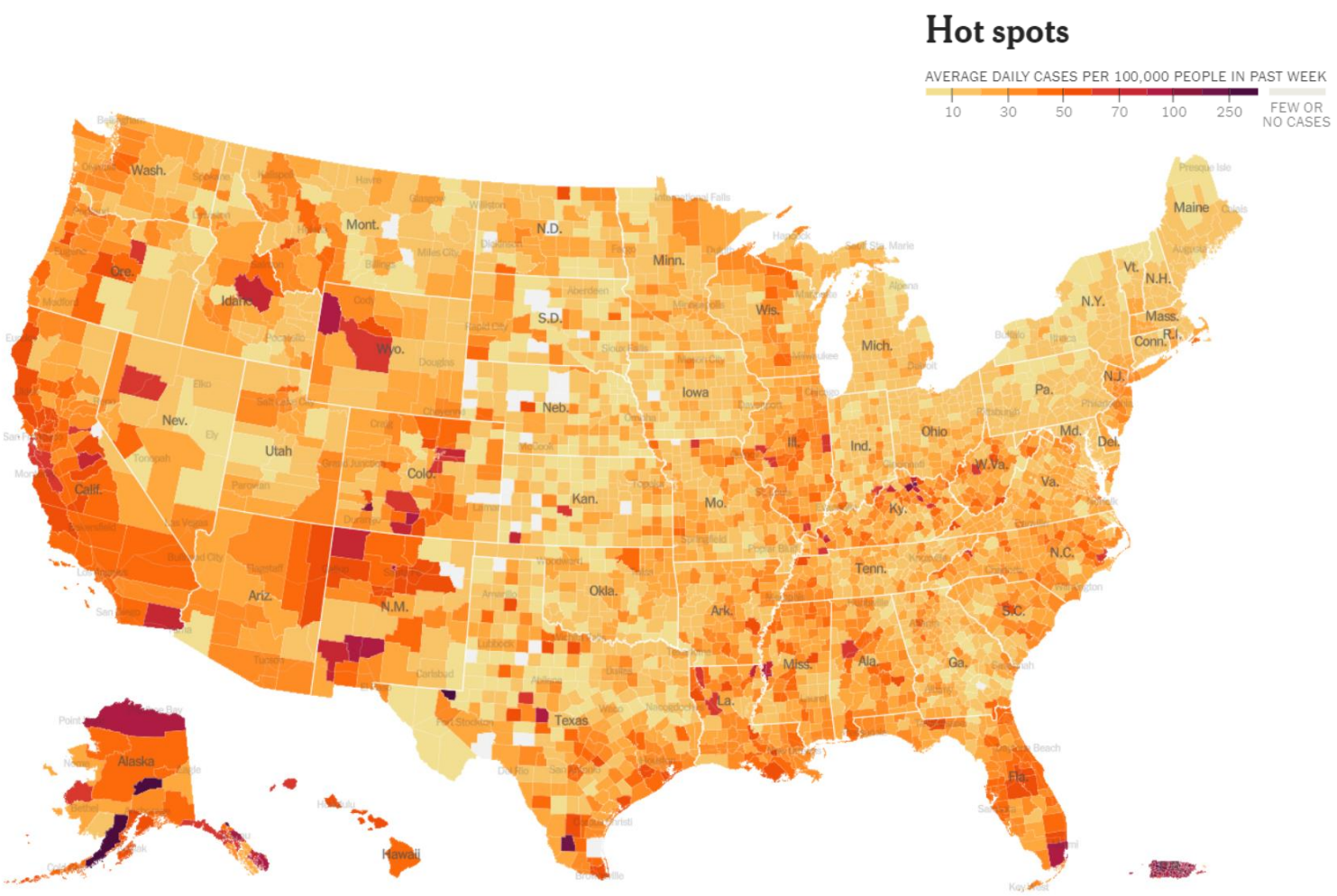


Test positivity rate

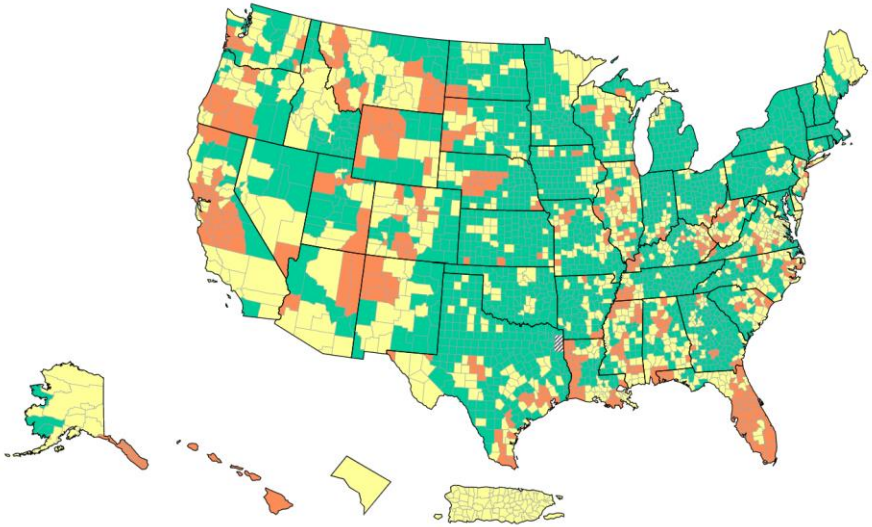


New reported deaths by day



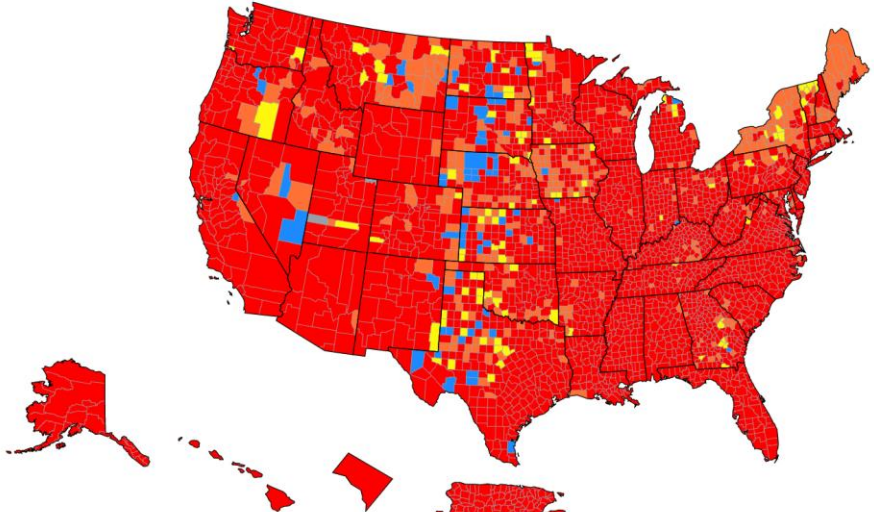

Hot spots
AVERAGE DAILY CASES PER 100,000 PEOPLE IN PAST WEEK
10
30
50
70
100
250
FEW OR NO CASES
Wash.
Ore.
Calif.
Idaho
Nev.
Mont.
Wyo.
Utah
Ariz.
Colo.
N.M.
N.D.
S.D.
Neb.
Kan.
Okla.
Texas
Minn.
Iowa
Mo.
Ark.
La.
Wis.
Ill.
Mich.
Ind.
Ohio
Ky.
Tenn.
Miss.
Ala.
Ga.
Fla.
S.C.
N.C.
Va.
W.Va.
Pa.
N.Y.
Md.
Del.
N.J.
Conn.
R.I.
Mass.
Vt.
N.H.
Maine
Alaska
Hawaii

Where are we in the pandemic?



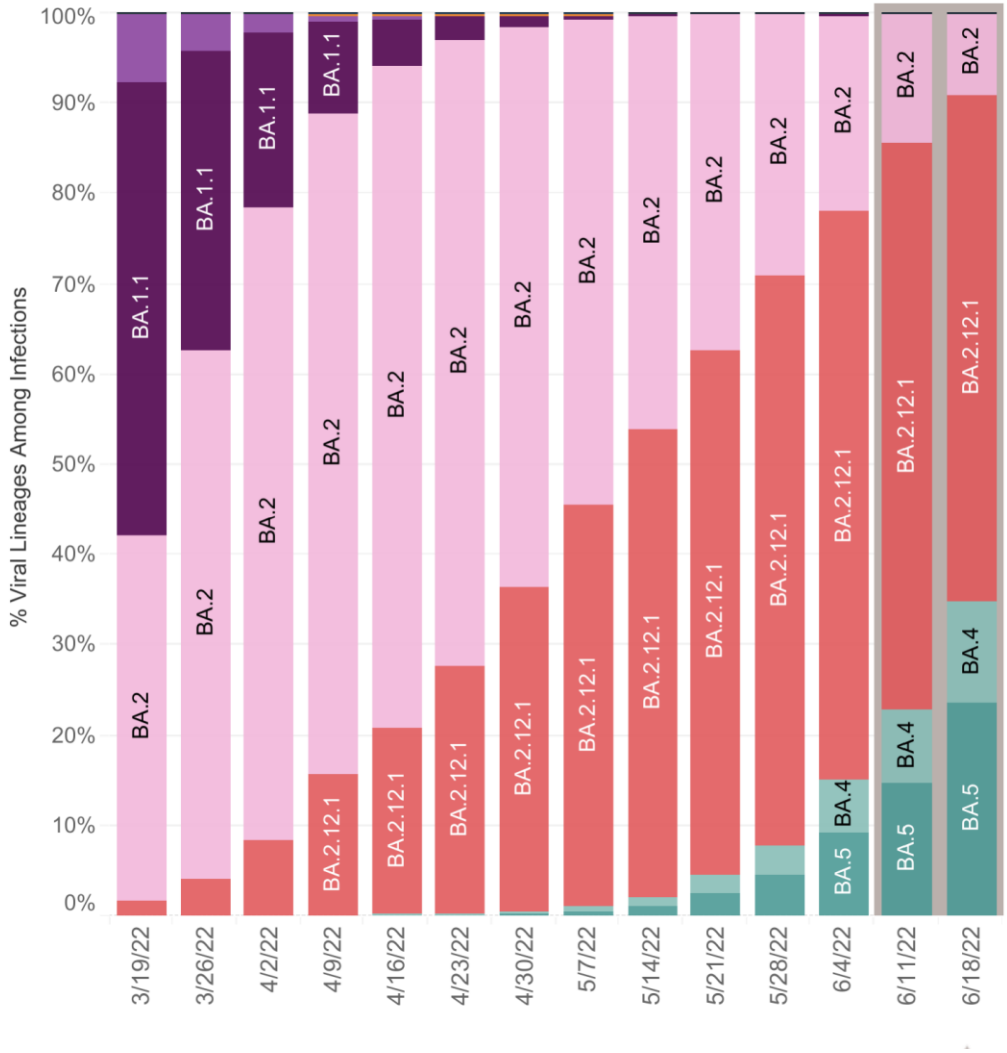
COVID-19 Community Levels in US by County

	Total	Percent	% Change
High	392	12.17%	1.96%
Medium	997	30.95%	1.58%
Low	1832	56.88%	– 3.54%



Community Transmission in US by County

	Total	Percent	% Change
High	2696	83.67%	1.15%
Substantial	355	11.02%	0.81%
Moderate	99	3.07%	– 1.55%
Low	70	2.17%	– 0.43%



USA

WHO label	Lineage #	US Class	%Total	95%PI
Omicron	BA.2.12.1	VOC	56.0%	51.4-60.5%
	BA.5	VOC	23.5%	20.3-27.0%
	BA.4	VOC	11.4%	8.8-14.5%
	BA.2	VOC	9.1%	7.9-10.5%
	BA.1.1	VOC	0.0%	0.0-0.0%
	B.1.1.529	VOC	0.0%	0.0-0.0%
Delta	B.1.617.2	VBM	0.0%	0.0-0.0%
Other	Other*		0.0%	0.0-0.0%

* Enumerated lineages are US VOC and lineages circulating above 1% nationally in at least one week period. "Other" represents the aggregation of lineages which are circulating <1% nationally during all weeks displayed.
** These data include Nowcast estimates, which are modeled projections that may differ from weighted estimates generated at later dates
# AY.1-AY.133 and their sublineages are aggregated with B.1.617.2. BA.1, BA.3 and their sublineages (except BA.1.1 and its sublineages) are aggregated with B.1.1.529. For regional data, BA.1.1 and its sublineages are also aggregated with B.1.1.529, as they currently cannot be reliably called in each region. Except BA.2.12.1, BA.2 sublineages are aggregated with BA.2. BA.5.1 is aggregated with BA.5.

In May 2022, compared to people who are up-to-date with COVID-19 vaccination, monthly rates of COVID-19-associated hospitalizations were **3.5x Higher in Unvaccinated Adults Ages 18 Years and Older.**

1.4x Higher
in Unvaccinated Children Ages 5-11 Years

2.1x Higher
in Unvaccinated Adolescents Ages 12-17 Years

2.7x Higher
in Unvaccinated Adults Ages 18-49 Years

3.4x Higher
in Unvaccinated Adults Ages 50-64 Years

3.8x Higher
in Unvaccinated Adults Ages 65 Years and Older

Reset Filters

View

Age-Adjusted Rates

Age-Specific Rates

Filters

Season
All

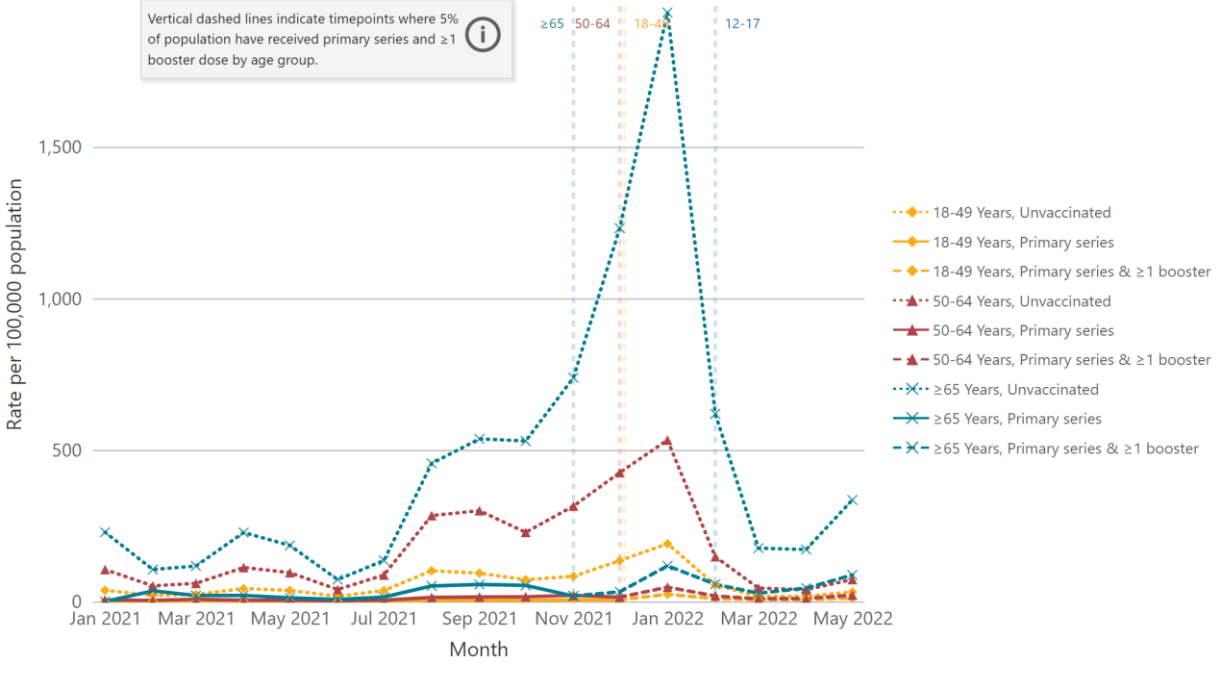
Vaccine Status
All

Age Group
- [ ] 5-11 Years
- [ ] 12-17 Years
- [x] 18-49 Years
- [x] 50-64 Years
- [x] ≥65 Years

Rates of COVID-19-Associated Hospitalization by Vaccination Status

in all eligible age groups, January 2021 - May 2022

Vertical dashed lines indicate timepoints where 5% of population have received primary series and ≥1 booster dose by age group.



Summary

- Improving situation in Northeast and Midwest – South and West deteriorating
- While case rates high –
  - Only modest increase in hospitalizations and ICU patients
  - death rates remain low
- Is Omicron milder or is disease severity being reduced by pre-existing immunity from vaccination and/or past infection?
- Answer: most likely from pre-existing immunity
- Which means:
  - Potential increased impact for Southern States with lower vaccination (and booster) rates
  - Potential increased impact as immunity wanes over time
    - Get people vaccinated and boosted

Three Potential Pandemic Scenarios (Other scenarios are possible or all 3 could happen over time)

Scenario	Description	Infecti-ousness	Immune Evasion	Severity	Disruption	Probability
Omicron Subvariants + modest existing immunity	*New variants with increased immune evasion but otherwise like Omicron*	*High*	*Moderate evasion of prior immunity from vaccines and infection*	*Severity similar or milder than Omicron if some protection against severe disease from Vaccination+/- infection*	*Many cases but impact on hospitalizations moderate – mostly elderly and high-risk. Society opts to "live with COVID". Some ongoing travel risks*	***Happening*** *BA2.12.1, BA.4 and BA.5 already happening. May cause on going modest waves into 2023…*
Omicron Subvariants + rapidly waning immunity	*New variants with increased immune evasion but otherwise like Omicron*	*High*	*Significant evasion of prior immunity from vaccines and infection*	*Severity like Omicron but as immunity wanes and/or evaded increasing severe illness and deaths in elderly and high risk*	*Many cases that could impact hospital capacity. Increased need for new treatments and new vaccines. May trigger government/social interventions if hospitals struggle*	***Possible*** *Variant trajectory indicates that this is a possible scenario by year end/early 2023*
New or recombinant variant with an earlier variant or another CoV e.g., MERS	New variants with increased immune evasion, infectivity and severity	*High*	*Moderate to severe evasion of prior immunity from vaccines and infection*	*Severity – depends on recombinant source – MERS has fatality rate of 35%*	*If severe, then significant disruption to economies and society. Hospitalization overload. Treatments and new vaccines key. PanβCoV vaccines may be essential*	***Low*** *Recombinant variants have occurred (XE, XD and XF – combinations of Omicron and Delta – 'deltacron'). Worst case (MERS recombinant) is low but could be a real scenario*

Key Risks/Drivers of Future Pandemic Scenarios by Region

	North America	LATAM	UK & EU	ME & India	Africa	Asia	China	Australia/NZ
Protective Factors	• mRNA Vaccines • High vax and booster rates (Canada) • Access to therapeutics • High level of community immunity* • Testing widely available	• Moderate level of community immunity* • High vax and booster rates Chile, reasonable in most countries	• mRNA Vaccines • High levels of vax and boosters • Controlled access to therapeutics • High level of community immunity* • Testing available (but decreasing)	• High levels of vaccination • Testing available	• S Africa has high level of community immunity* • SA has experienced BA4 and 5	• High vaccination rates (most countries) • Testing available	• Dynamic Zero-COVID policy • Strict government controls • Testing availability and use • Quarantine capabilities	• High level of community immunity (Australia) • Testing availability
Risk Factors	• Pandemic fatigue • Relaxation of government controls • “Living with COVID” • Modest Vax and low booster rates USA • Risk from BA 4&5	• Pandemic fatigue • Relaxation of government controls • “Living with COVID” • Some less-effective vaccines used • Access to testing • Risk of newer Omicron variant	• Pandemic fatigue • Relaxation of government controls • “Living with COVID” • BA 4 and 5	• Pandemic fatigue • Relaxation of government controls • “Living with COVID” • Mixed level of community immunity* • Some less-effective vaccines used	• Much of Africa - COVID naïve (?) and vulnerable population • Low vax and booster rates • Limited access to therapeutics • Modest healthcare system • Risk of newer Omicron variants	• Relaxation of government controls • “Living with COVID” • Mixed vaccine use • Limited access to therapeutics • Risk of newer Omicron variants	• Large COVID naïve and vulnerable population • Lower vax and booster rates in elderly • Unknown Zero-COVID exit strategy • Local vaccines • Limited access to therapeutics • Risk of newer Omicron variants	• Relaxation of government controls • “Living with COVID” • Risk of newer Omicron variants

Rapid Antigen
versus
PCR

Rapid Antigen Tests vs PCR vs Viral Culture

Rapid Antigen Tests = Sensitive & Specific to Detect Infectious Virus

PCR = sensitive but NOT Specific to Detect Infectious Virus (many False Positives via PCR)

	Test		Reference Test	Sensitivity	Specificity	Relevant to Transmission
All Subjects	Rapid Antigen	vs	PCR	41%	100%	Not Important
	Rapid Antigen	**vs**	**Virus Culture**	**96%**	**91%**	**Important**
	PCR	**vs**	Virus Culture	100%	**51%**	Important
Asymptomatic	Rapid Antigen	vs	PCR	12%	100%	Not Important
	Rapid Antigen	**vs**	**Virus Culture**	**100%**	**99%**	**Important**
	PCR	**vs**	Virus Culture	100%	**66%**	Important

Note 1: Virus Culture = Likely Infectious Virus

Note 2: The sensitivity of the Rapid Antigen test is likely a bit higher higher than reported here because the methods used a specimen that was already diluted down rather than going straight from the nose into the rapid test

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Questions

Upcoming NEBGH virtual events:

- **July 11 -** NEBGH Medical Director's Monday COVID-19 Update: Special Long COVID Edition
- **July 20 -** Social Determinants of Health and Your Employees: What You Can Do to Help