Network Systems Science & Advanced Computing

Biocomplexity Institute & Initiative

University of Virginia

Foresight and Analysis of Infectious Disease Threats to Virginia's Public Health

March 7th, 2024

(data current to February 29th – March 6th)

Biocomplexity Institute Technical report: TR BI-2024-20

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About Us

- Biocomplexity Institute at the University of Virginia
  - Using big data and simulations to understand massively interactive systems and solve societal problems
- Over 20 years of crafting and analyzing infectious disease models
  - Pandemic response for Influenza, Ebola, Zika, and others

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Overview

- **Goal**: Understand impact of current and emerging Infectious Disease threats to the Commonwealth of Virginia using modeling and analytics

- **Approach:**
  - Provide analyses and summaries of current infectious disease threats
  - Survey existing forecasts and trends in these threats
  - Analyze and summarize the current situation and trends of these threats in the broader context of the US and world
  - Provide broad overview of other emerging threats

Key Takeaways

COVID-19 indicators remain elevated, trends are mixed between steady and decline

- Hospital admissions and Visits with Diagnosed COVID are higher than they were at this point last year
  - Hospital admissions peak was ~20% lower than last year, but the peak this year is broader.
- Wastewater continues to show high viral loads, though may be receding
- Together this suggest continued plateaus in activity with likely decline in coming weeks.

Influenza is remains elevated in VA and across the US

RSV hospitalizations have reduced to minimal activity

COVID-19 Surveillance

District Diagnosed COVID Trajectories – last 10 weeks

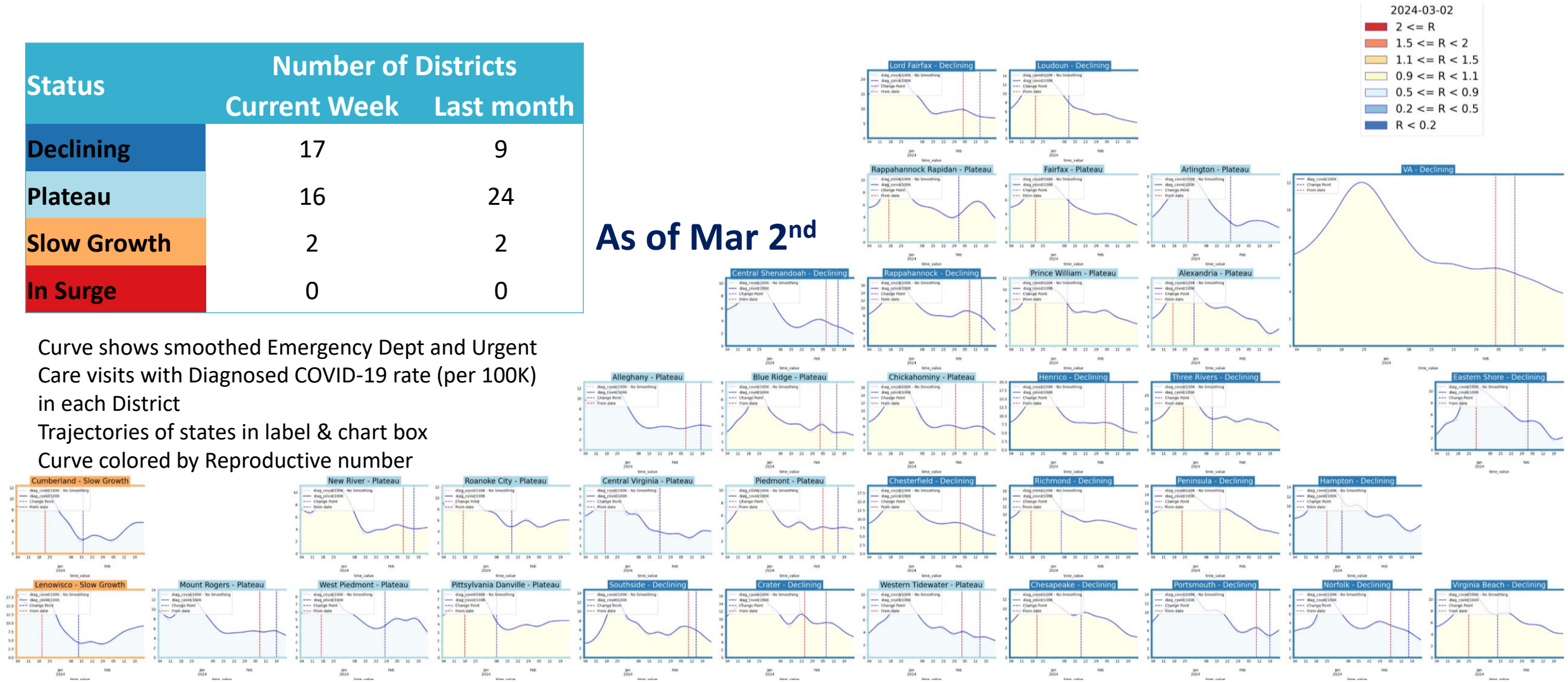
Status	Number of Districts	
	Current Week	Last month
Declining	17	9
Plateau	16	24
Slow Growth	2	2
In Surge	0	0

Curve shows smoothed Emergency Dept and Urgent Care visits with Diagnosed COVID-19 rate (per 100K) in each District

Trajectories of states in label & chart box

Curve colored by Reproductive number

As of Mar 2nd



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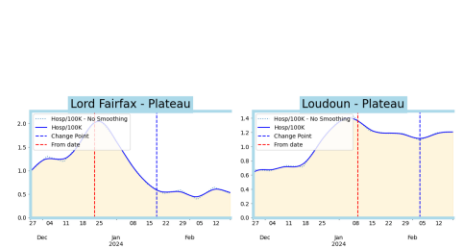
District Hospital Trajectories – last 10 weeks

Rt estimates from EpiNow2

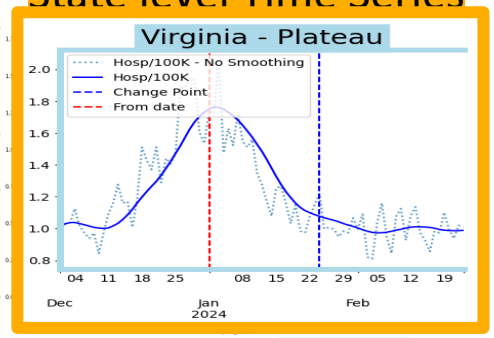
Status	Number of Districts	
	Current Week	Last week
Declining	6	8
Plateau	21	19
Slow Growth	8	8
In Surge	0	0

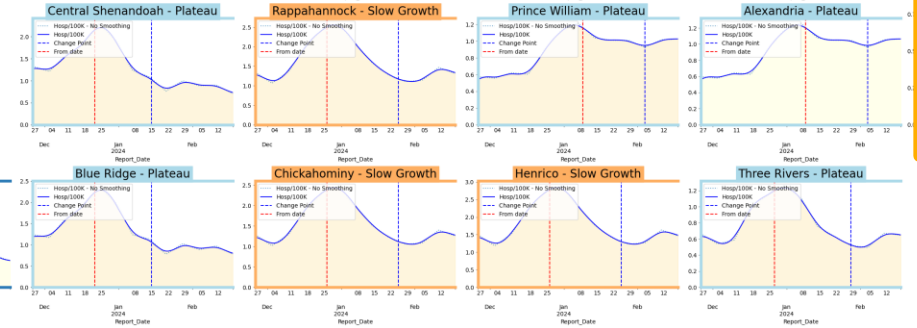
Hospitalization by county inferred from Facility data mapped to counties through Hospital Referral Regions.

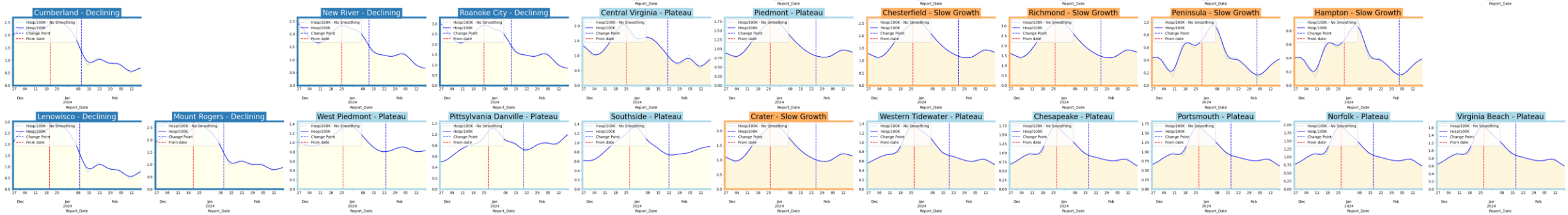
As of Feb 24th



State level Time Series







Curve shows smoothed hospitalization rate (per 100K) by district

Hosp rate curve colored by R_e number

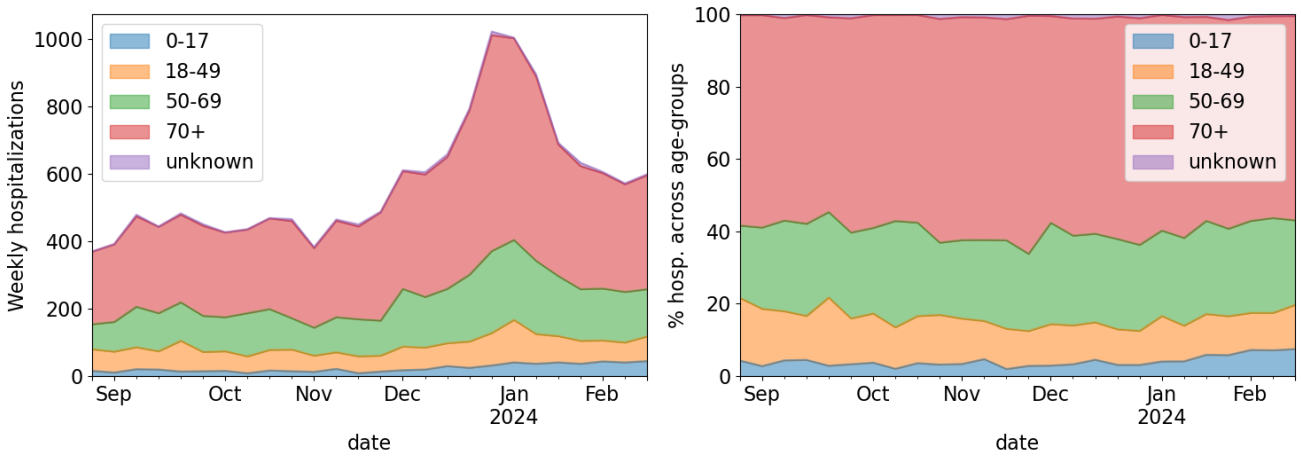
Hospitalizations in VA by Age

Age distribution in hospitals showing slight shift towards younger age groups

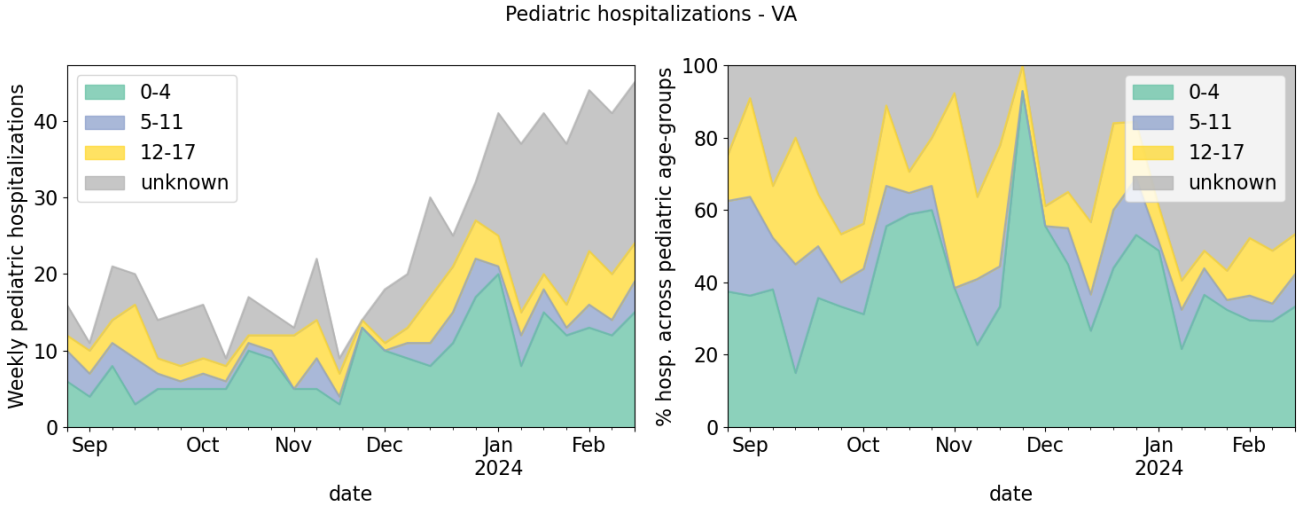
- Overall hospitalizations stable across all age groups
- Pediatric hospitalizations remain high compared to summer and fall

Note: These data are lagged and based on HHS hospital reporting

Virginia Hospitalizations by Age (all ages)



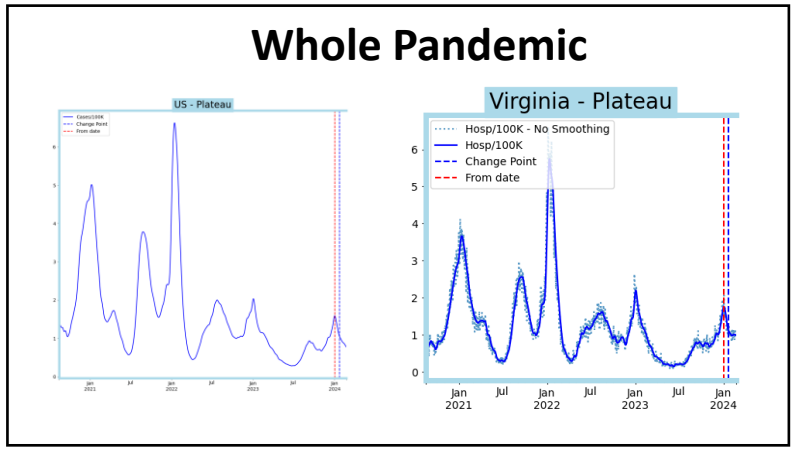
Pediatric Hospitalizations by Age (0-17yo)

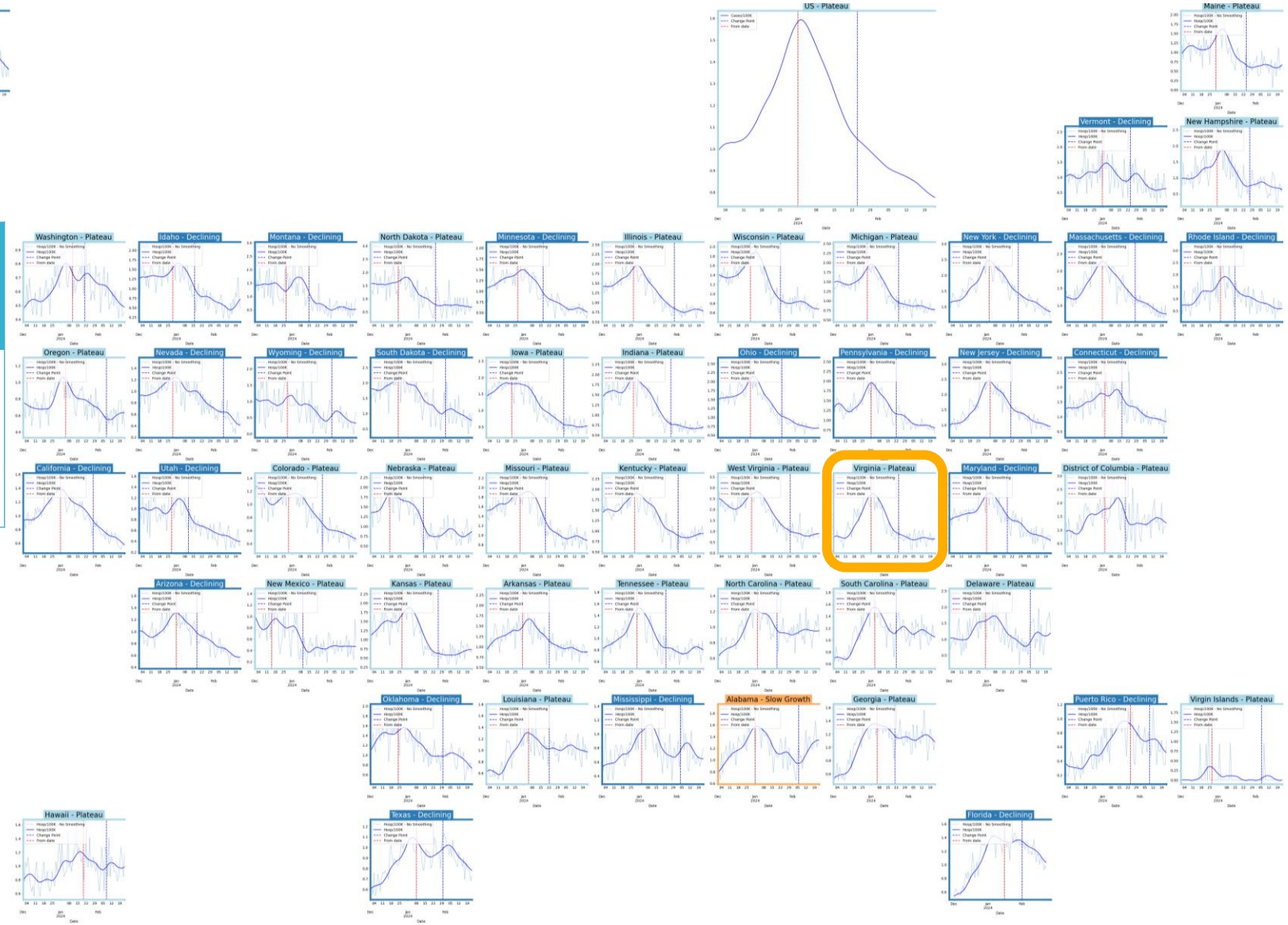


Data Source: Delphi and HHS

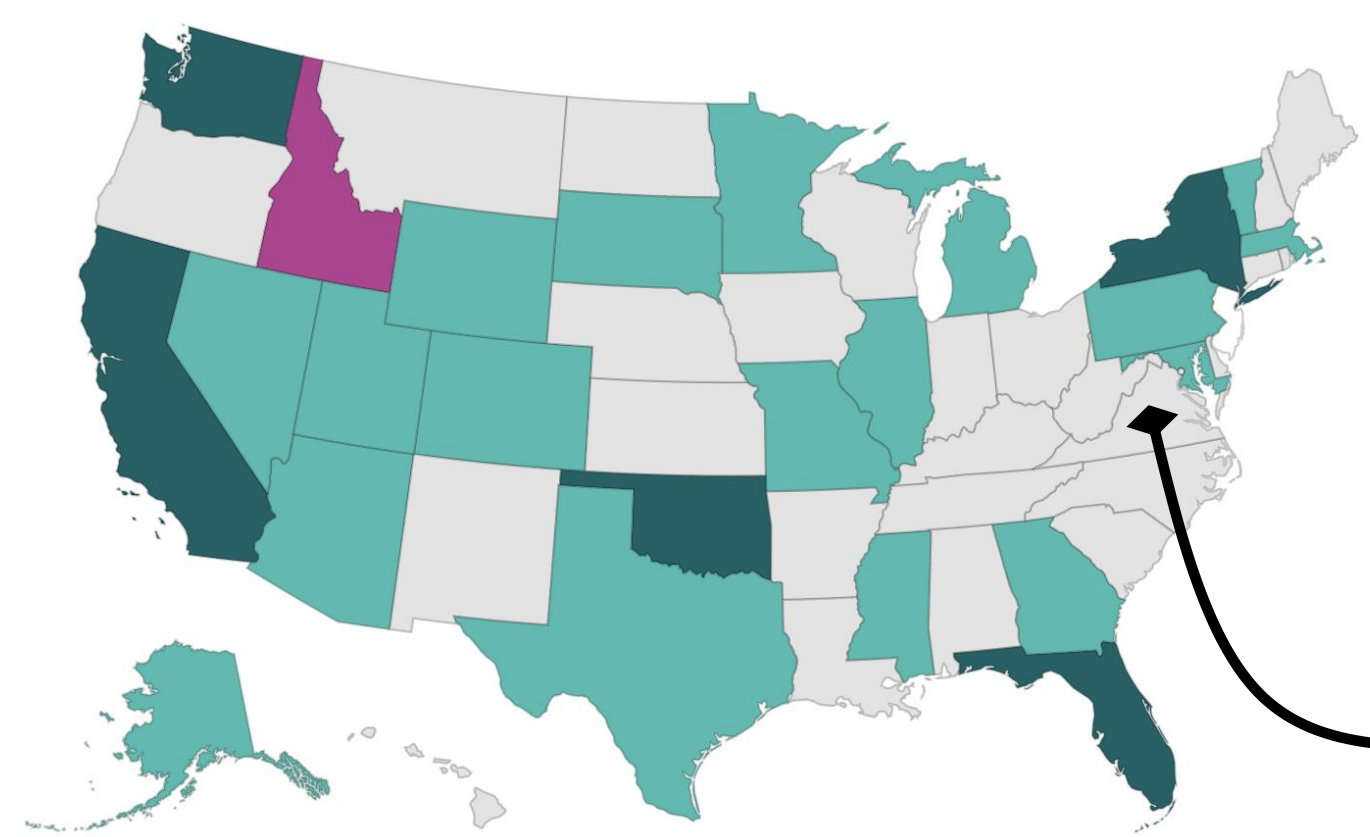
United States Hospitalizations

Status	Number of States	
	Current Week	Last Week
Declining	25	27
Plateau	27	25
Slow Growth	1	1
In Surge	0	0





COVID-19 Hospitalizations – Epidemic Growth



Territories PR VI

Epidemic Status

- Growing
- Likely Growing
- Stable or Uncertain
- Likely Declining
- Declining
- Not Estimated

Virginia

Probability Epidemic Is Growing: 0.481
Epidemic Status: Stable Or Uncertain

Data as of 2/22/24

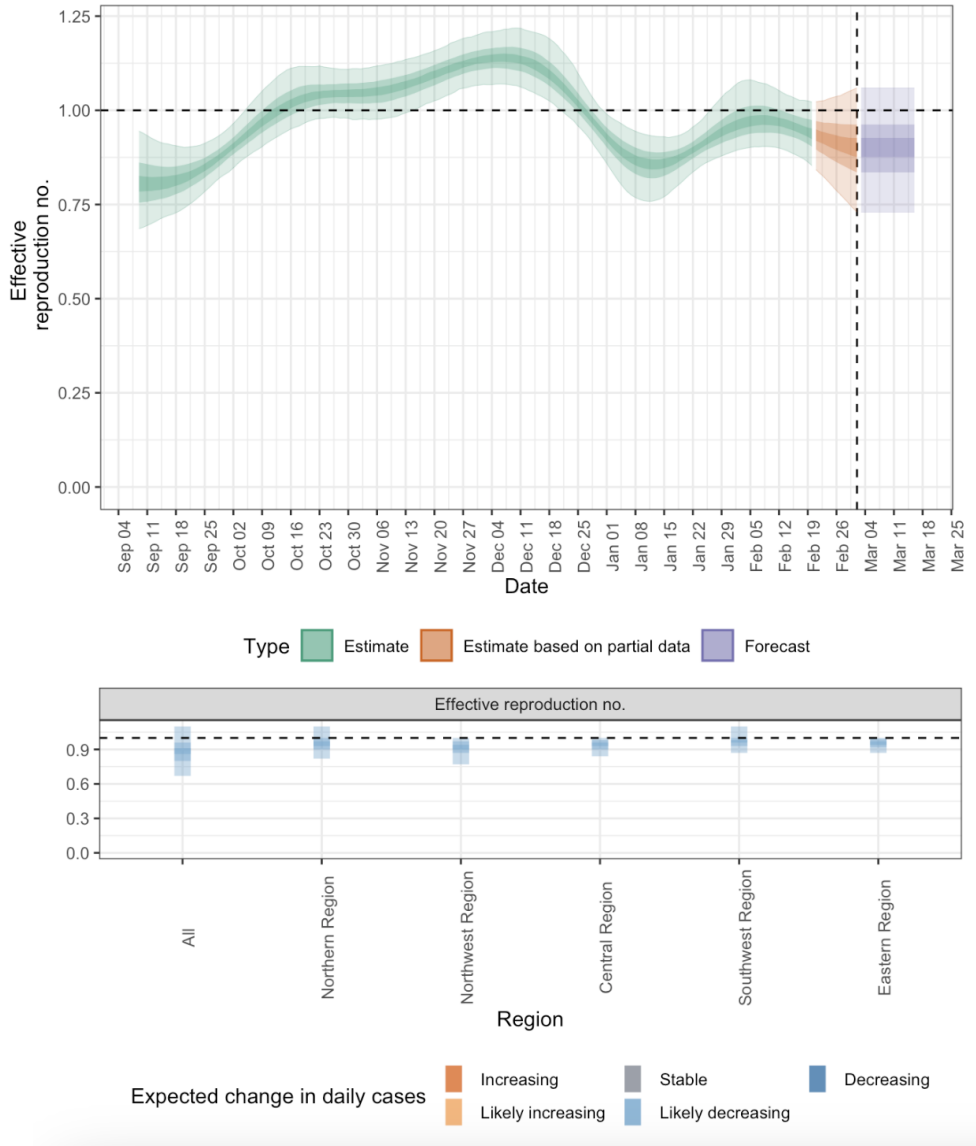
[CDC – CFA Epidemic Growth]

Estimating Daily Reproductive Number –
EpiNow2 estimation

Reproductive Estimate Summary, per data as of March 2nd, 2024

Region	Reproductive number estimate	Credible Interval	Trend forecast
State-wide	0.89	(0.67 – 1.1)	Likely decreasing
Central	0.94	(0.84 – 1)	Likely decreasing
Eastern	0.95	(0.87 – 1)	Likely decreasing
Northern	0.95	(0.82 – 1.1)	Likely decreasing
Northwest	0.92	(0.77 – 1)	Likely decreasing
Southwest	0.97	(0.87 – 1.1)	Likely decreasing

R_e per confirmed ED diagnosis (last 6 months)



Methodology

- Sam Abbott, Joel Hellewell, Katharine Sherratt, Katelyn Gostic, Joe Hickson, Hamada S. Badr, Michael DeWitt, Robin Thompson, EpiForecasts, Sebastian Funk (2020). **EpiNow2**: Estimate Real-Time Case Counts and Time-Varying Epidemiological Parameters. doi:10.5281/zenodo.3957489.
- COVID disease model parameters (including generation time and delay distributions) per CDC CFA blog: https://www.cdc.gov/forecast-outbreak-analytics/about/technical-blog-rt.html#anchor_01204
- Uses confirmation date but report date biases are accounted for; estimated date of infection is inferred using Bayesian smoothing techniques and used to produce Rt estimates.
- Source data: https://data.virginia.gov/dataset/vdh-covid-19-publicusedataset-cli-by-healthdistrict

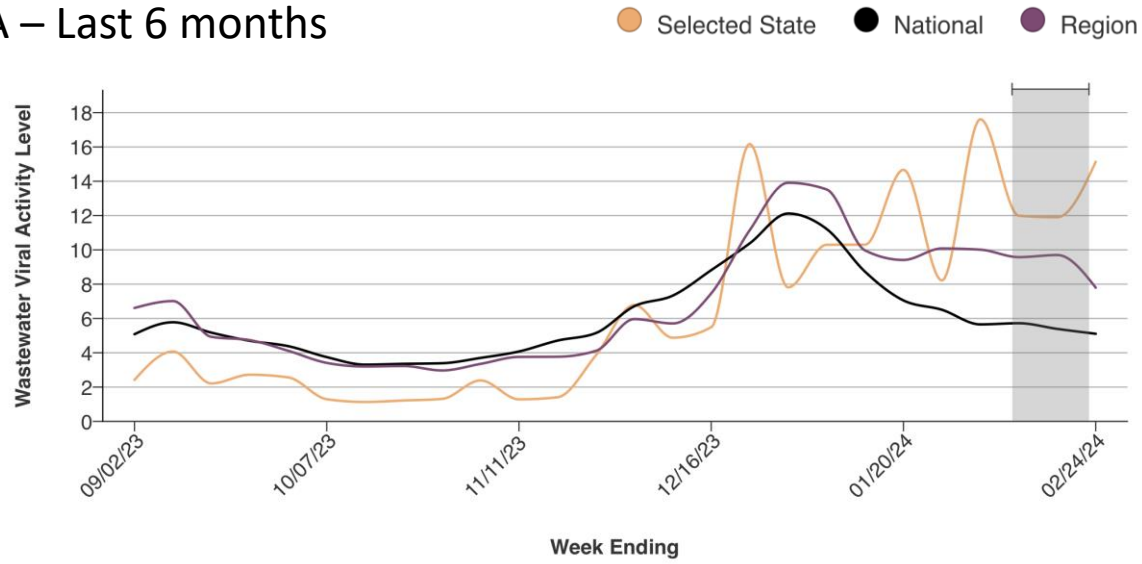
EpiNow2 home: https://epiforecasts.io/EpiNow2/

Wastewater Monitoring – NWSS

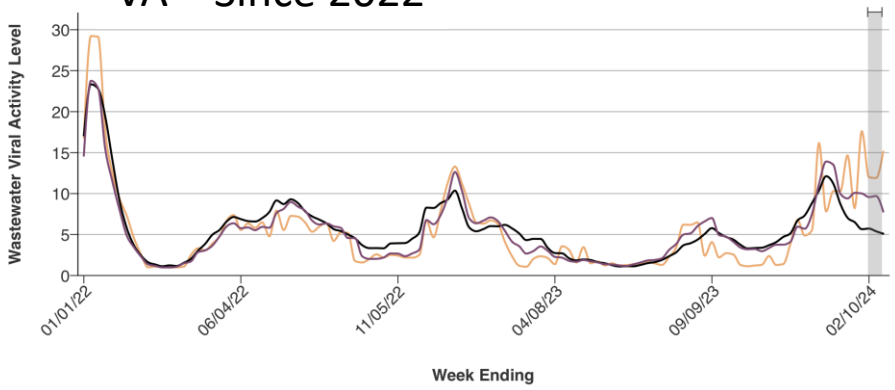
Wastewater provides a coarse estimate of COVID-19 levels in communities

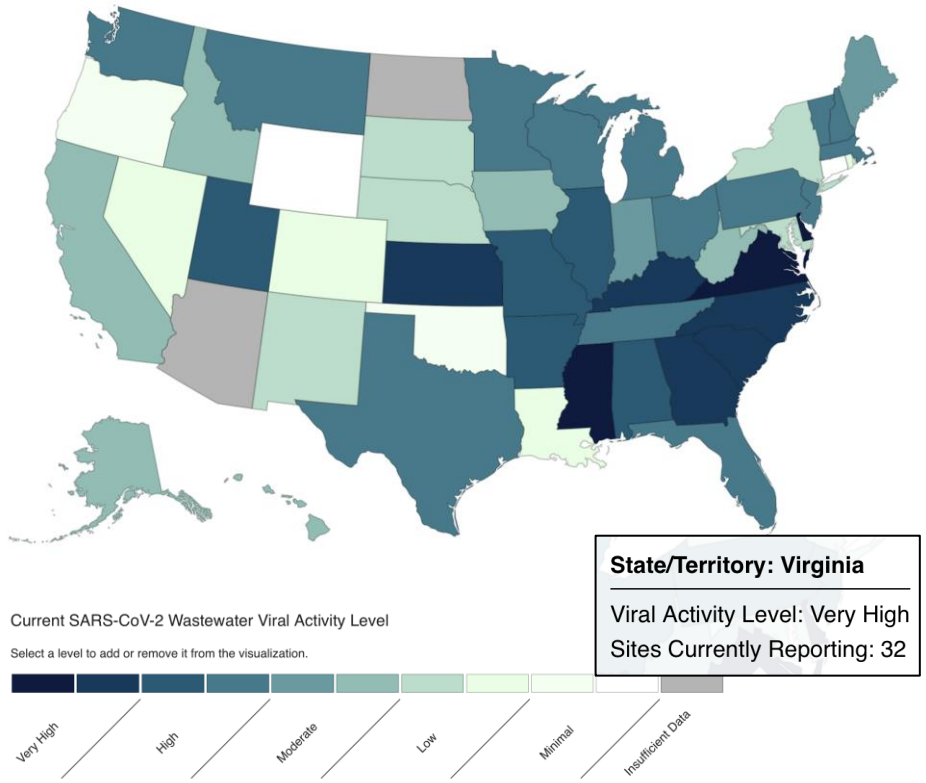
- VA back to “Moderate” after being ”Very High” due to artifacts last week
- Pervious, well observed, levels below region and national levels

VA – Last 6 months



VA – Since 2022





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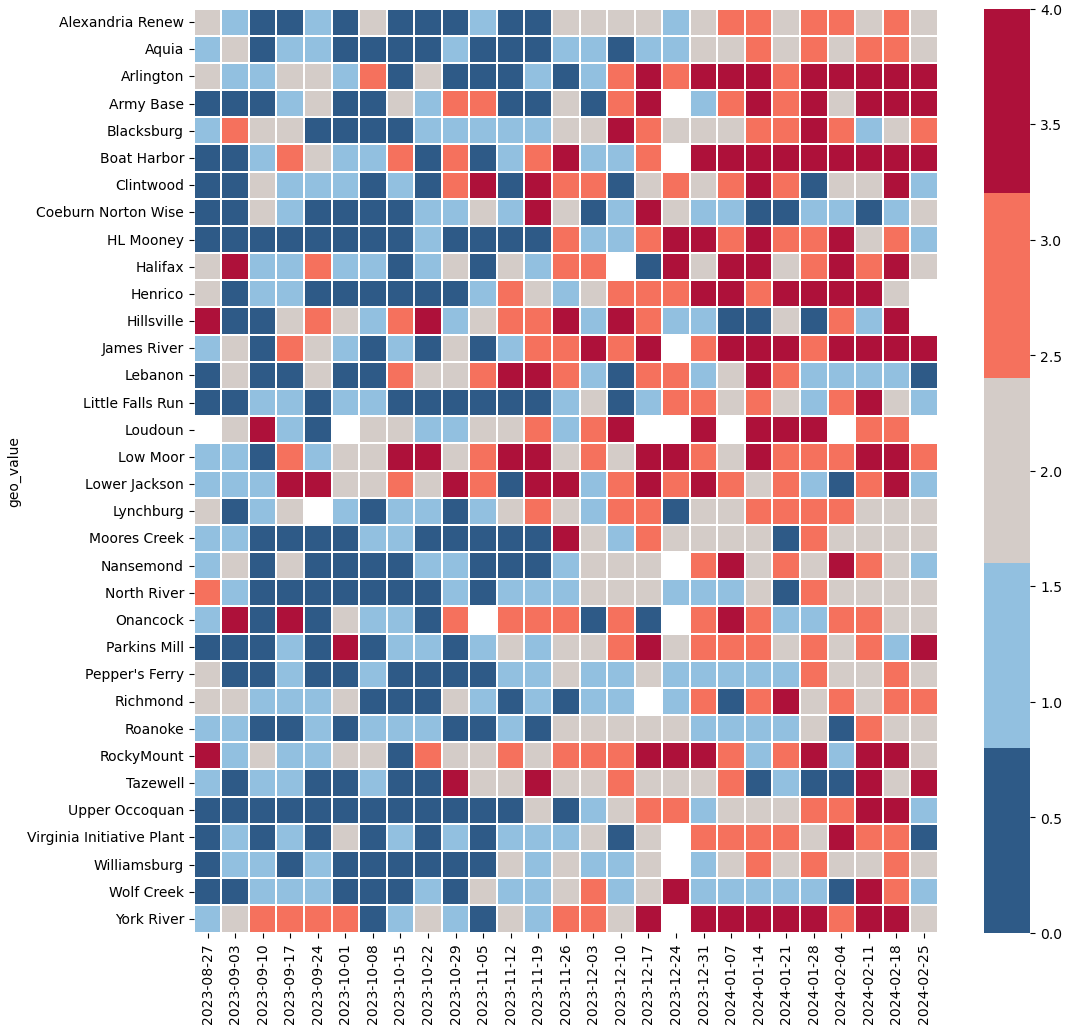
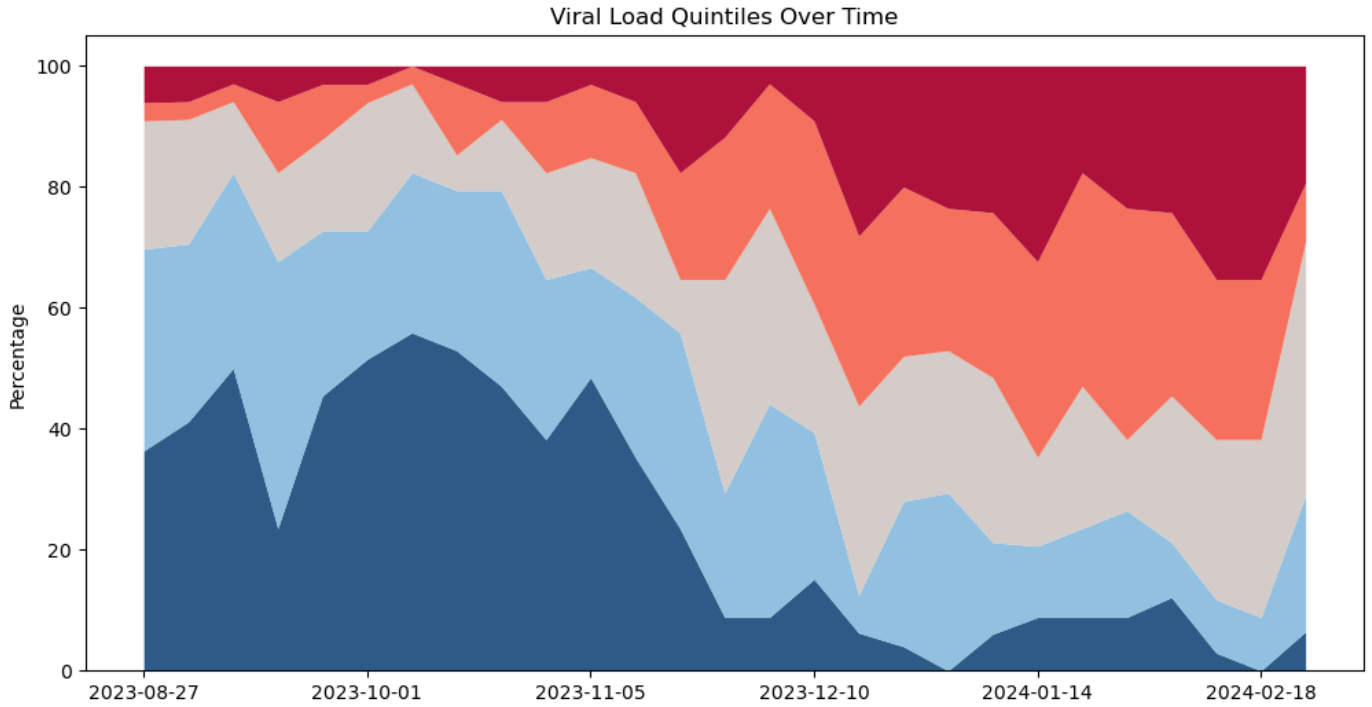
Data Source: [CDC Data Tracker]

Wastewater Monitoring – VA Sites

Wastewater provides COVID-19 levels in communities which correlate to disease burden





Last data point: **Feb 25th**

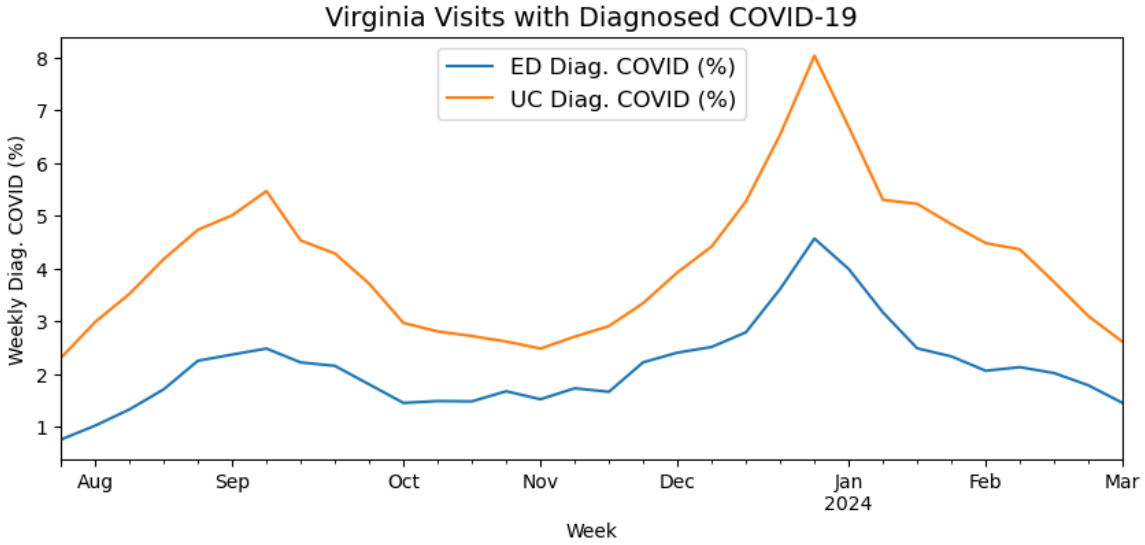
Quintile proportions over time

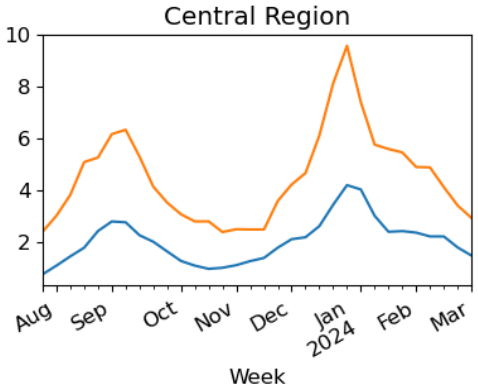
Middle and higher are growing in past couple weeks

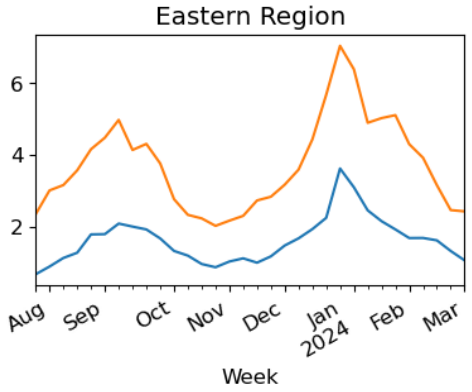
ED & UC Visits with Diagnosed COVID-19

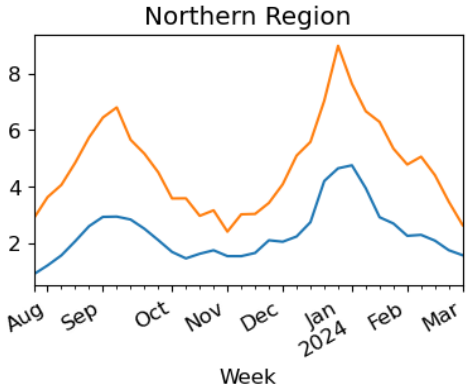
National Syndromic Surveillance Program (NSSP) reports diagnosed COVID-19 from multiple healthcare settings

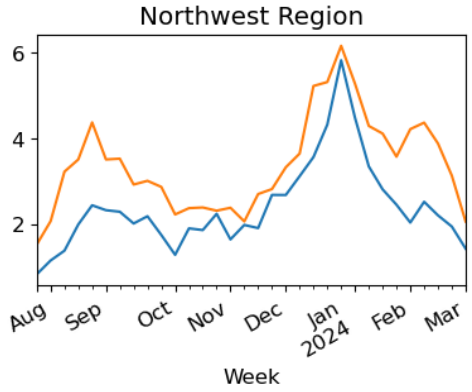
- Week ending March 5h, 2024
- Diagnosed visits are a smoother more specific indicator than COVID-like Illness
- **COVID-19 Diagnosed visits show signs of further decline after a period so slowed decreases**

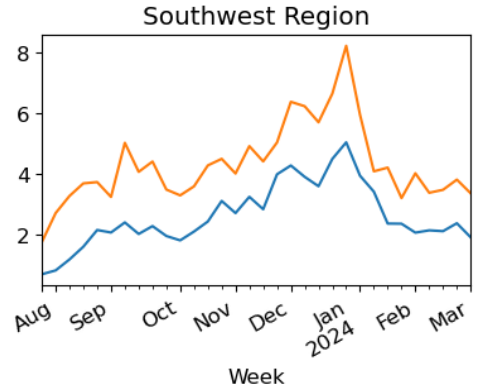










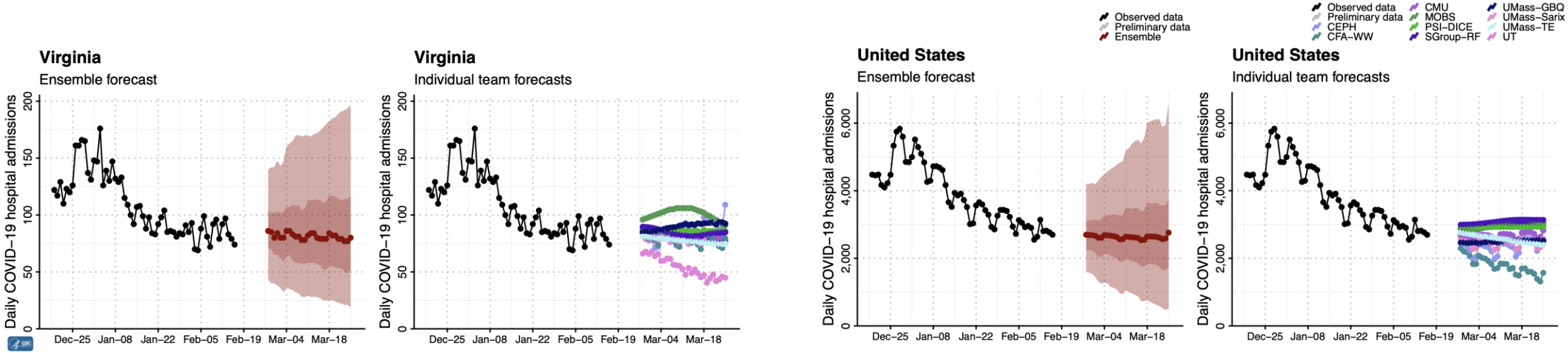


Current COVID-19 Hospitalization Forecast

Statistical models for submitting to CDC COVID Forecasting Hub

- Uses a variety of statistical and ML approaches to forecast weekly hospital admissions for the next 4 weeks for all states in the US

Hospital Admissions for COVID-19 and Forecast for next 4 weeks (CDC COVID Ensemble)
From February 26th



COVID-19 Spatial Epidemiology

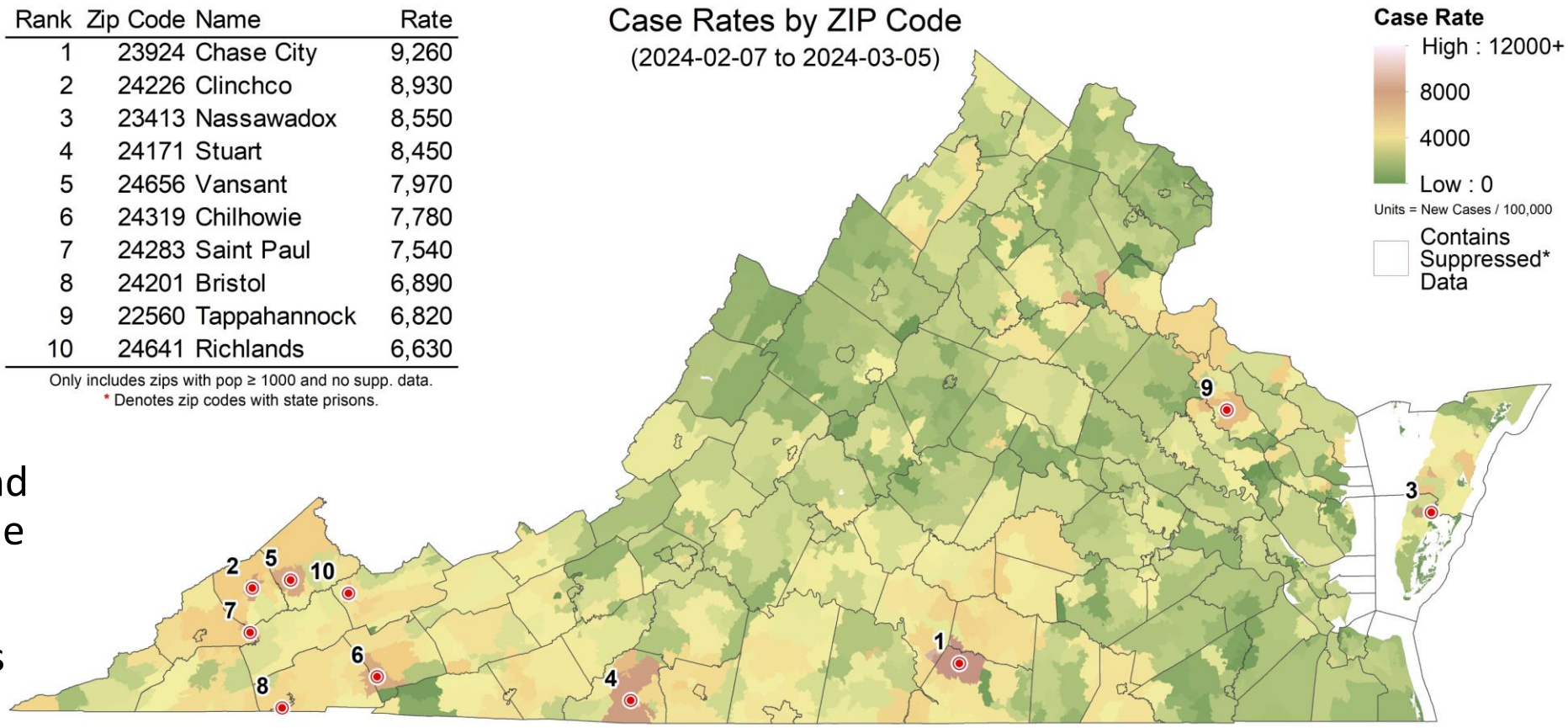
ZIP Code Level Case Rates Since Last Meeting

New cases per 100k in the last four weeks

- Divide rates by four to calculate average weekly incidence.
- No change in color scale from last meeting.
- Case rates continue to decline across the Commonwealth.
- Rates remain elevated in far Southwest Virginia, and in a few isolated Southside ZIP codes.
- No ZIP codes with prisons appear in this week's top 10.

Rank	Zip Code	Name	Rate
1	23924	Chase City	9,260
2	24226	Clinchco	8,930
3	23413	Nassawadox	8,550
4	24171	Stuart	8,450
5	24656	Vansant	7,970
6	24319	Chilhowie	7,780
7	24283	Saint Paul	7,540
8	24201	Bristol	6,890
9	22560	Tappahannock	6,820
10	24641	Richlands	6,630

Only includes zips with pop ≥ 1000 and no supp. data.
* Denotes zip codes with state prisons.



Based on Spatial Empirical Bayes smoothed case rates, with an 8:1 ascertainment ratio, for four weeks ending 2024-02-06.

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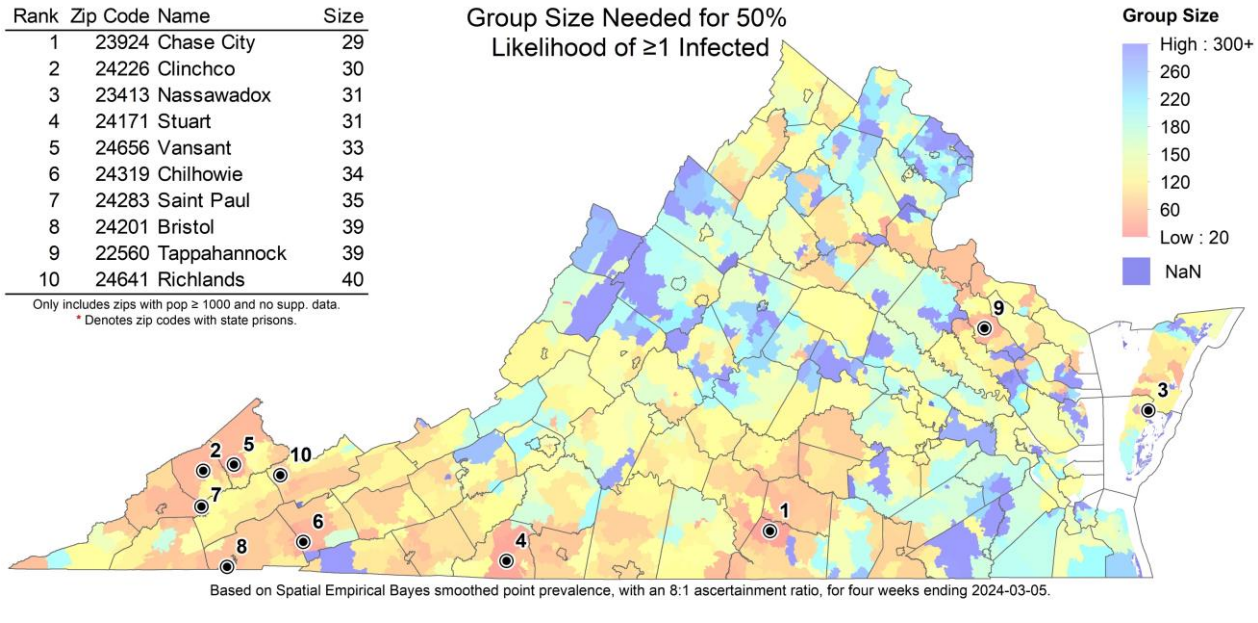
Risk of Exposure / Spatial Clusters and Hot Spots

Case rates since last meeting by ZIP code used to calculate risk of encountering someone infected in a gathering of randomly selected people and find spatial hot spots

- **Group Size**: Assumes **8 undetected infections** per confirmed case (ascertainment rate from recent seroprevalence survey) and shows minimum size of a group with a 50% chance an individual is infected by ZIP code (e.g., in a group of 29 in Chase City, there is a 50% chance someone will be infected).
- **Spatial Clustering**: Getis-Ord Gi* based hot spots compare clusters of ZIP codes with four-week case rates higher than nearby ZIP codes to identify larger areas with statistically significant deviations. SaTScan was used to corroborate this analysis and determine relative risk for identified clusters.

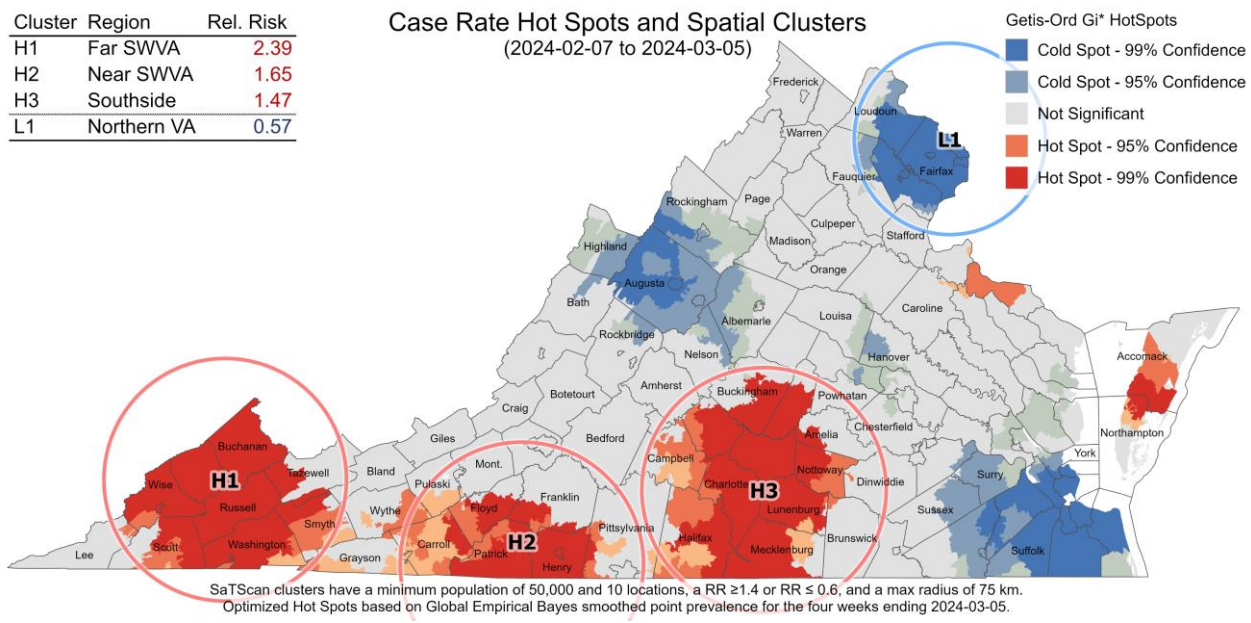
Rank	Zip Code	Name	Size
1	23924	Chase City	29
2	24226	Clinchco	30
3	23413	Nassawadox	31
4	24171	Stuart	31
5	24656	Vansant	33
6	24319	Chilhowie	34
7	24283	Saint Paul	35
8	24201	Bristol	39
9	22560	Tappahannock	39
10	24641	Richlands	40

Only includes zips with pop ≥ 1000 and no supp. data.
* Denotes zip codes with state prisons.



Based on Spatial Empirical Bayes smoothed point prevalence, with an 8:1 ascertainment ratio, for four weeks ending 2024-03-05.

Cluster	Region	Rel. Risk
H1	Far SWVA	2.39
H2	Near SWVA	1.65
H3	Southside	1.47
L1	Northern VA	0.57



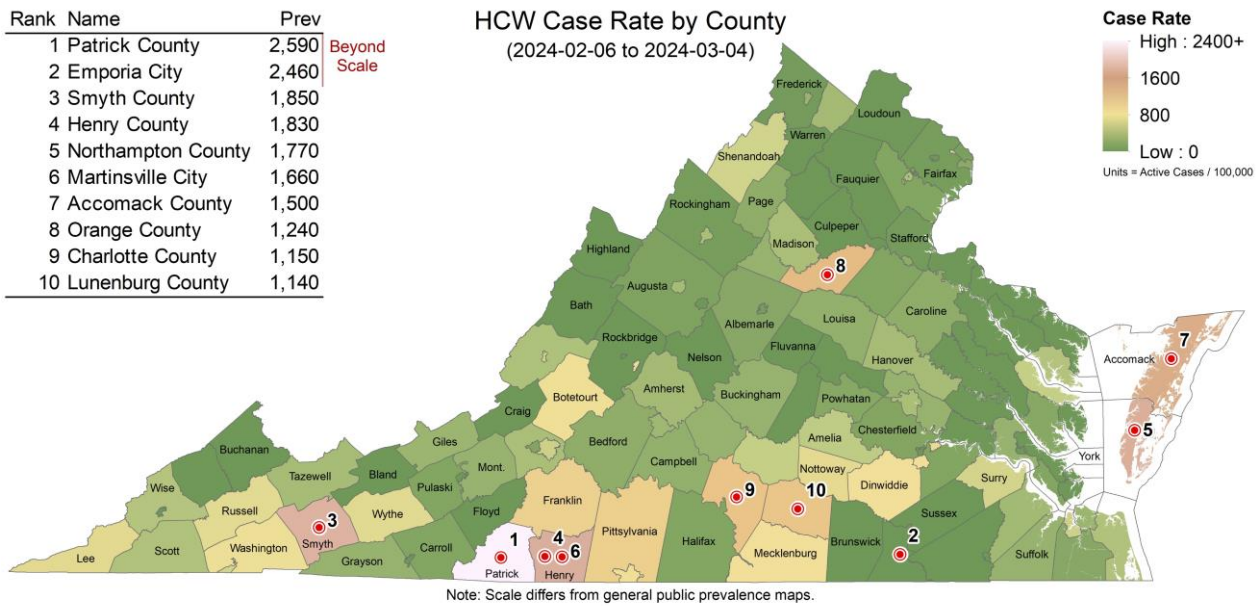
SaTScan clusters have a minimum population of 50,000 and 10 locations, a RR ≥1.4 or RR ≤ 0.6, and a max radius of 75 km.
Optimized Hot Spots based on Global Empirical Bayes smoothed point prevalence for the four weeks ending 2024-03-05.

COVID-19 among Healthcare Workers

COVID-19 case rates for the public and for healthcare workers (HCW) were compared to find regions where HCW suffered unusually high burdens of disease

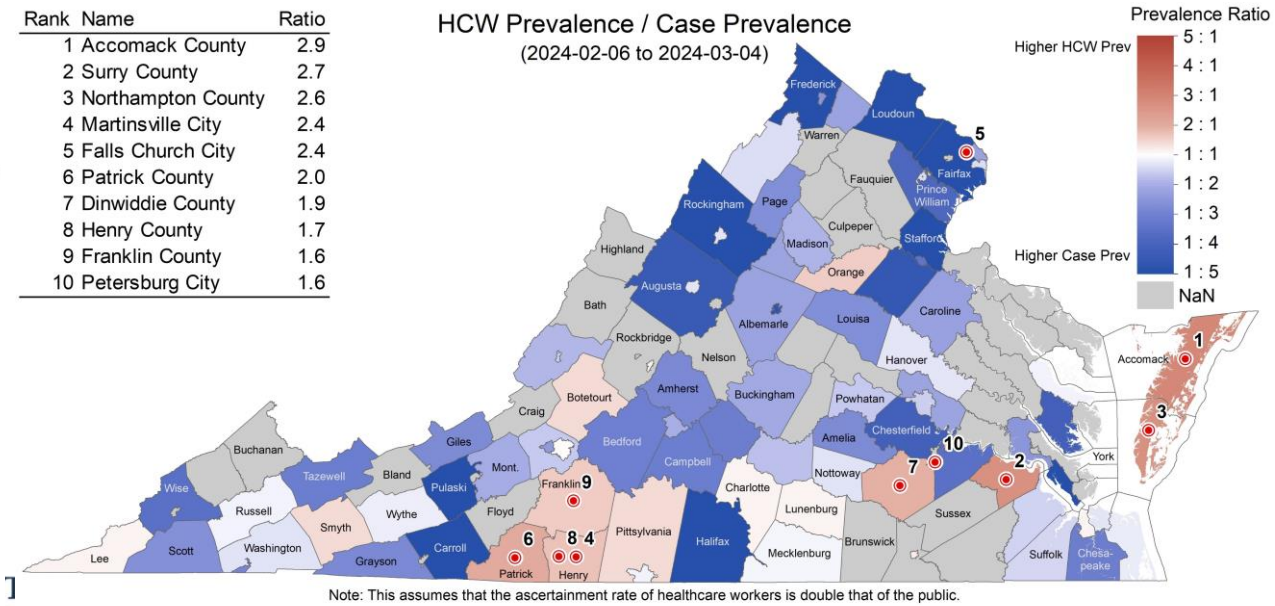
- **HCW Rate:** Case rate among health care workers (HCW) over a four-week period ending January 8, 2024.
- **HCW Ratio**: Case rate among health care workers (HCW) over the same period using patient facing healthcare workers as the numerator, and the population's case rate as the denominator.
- The healthcare case to public case ratio is well below one in most counties. Only a few show an elevation in HCW cases and a high healthcare worker to public case ratio (e.g. Patrick, Henry, and Franklin Counties).

Rank	Name	Prev	
1	Patrick County	2,590	Beyond Scale
2	Emporia City	2,460	
3	Smyth County	1,850	
4	Henry County	1,830	
5	Northampton County	1,770	
6	Martinsville City	1,660	
7	Accomack County	1,500	
8	Orange County	1,240	
9	Charlotte County	1,150	
10	Lunenburg County	1,140	



Note: Scale differs from general public prevalence maps.

Rank	Name	Ratio
1	Accomack County	2.9
2	Surry County	2.7
3	Northampton County	2.6
4	Martinsville City	2.4
5	Falls Church City	2.4
6	Patrick County	2.0
7	Dinwiddie County	1.9
8	Henry County	1.7
9	Franklin County	1.6
10	Petersburg City	1.6

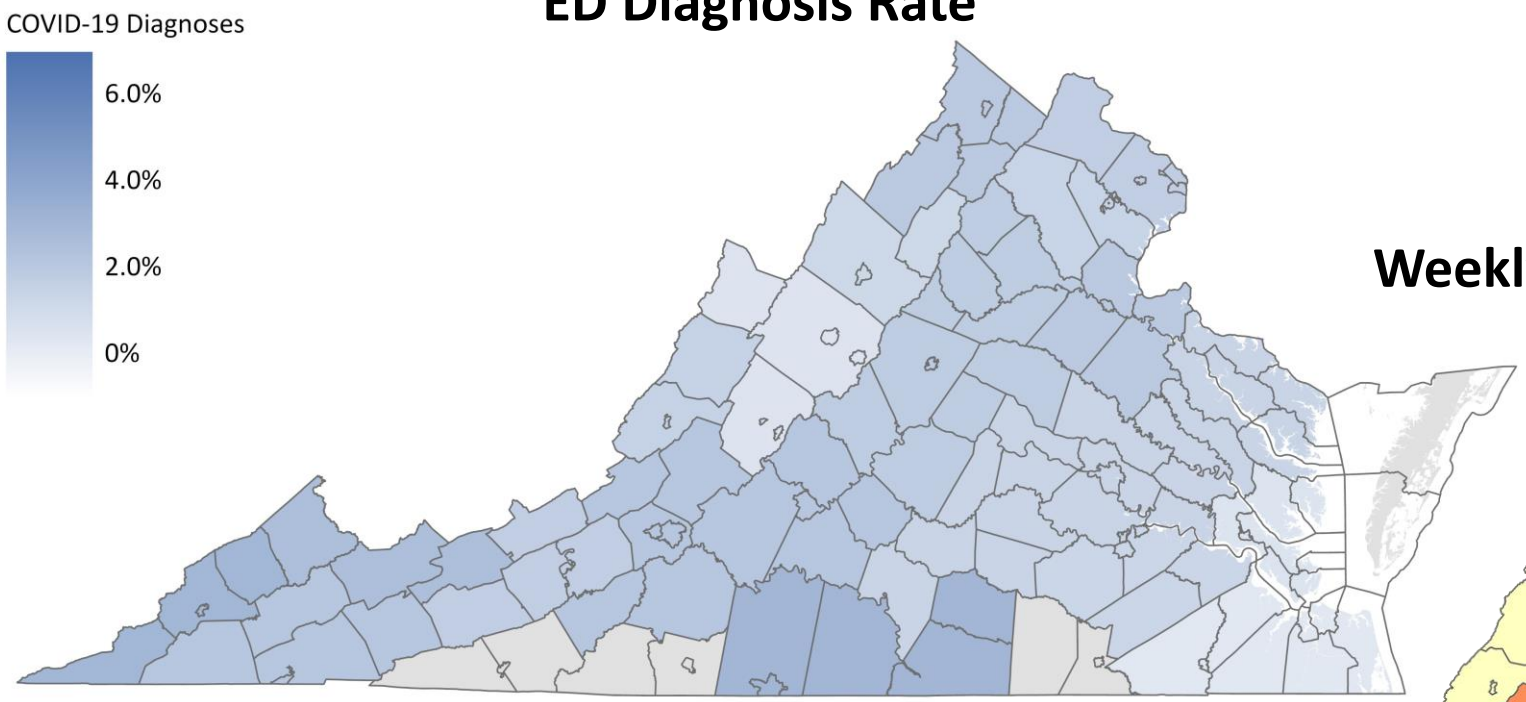


Note: This assumes that the ascertainment rate of healthcare workers is double that of the public.

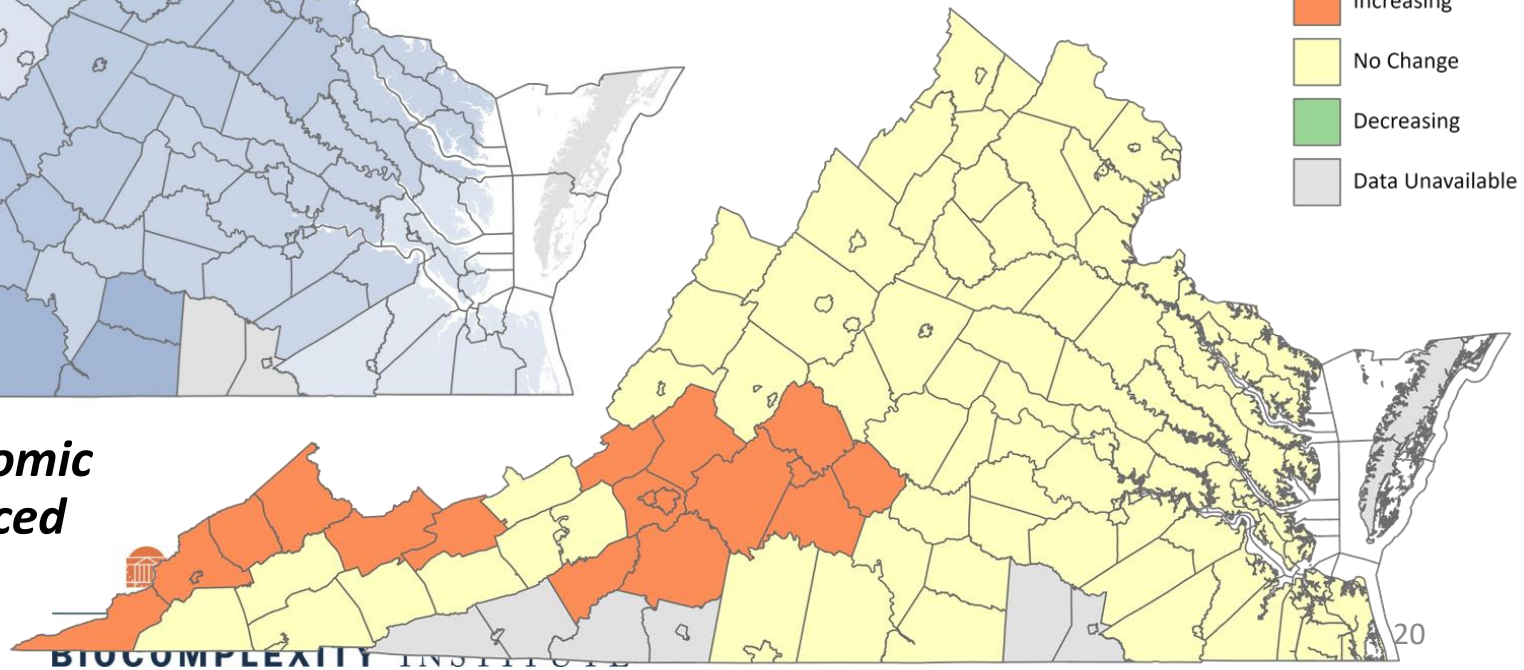
Emergency Department Diagnosis Rate – COVID-19

Southside and Far SW report the highest rates, though these are only about half what they were at last report (now 3%). Far SW and the Roanoke-Lynchburg area report increases.

ED Diagnosis Rate



Weekly Trend of Diagnoses



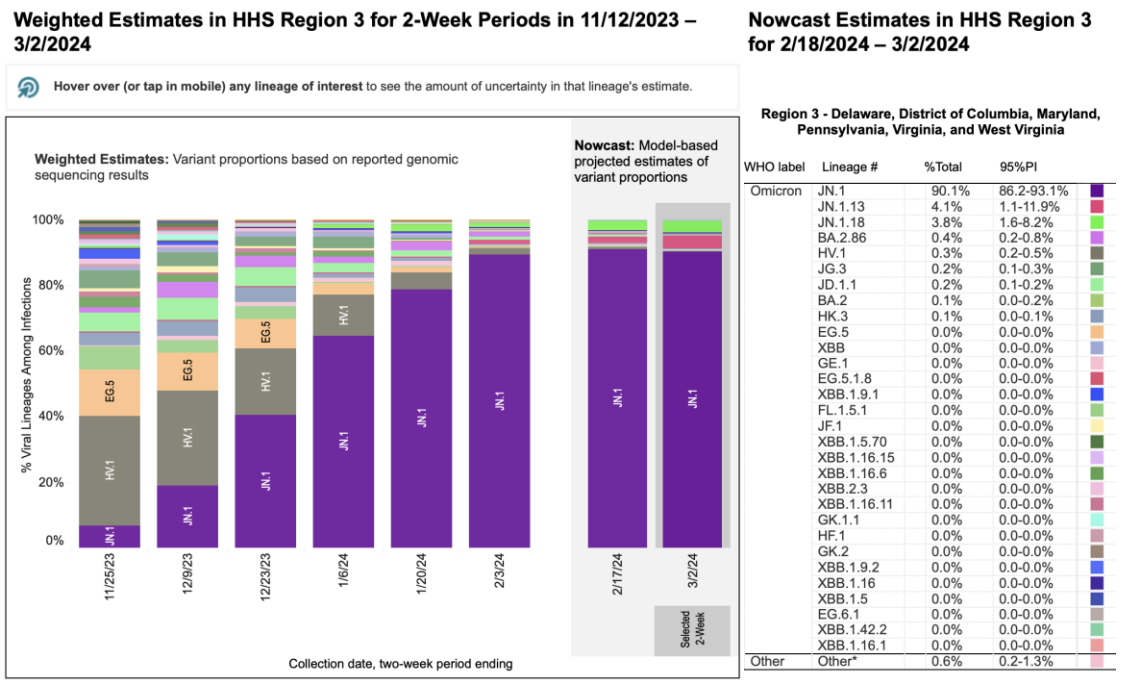
Derived from CDC National Syndromic Surveillance Program Data produced at the HSA level as of 2024-02-24.

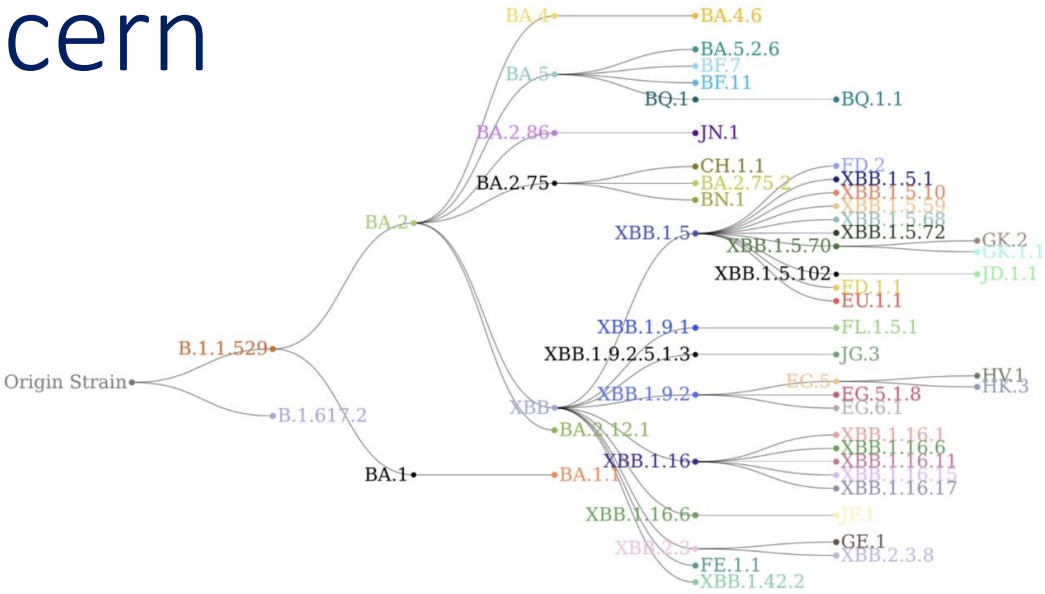
COVID-19 Genomic Update

SARS-CoV2 Variants of Concern

Emerging variants have potential to continue to alter the future trajectories of pandemic and have implications for future control

- **Variants have been observed to:** increase transmissibility, increase severity (more hospitalizations and/or deaths), and limit immunity provided by prior infection and vaccinations





Omicron Updates*

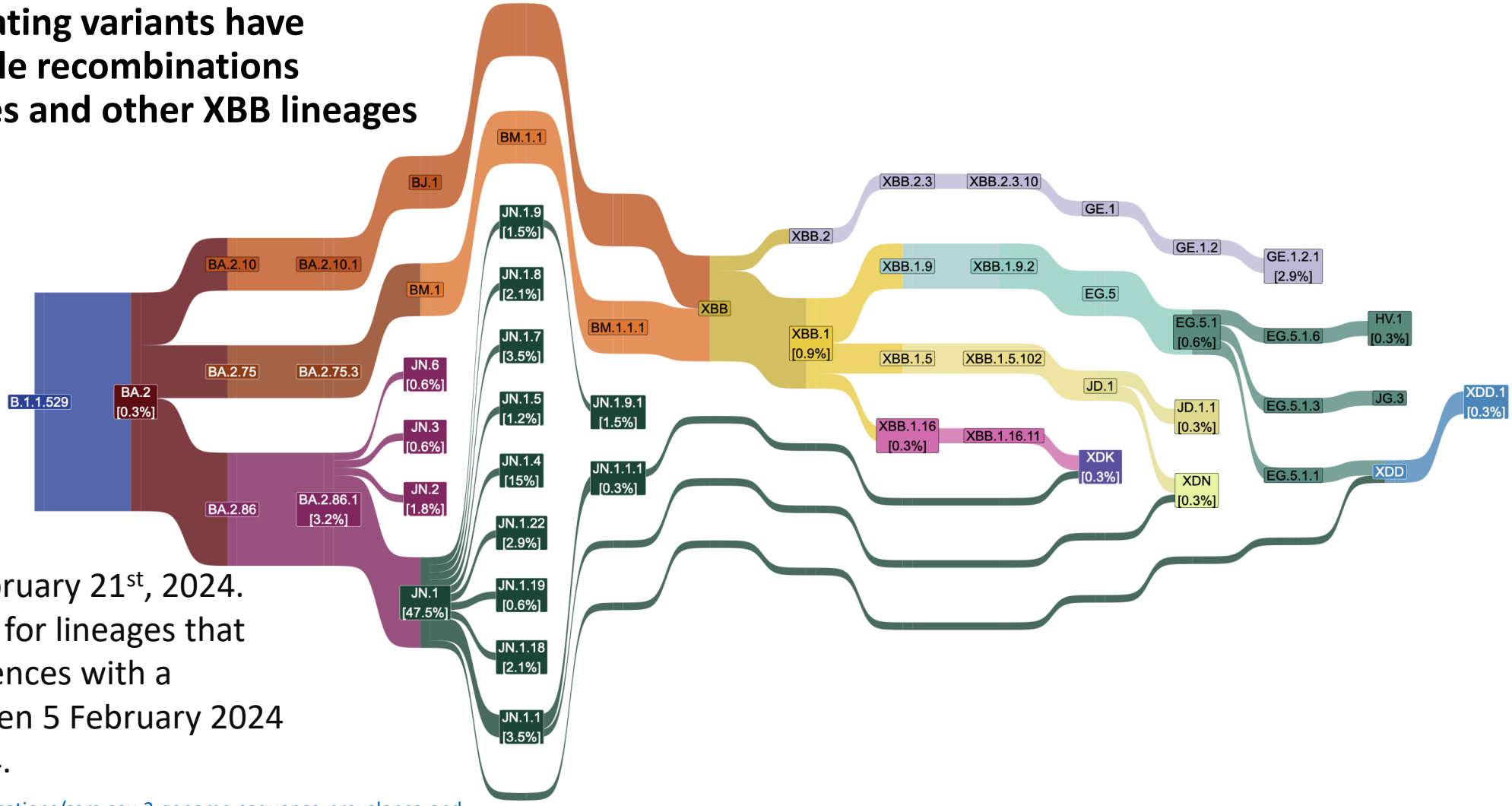
- JN.1 and descendants completely saturate
- Lineage HV.1 (XBB.1.9*) down to 0.3% from 1%
- Other BA.2.86, JD.1.1, JG.3 remain top variants but are below 1%

*percentages are CDC NowCast Estimates

CDC Variant Tracking

SARS-CoV2 Variants of Concern

A variety of co-circulating variants have emerged with multiple recombinations between JN.1 lineages and other XBB lineages



Data shown as of February 21st, 2024. Proportions are given for lineages that are observed in sequences with a specimen date between 5 February 2024 and 16 February 2024.

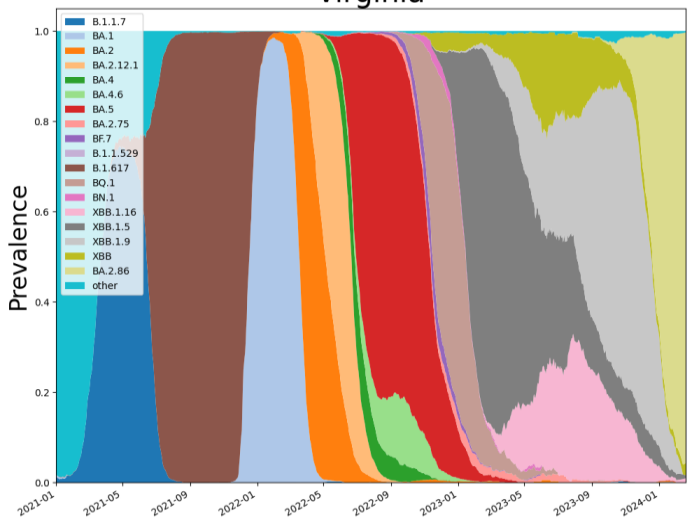
https://www.gov.uk/government/publications/sars-cov-2-genome-sequence-prevalence-and-growth-rate/sars-cov-2-genome-sequence-prevalence-and-growth-rate-update-21-february-2024

SARS-CoV2 Omicron Sub-Variants

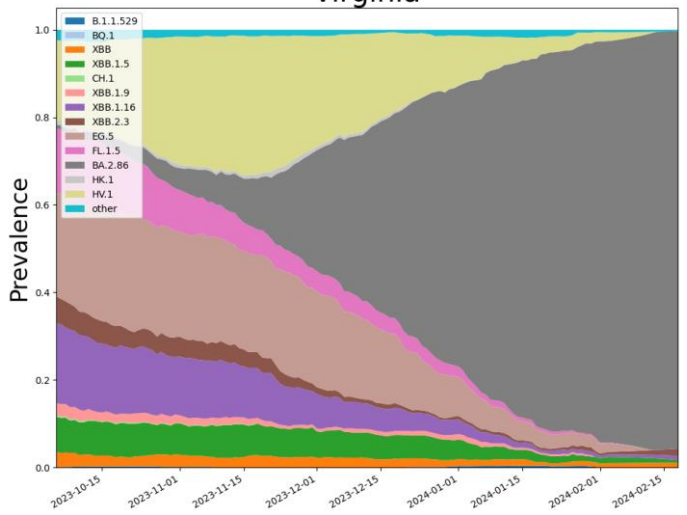
covSPECTRUM
Enabled by data from GISAID

As detected in whole Genomes in public repositories

Virginia

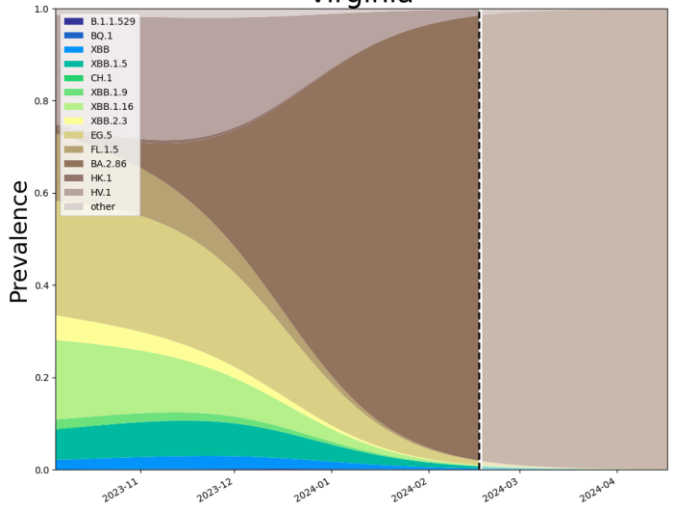


Virginia

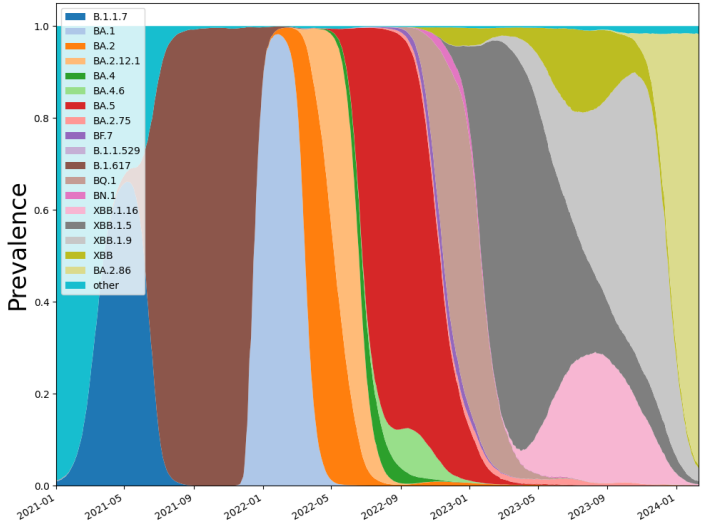


VoC Polynomial Fit Projections

Virginia



United States



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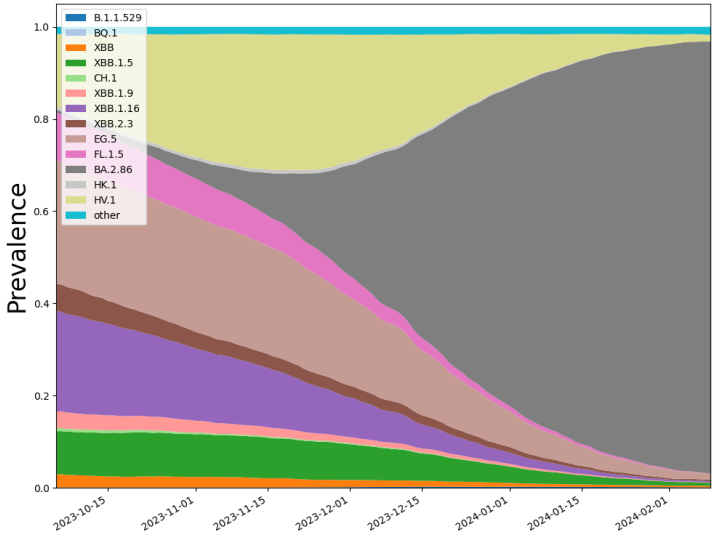
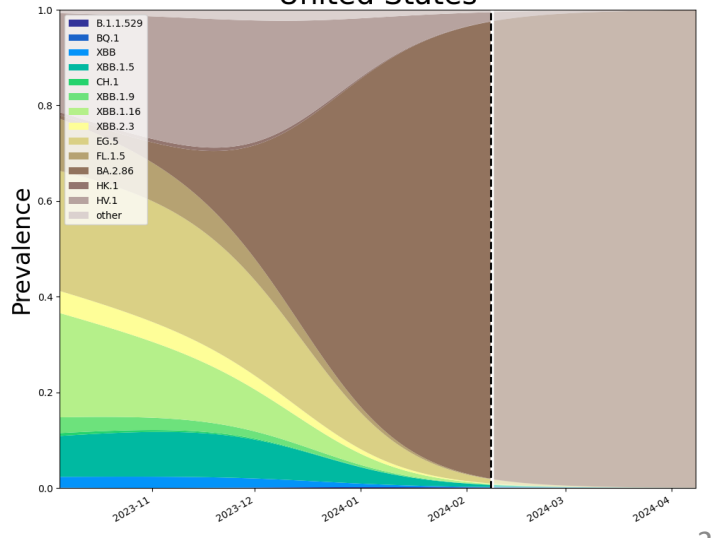


United States



Note: Everything from dotted line forward is a projection.

8-MAR-24

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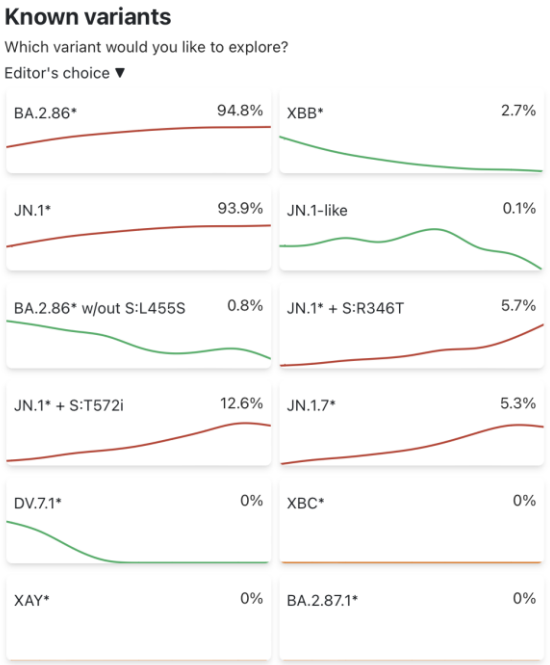
SARS-CoV2 Omicron Sub-Variants

[COV-spectrum](#)

"Editor's choice"

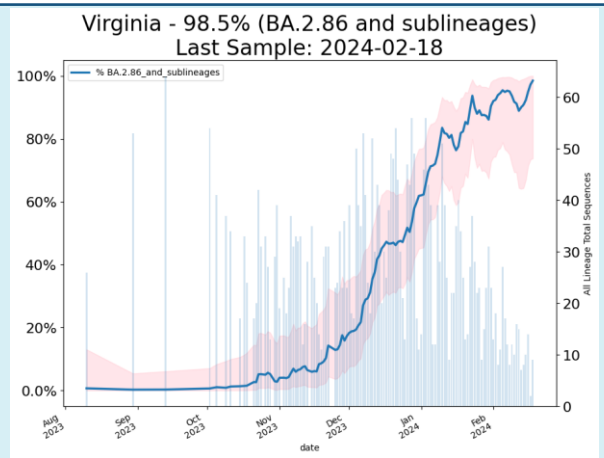
Variants to watch

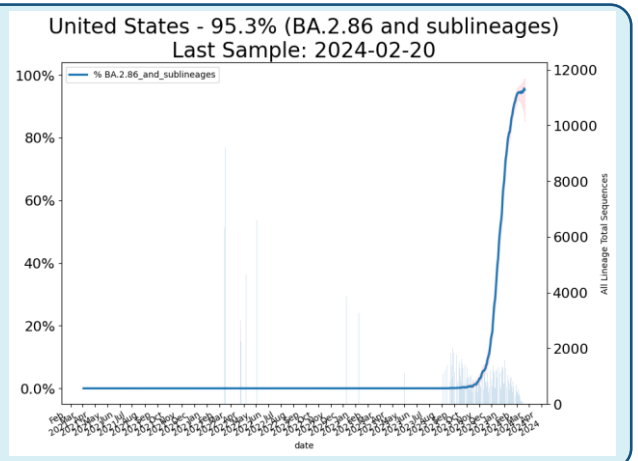


covSPECTRUM

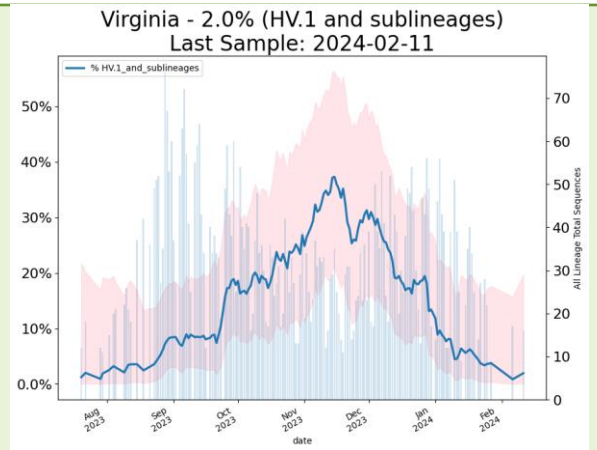
Enabled by data from GISAID

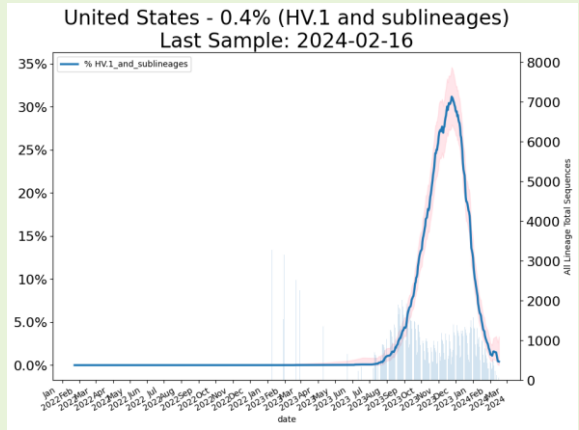
BA.2.86* (JN.1*)





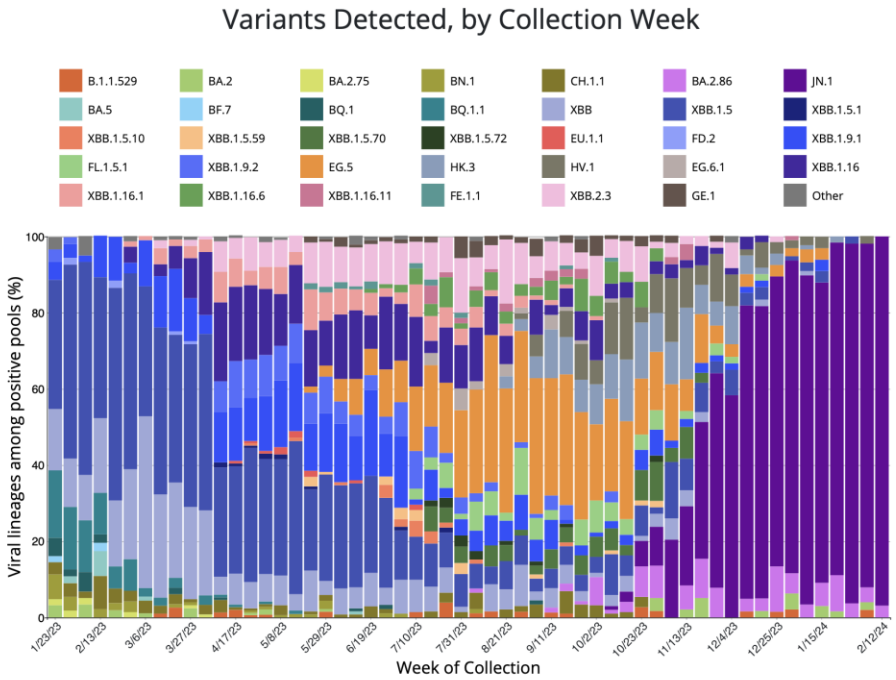
HV.1*

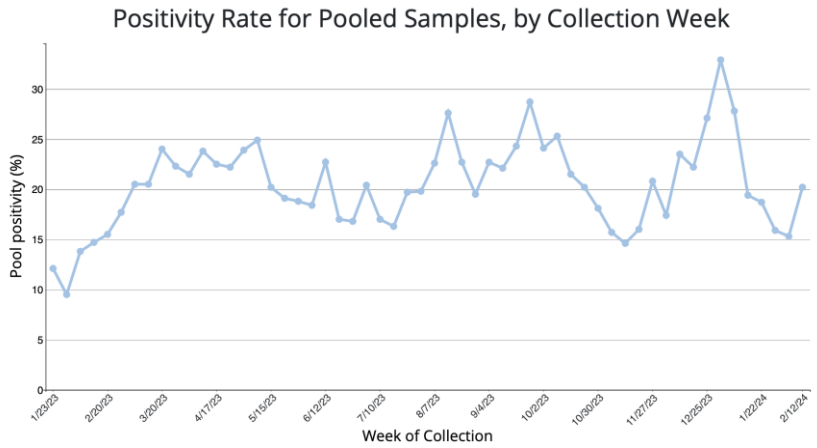


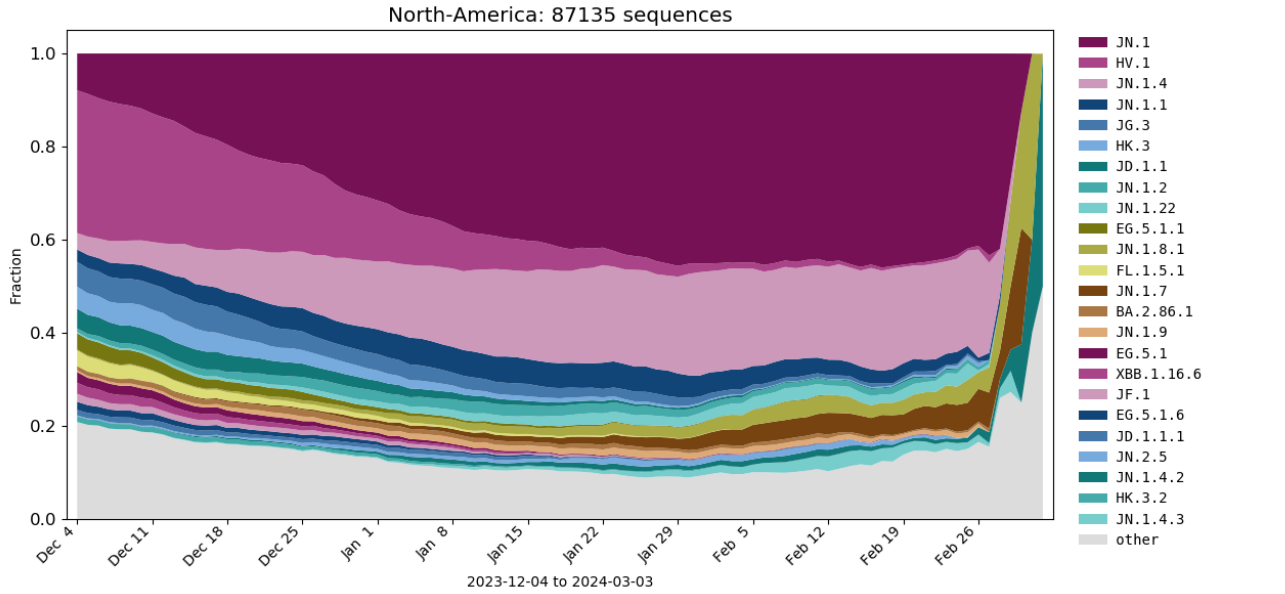


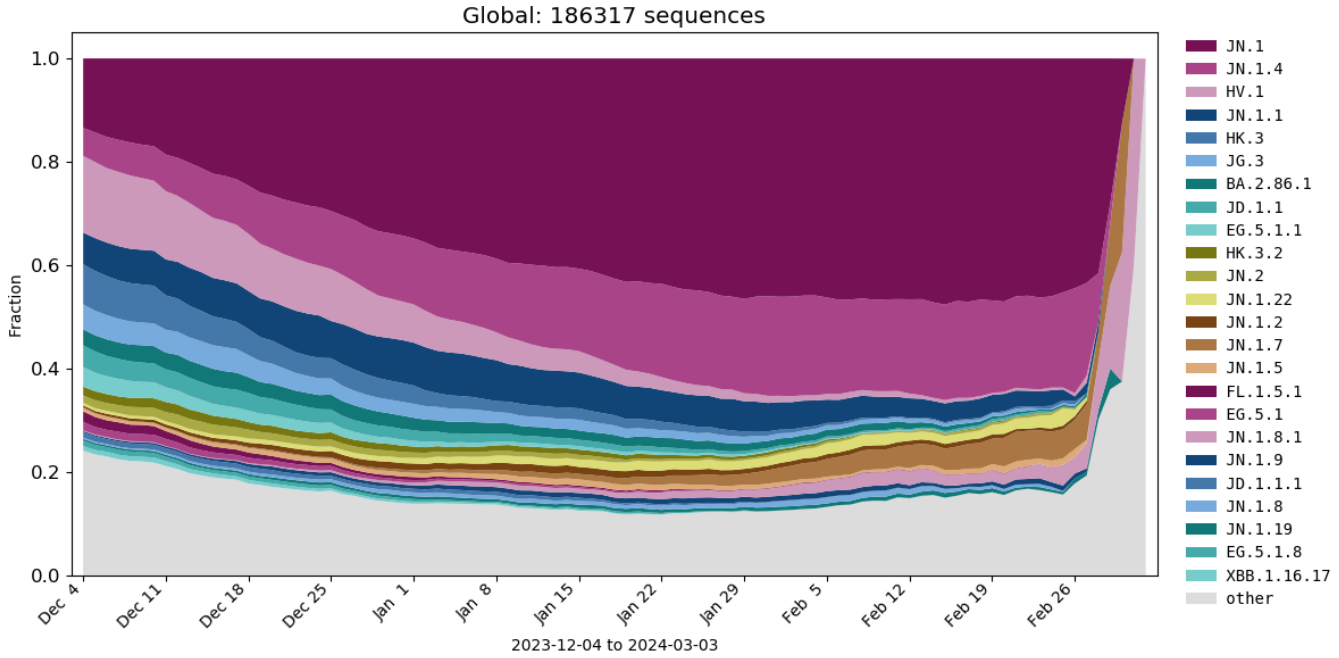
Global SARS-CoV2 Variant Status

Traveller Surveillance





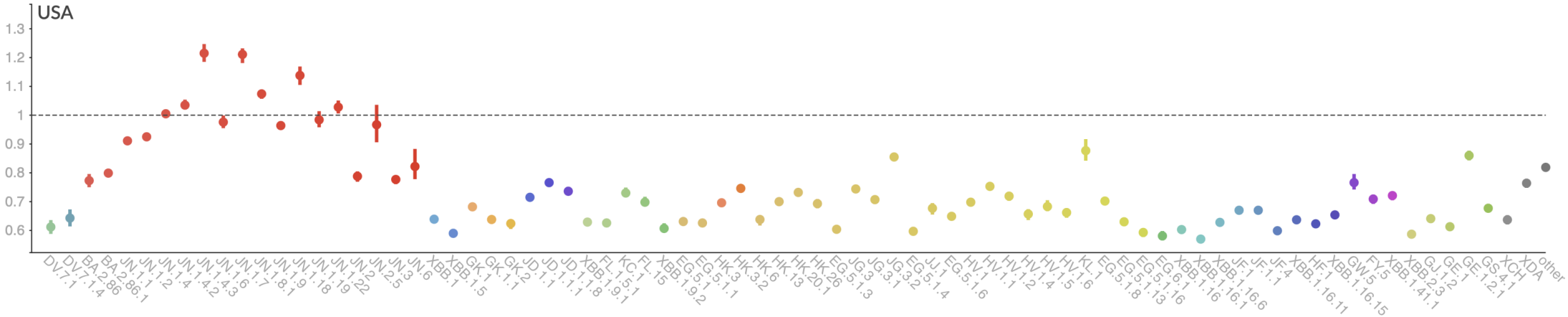




https://cov.lanl.gov/components/sequence/COV/sparks.comp
https://covid.cdc.gov/covid-data-tracker/#traveler-genomic-surveillance

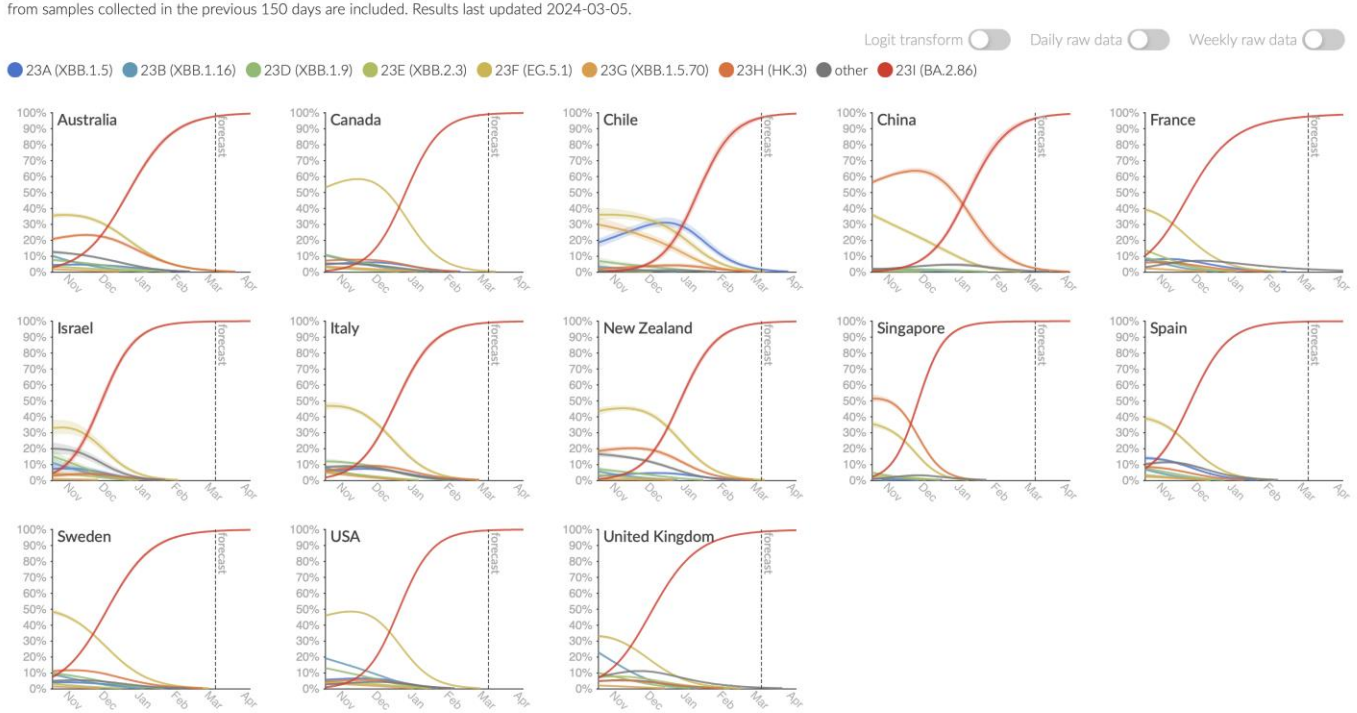
Global SARS-CoV2 Variant Status

https://nextstrain.org/sars-cov-2/forecasts/



Clade frequencies over time

Each line represents the estimated frequency of a particular clade through time. Equivalent Pango lineage is given in parenthesis, eg clade 23A (lineage XBB.1.5). Only locations with more than 100 sequences from samples collected in the previous 150 days are included. Results last updated 2024-03-05.



Lineage growth advantage

These plots show the estimated growth advantage for given Pango lineages relative to lineage JN.1. This describes how many more secondary infections a variant causes on average relative to lineage JN.1. Vertical bars show the 95% HPD. The "hierarchical" panel shows pooled estimate of growth rates across different locations. Results last updated 2024-03-05.

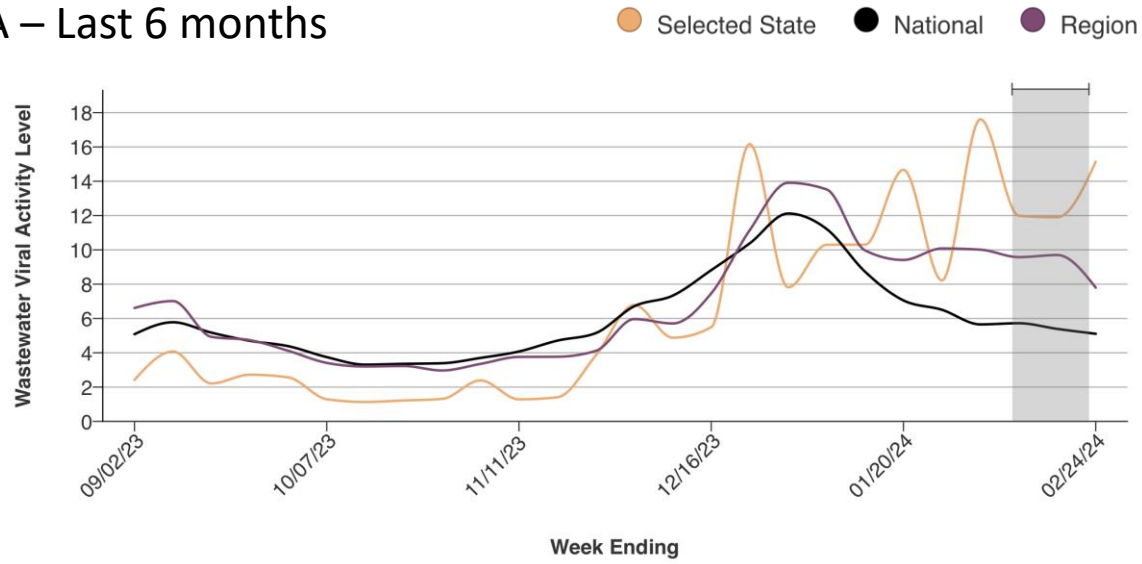
DV.7.1 DV.7.1.4 BA.2.86 BA.2.86.1 JN.1.1 JN.1.2 JN.1.4 JN.1.4.2 JN.1.4.3 JN.1.6
JN.1.7 JN.1.8.1 JN.1.9 JN.1.18 JN.1.19 JN.1.22 JN.2 JN.2.5 JN.3 JN.6
XBB.1 XBB.1.5 GK.1 GK.1.1 GK.2 JD.1.1 JD.1.1.1 JD.1.1.8 XBB.1.9.1 FL.1.5.1
KC.1 FL.15 XBB.1.9.2 EG.5.1 EG.5.1.1 HK.3 HK.3.2 HK.6 HK.13 HK.20.1
HK.26 EG.5.1.3 JG.3 JG.3.1 JG.3.2 EG.5.1.4 JJ.1 EG.5.1.6 HV.1 HV.1.1
HV.1.2 HV.1.4 HV.1.5 HV.1.6 KL.1 EG.5.1.8 EG.5.1.13 EG.5.1.16 EG.6.1
XBB.1.16 XBB.1.16.1 XBB.1.16.6 JF.1 JF.1.1 JF.4 XBB.1.16.11 HF.1 XBB.1.16.15
GW.5 FY.5 XBB.1.41.1 XBB.2.3 GJ.1.2 GE.1 GE.1.2.1 GS.4.1 XCH XDA other

Wastewater Monitoring – NWSS

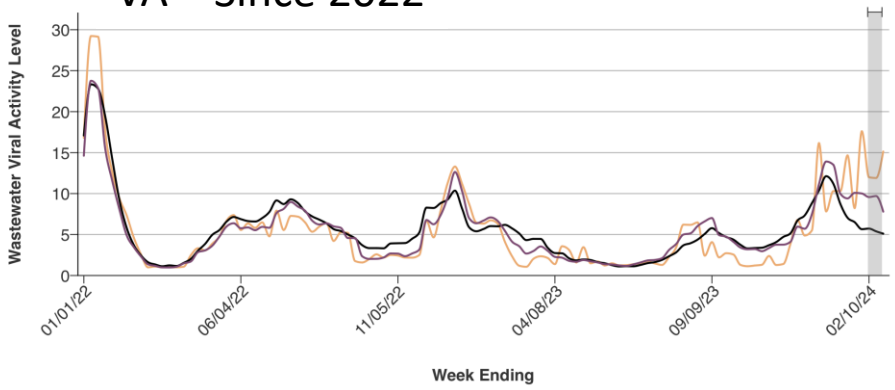
Wastewater provides a coarse estimate of COVID-19 levels in communities

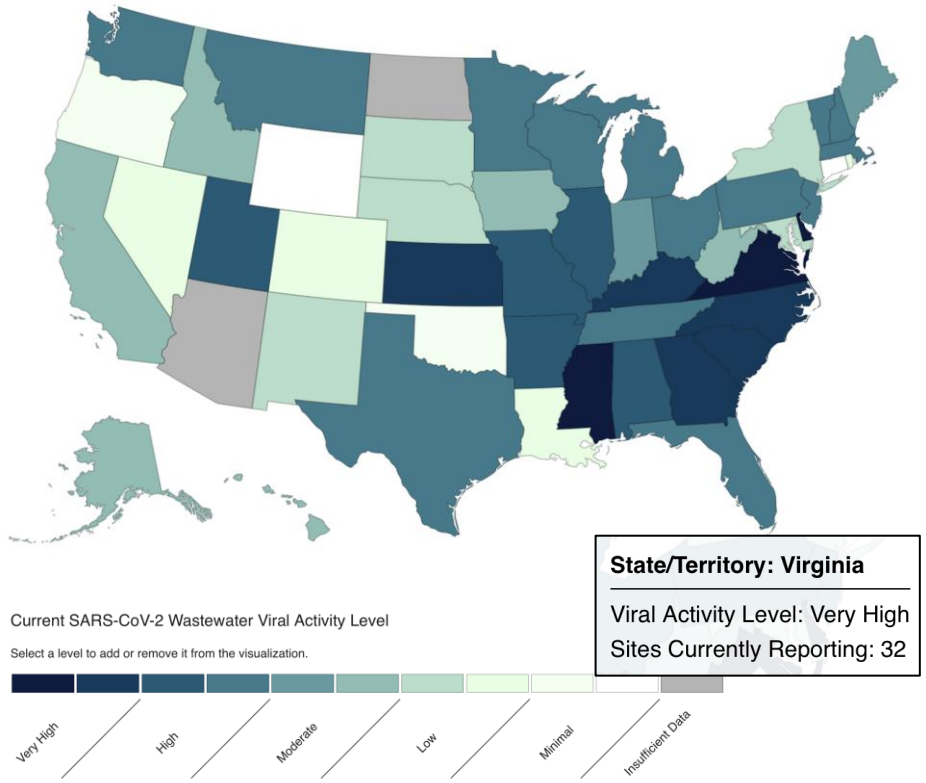
- VA back to “Moderate” after being ”Very High” due to artifacts last week
- Pervious, well observed, levels below region and national levels

VA – Last 6 months



VA – Since 2022





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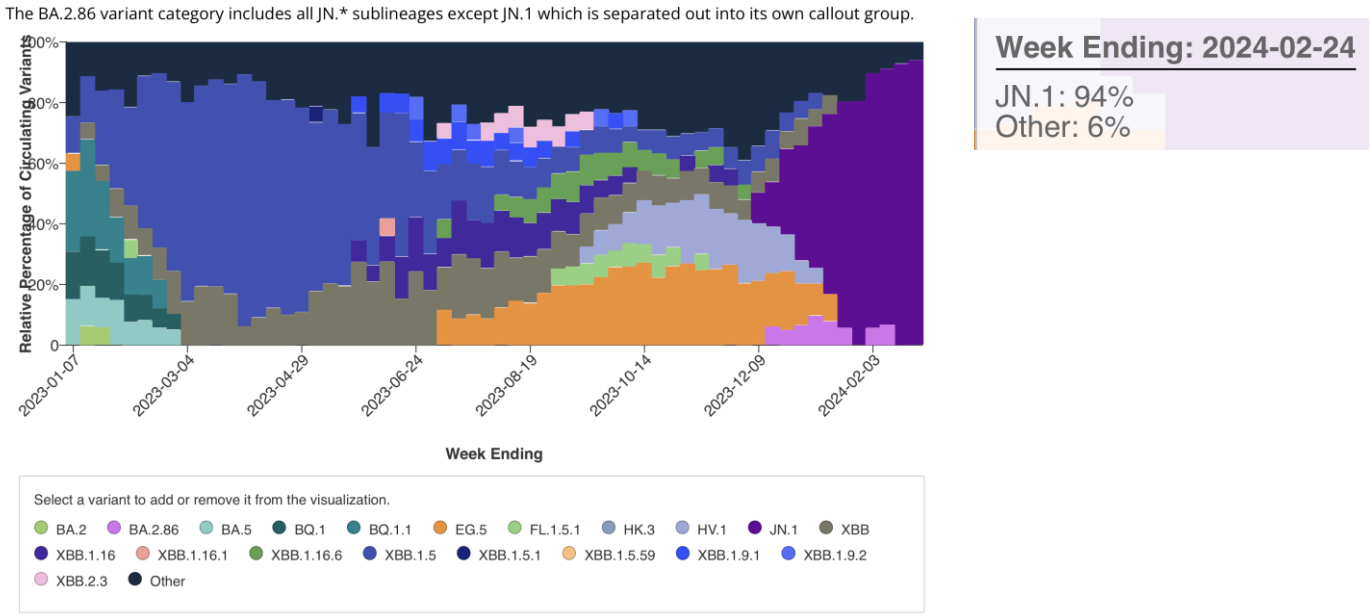
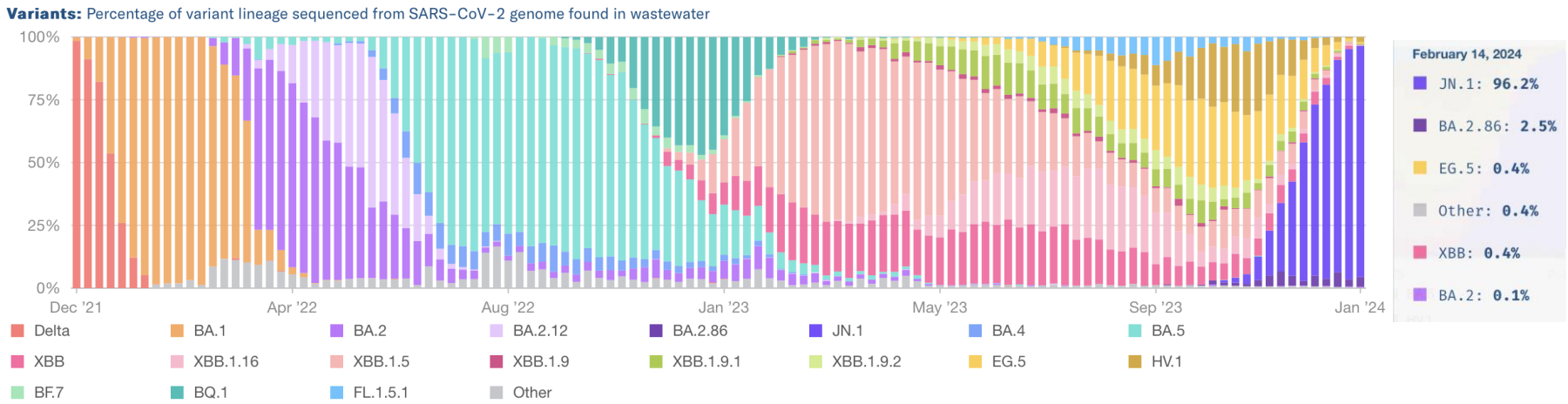
Data Source: [CDC Data Tracker]

National Wastewater Variant Status

CDC Wastewater

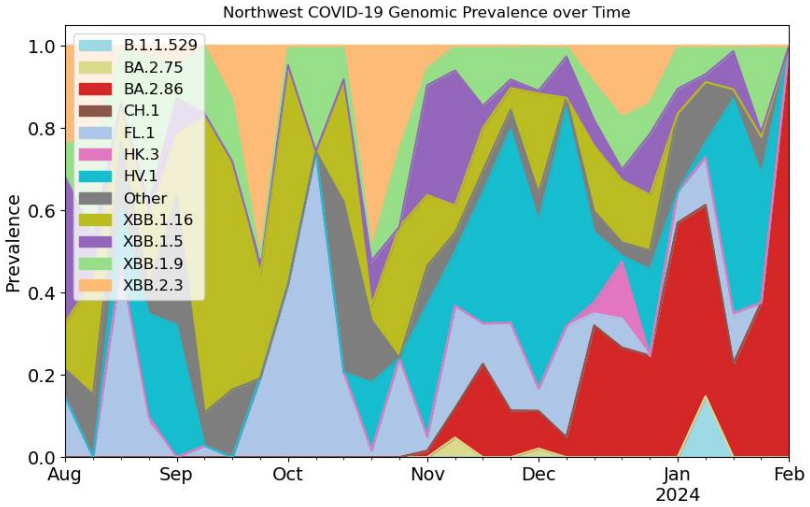


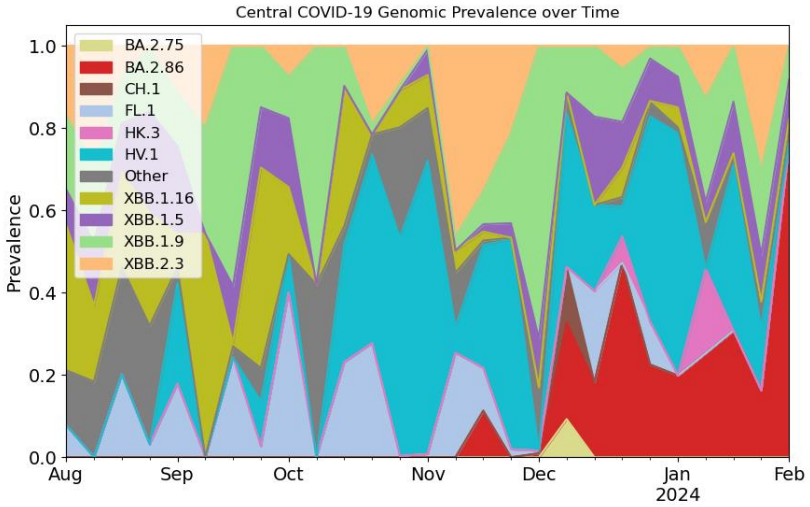
Biobot Wastewater

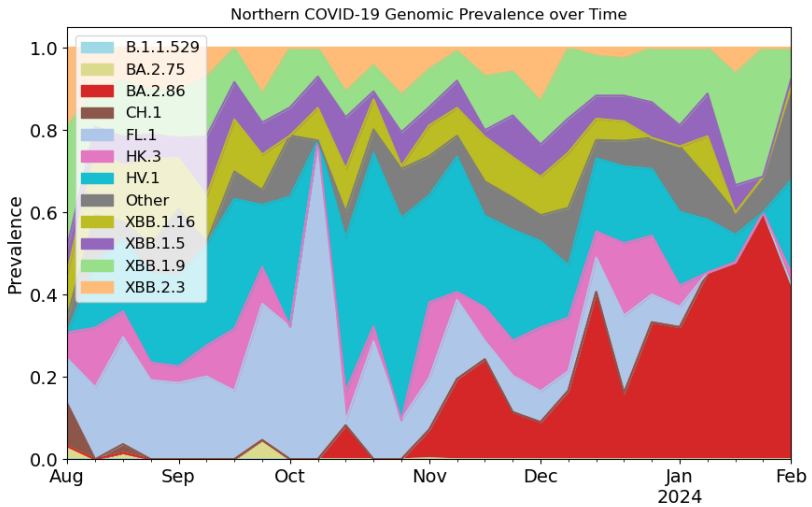


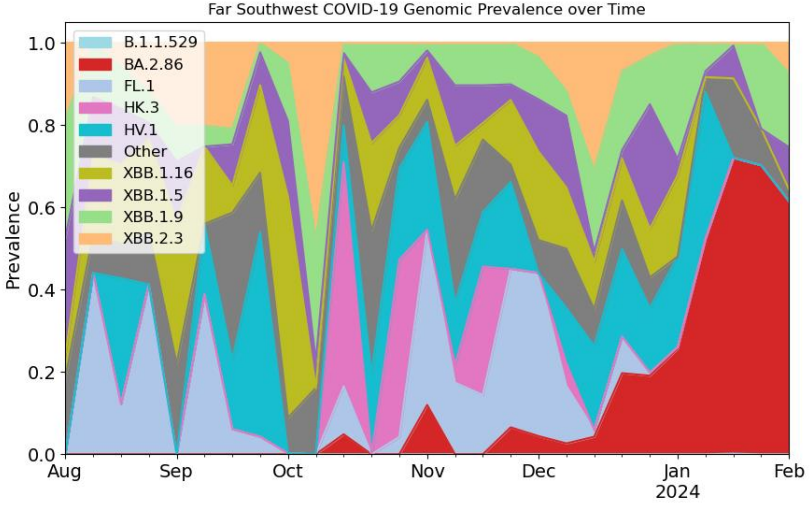
https://www.cdc.gov/nwss/rv/COVID19-variants.html
https://biobot.io/data/

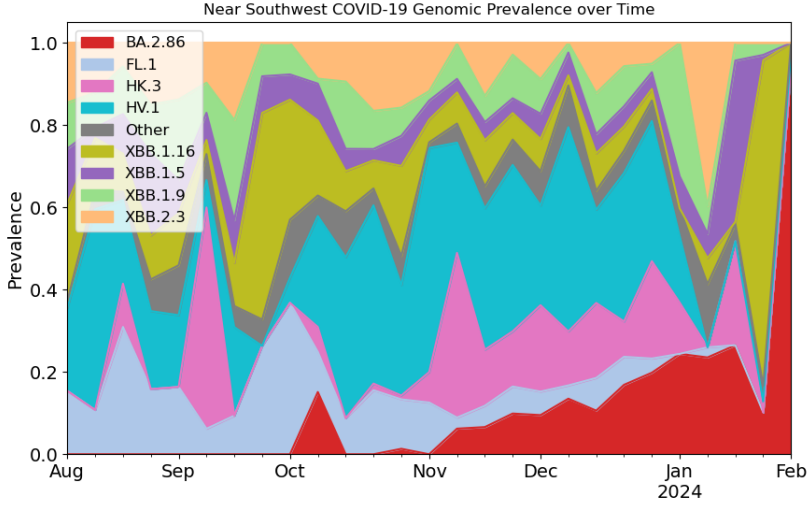
Virginia Regional Wastewater Variant Status (median)

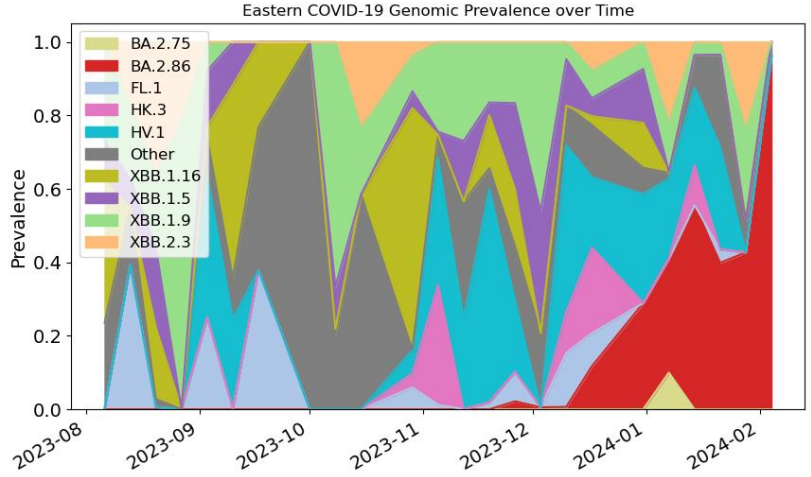






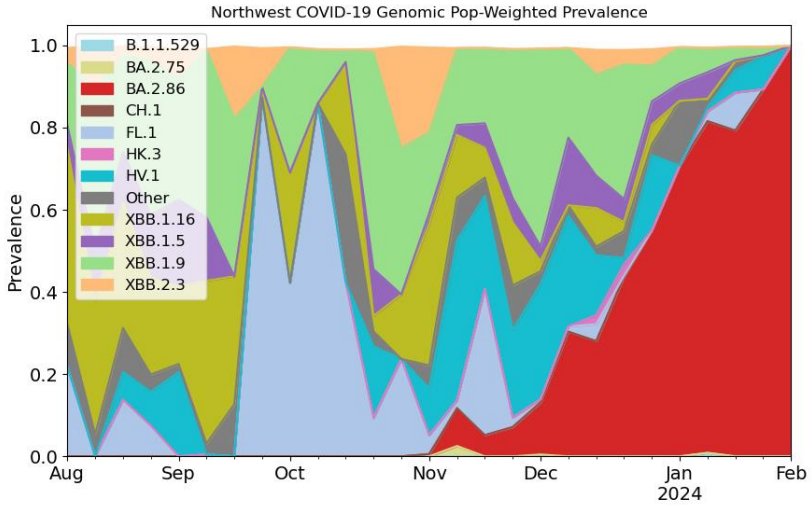


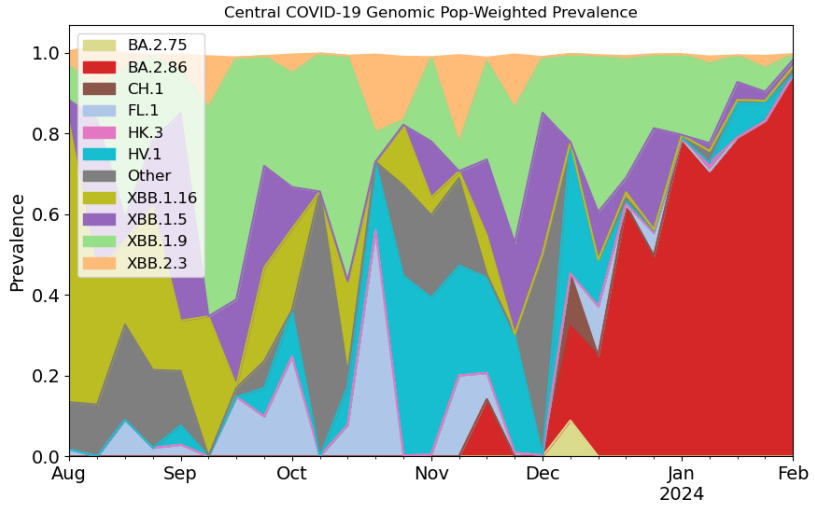


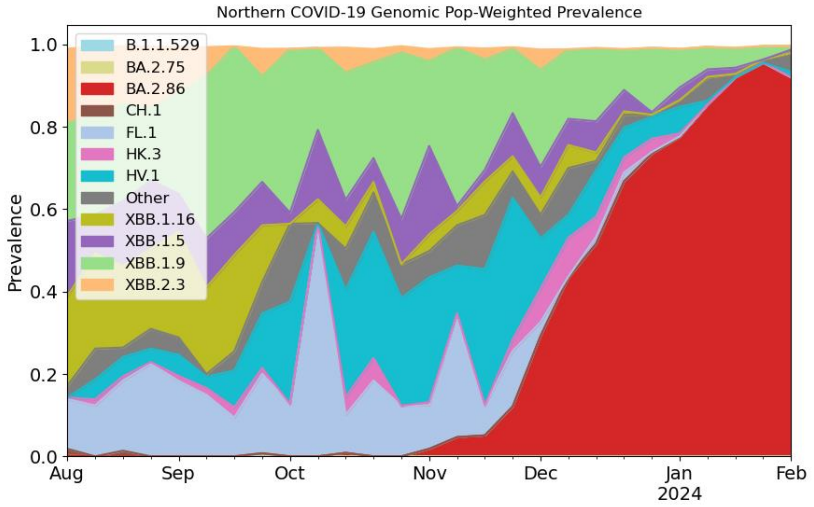


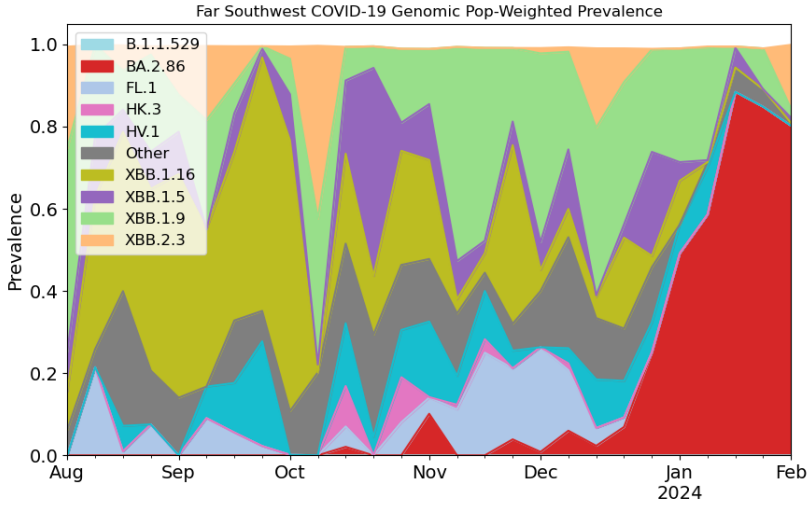
Data updated through 12/24

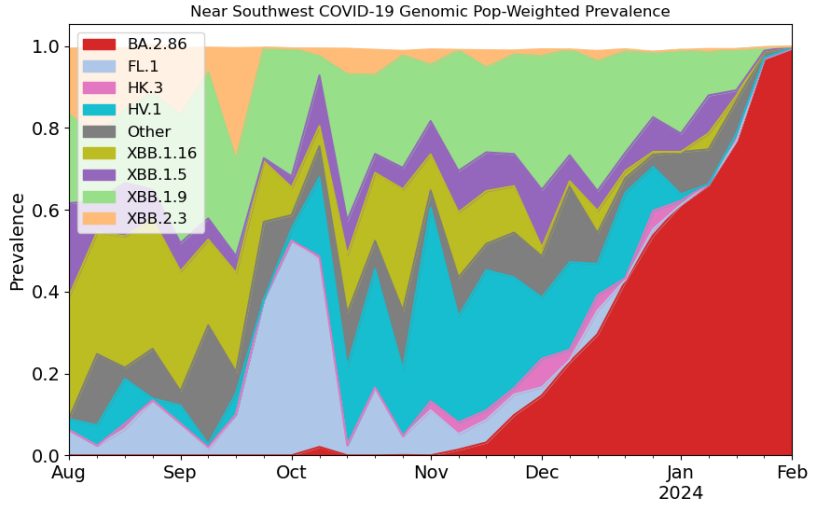
Virginia Regional Population-Weighted Wastewater Variant Status

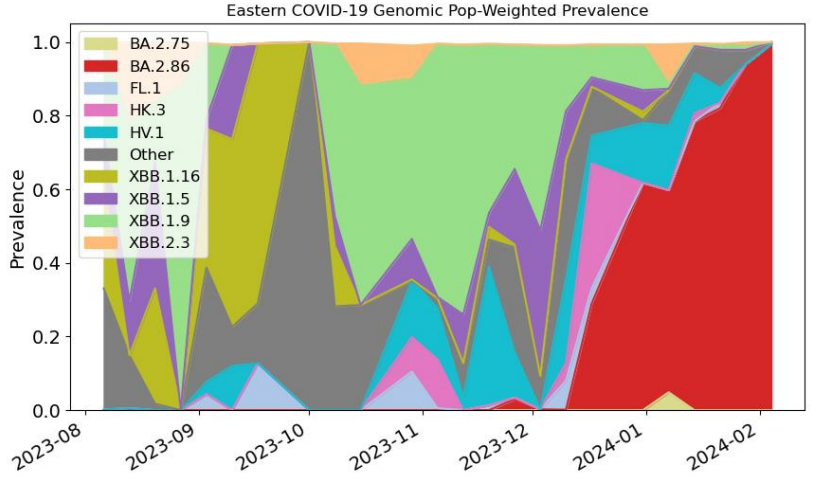








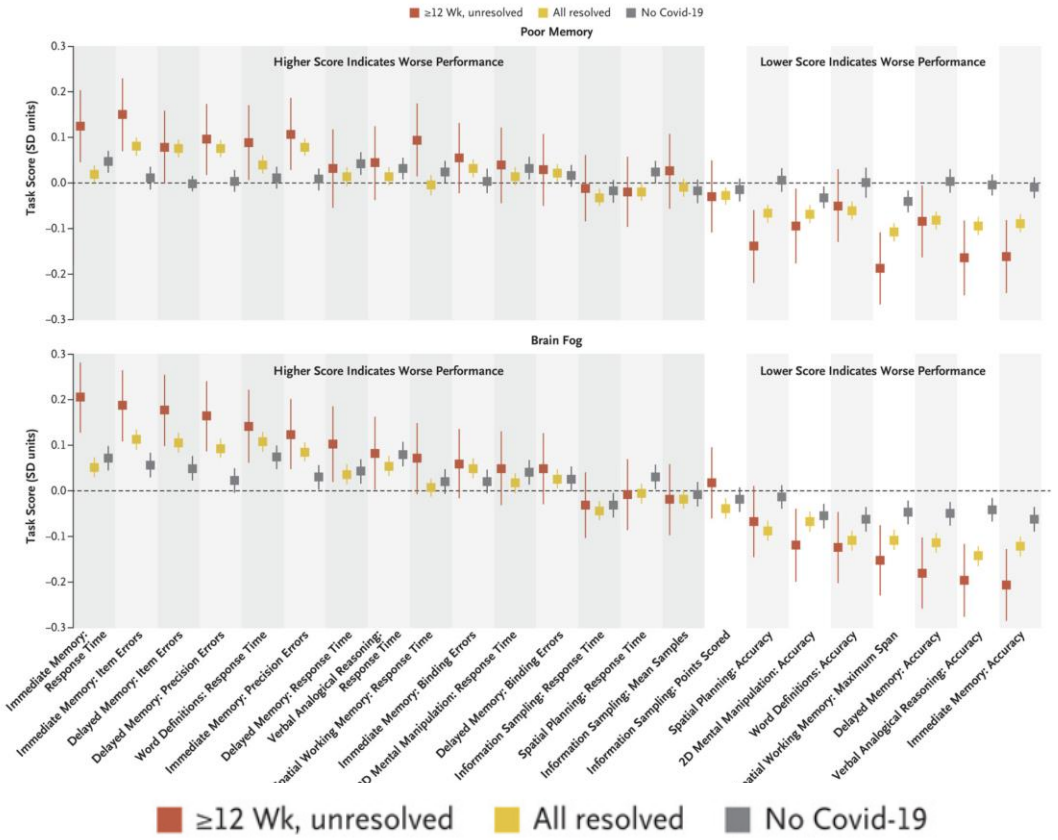


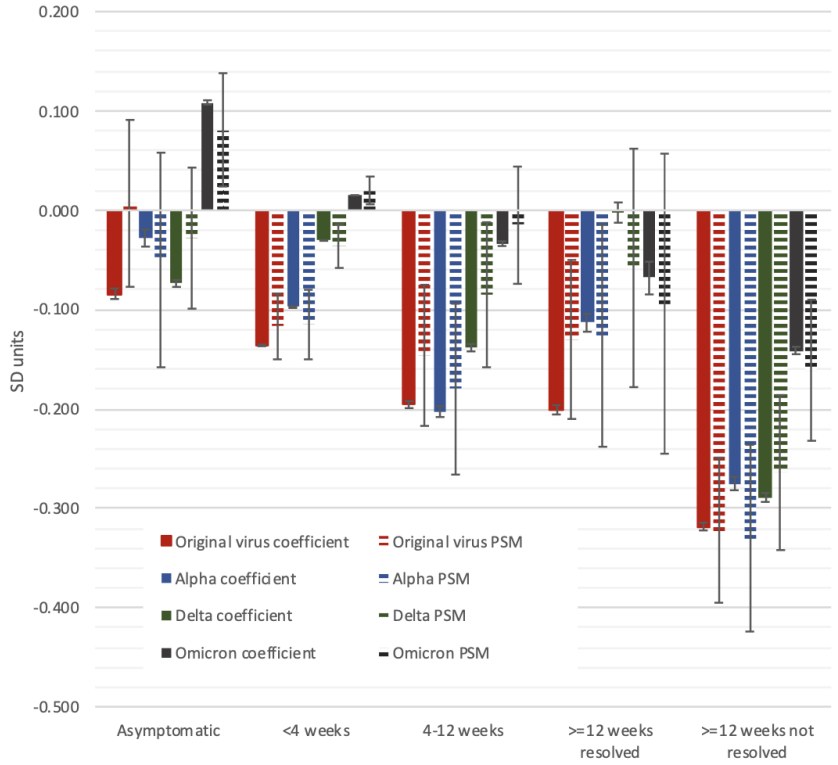


Data updated through 12/24

Pandemic Pubs (March 7th, 2024)

Long COVID Cognitive Effect: Study of 800K in England, provided a cognitive assessment online and measured performance over time for those infected with COVID-19. Those with short times to resolution of symptoms experienced lower overall deficits. (New England Journal of Medicine, Feb 2024)





In this observational study, we found objectively measurable cognitive deficits that may persist for a year or more after Covid-19. We also found that participants with resolved persistent symptoms had small deficits in cognitive scores, as compared with the no–Covid-19 group, that were similar to those in participants with shorter-duration illness. Early periods of the pandemic, longer illness duration, and hospitalization had the strongest associations with global cognitive deficits.

https://www.nejm.org/doi/full/10.1056/NEJMoa2311330

Pandemic Pubs (March 7th, 2024)

Long COVID Prevented by Vaccination: First of 2 studies summarized, Long COVID prevalence was 40-60% lower among vaccinated vs. unvaccinated in Michigan. Second study shows protective effect for adolescents against Long COVID across successive waves of SARS-CoV2 variants. (Eric Topol, Ground Truths, Feb 2024)

Two New Reports of Vaccination Protection Vs Long Covid

From a study in the Annals of Epidemiology, Michiganders derived an important protective benefit against Long Covid: Long COVID prevalence was 40-60% lower among adults vaccinated (vs. unvaccinated) prior to their COVID-19. This level of protection is consistent with many recent reports and has not been emphasized enough regarding an added benefit of booster shots. The data were previously reviewed on Ground Truths here.

And a new preprint report on protection in children and adolescents which looked at different variants (Delta and Omicron) and cause and effect relationship for direct benefit of vaccination, summarized in the Table below. More protection was found in teens than children with the range of 60 to 75%.

Vaccine Effectiveness (in %) and 95 CI	Direct Effect	Indirect Effect
Delta study in adolescents		
95.4% (90.9, 97.7)	1.08 (0.75, 1.55)	0.04 (0.03, 0.05)
Omicron study in children		
60.2% (40.3, 73.5)	1.24 (0.92, 1.66)	0.31 (0.23, 0.42)
Omicron study in adolescents		
75.1% (50.4, 87.5)	0.91 (0.69, 1.19)	0.21 (0.16, 0.27)

Solving the puzzle of Long Covid

Long Covid provides an opportunity to understand how acute infections cause chronic disease

ZIYAD AL-ALY AND ERIC TOPOL Authors Info & Affiliations

SCIENCE · 22 Feb 2024 · Vol 383, Issue 6685 · pp. 830-832 · DOI: 10.1126/science.adl0867

Essay in Science advocating for addressing Long COVID
https://www.science.org/doi/10.1126/science.adl0867

GROUND TRUTHS
A SUBSTACK FROM ERIC TOPOL

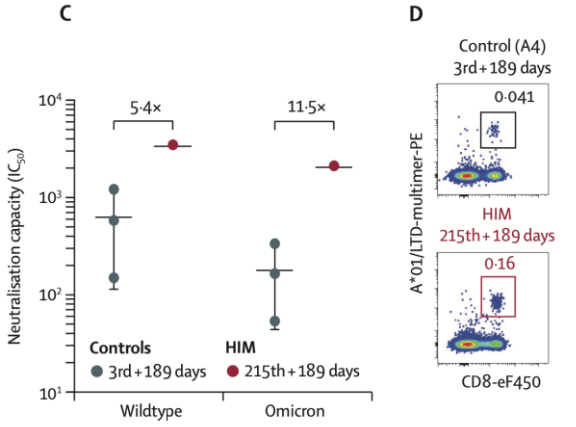
https://erictopol.substack.com/p/towards-solving-the-long-covid-puzzle

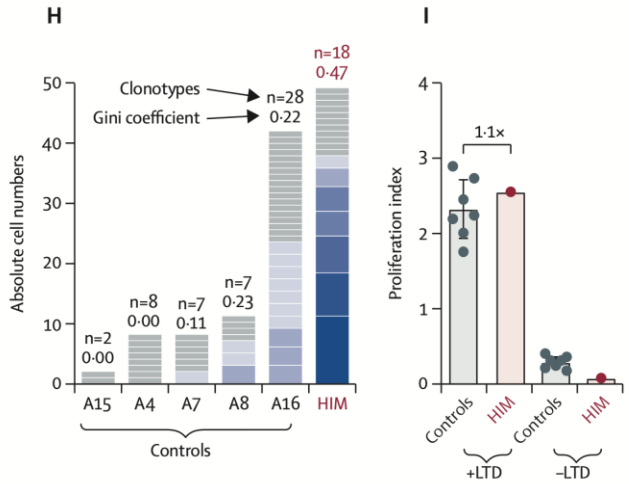
Pandemic Pubs (March 7th, 2024)

Hyper-Vaccination: German man received 217 vaccinations over the course of 2.5 years. This Hyper-vaccination led to no adverse events and increased the quantity of antibodies and T-cells and did not negatively effect the quality of his immune response. (Lancet, March 2024)

Hypervaccination increases the quantity, but not the quality, of adaptive immunity

https://www.thelancet.com/pdfs/journals/laninf/PIIS1473-3099(24)00134-8.pdf





(C) Neutralisation capacity against wildtype and Omicron spike-protein of HIM's and controls' sera in a pseudotype neutralisation assay. (D–E) Frequency of spike epitope (HLA-A*01/LTD)-specific CD8+ T cells. n=5 controls.

(H) T-cell clonality of LTD-specific CD8+ T cells determined by scRNAseq (10× Genomics, Pleasanton CA, USA). Segments of bars indicate individual clones (grey segments=1 cell; blue segments >1 cell). Numbers on top of the bars represent total number of clones and Gini coefficient to indicate clonality. (I) Proliferation index of LTD-specific CD8+ T cells upon stimulation with LTD-peptide for 14 days. n=7 control samples were collected from day 76 to 568 after last spike-exposure (vaccination or infection). (J–L) Cytokine expression of CD8+ T cells after LTD-peptide stimulation. (J) Representative plots of IFNγ/TNFα expression. (K) Quantification of IFNγ+ within CD8+ T cells after stimulation. (L) Normalisation of IFNγ+ to the LTD-specific fraction of CD8+ T cells. Connected dots represent individual donors (B,E). Data points represent individual donors, bars or solid lines and error bars indicate the mean +/- s.d. (C,G,I,K,L). Fold-differences to mean of controls are indicated (C,G,I,K,L). HIM=hypervaccinated individual from Magdeburg, Germany. J&J=Johnson & Johnson Ad26.COV2.S vaccine. AZ=AstraZeneca Vaxzevria vaccine. Moderna=Spikevax vaccine. BNT Original=Pfizer–BioNTech Comirnaty original vaccine. BNT-BA 4–5=Comirnaty original/Omicron BA 4–5. BNT-BA.1=Comirnaty original/Omicron BA.1. GSK/Sanofi=Vidprevtyn Beta vaccine. BNT-XBB.1.5=Comirnaty Omicron XBB.1.5. nd=not detected. IC50=half-maximal inhibitory concentration. LTD=LTDEMIAQY epitope. PE=phycoerythrin. PBMC=peripheral blood mononuclear cells. A*01/LTD-multimer-PE=peptide human leukocyte antigen (HLA) multimer for HLA-A*01:01 presenting the LTD epitope peptide and conjugated to the PE dye. TN-like/SCM=naive-like and stem cell memory T cells. TCM=central memory T cells. TEM=effector memory T cells. TEMRA=effector memory T cells upregulating CD45RA

Influenza Update

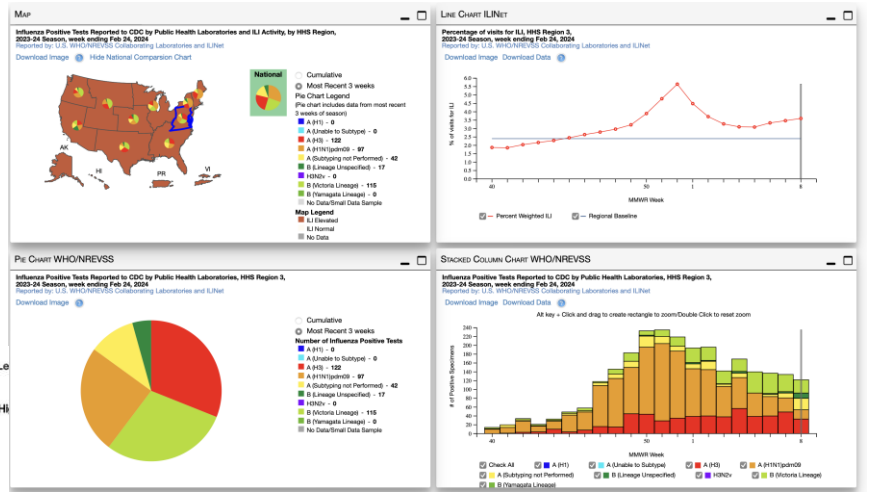
Current Influenza Situation – ILI Activity

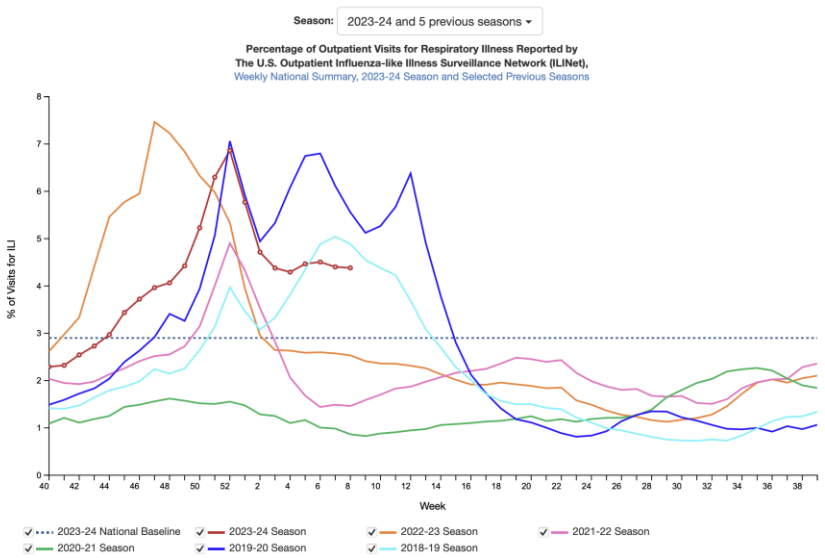
FluView Interactive

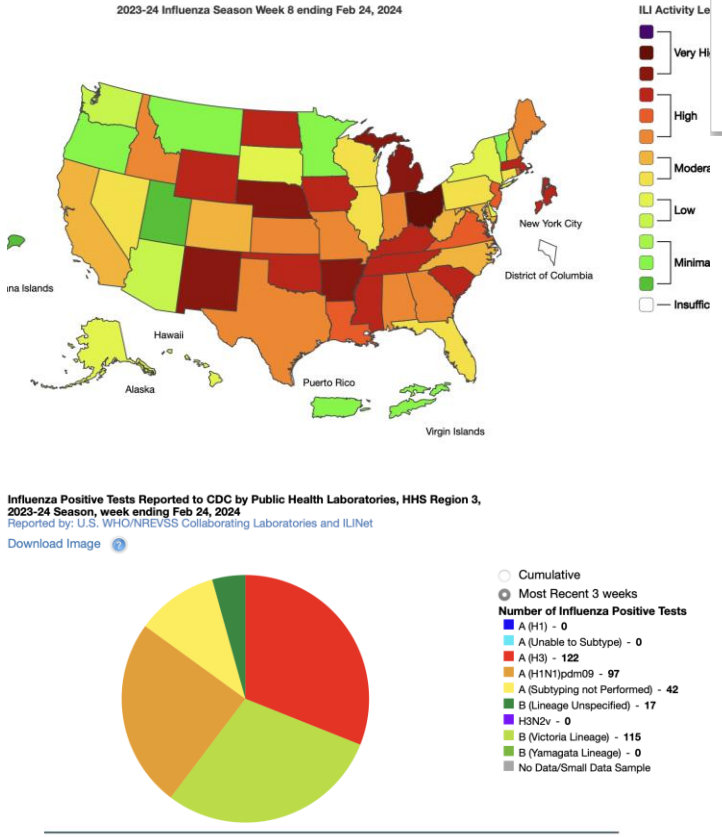
Region 3

All regions remain above threshold and many are steady

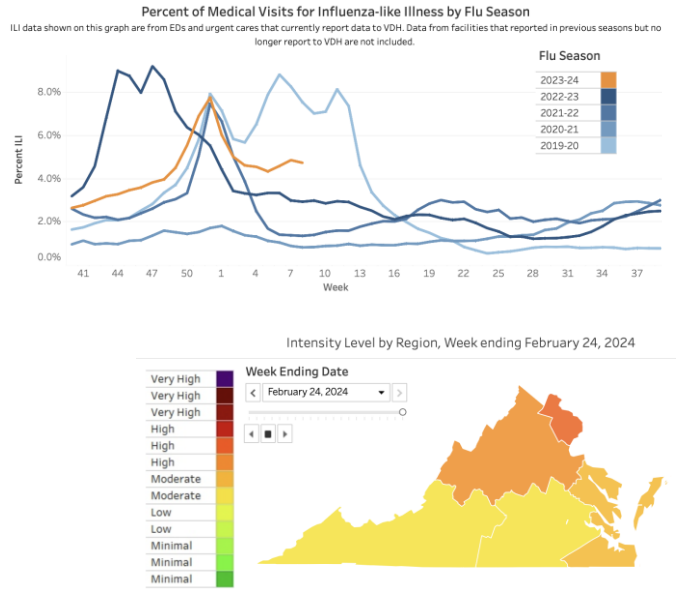
- Virginia remains a ”High” level of Influenza activity
- National ILI activity has been at a steady high level for 6 weeks







Virginia (ED & UC Visits – Feb24, 2024)

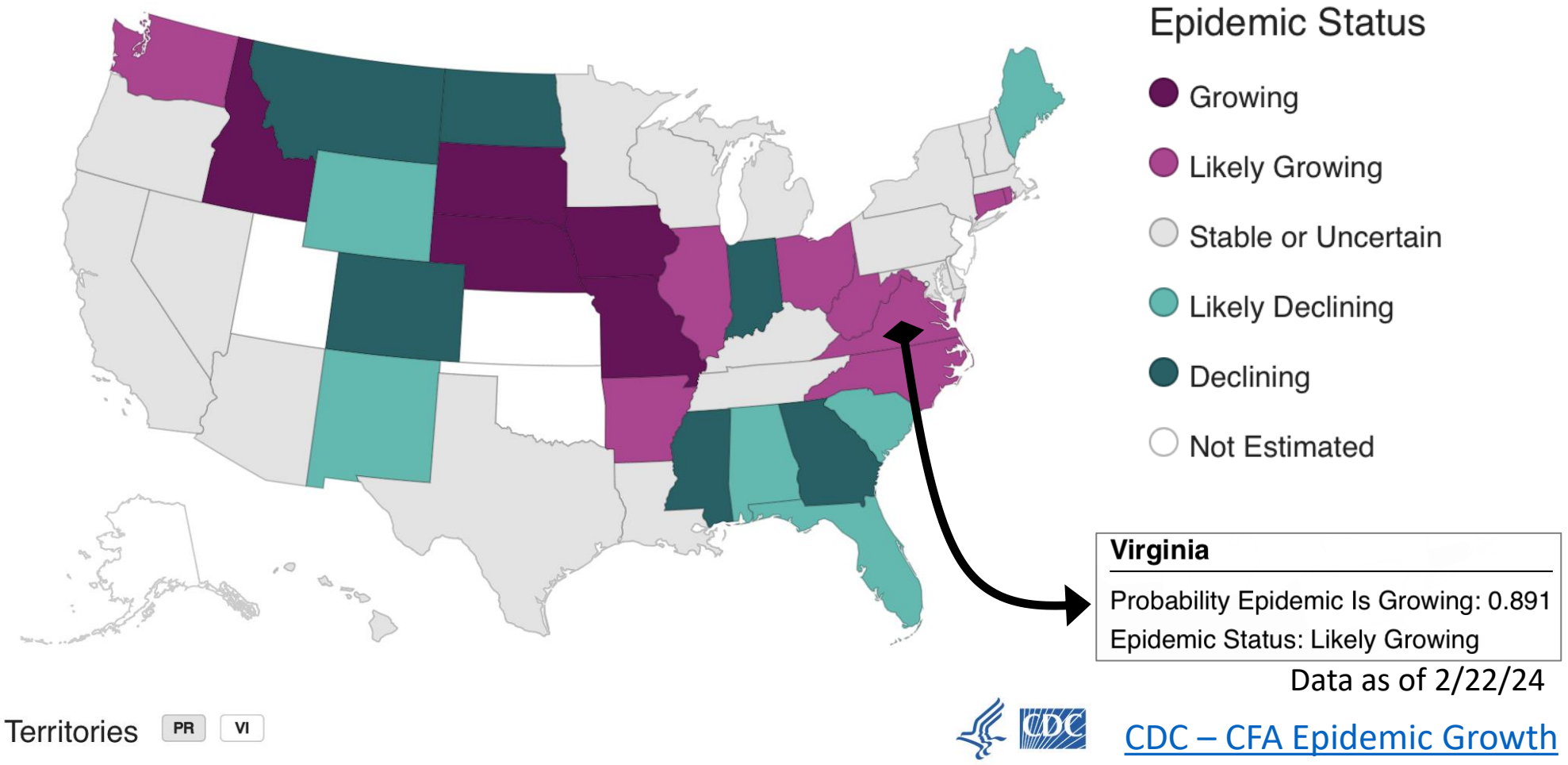


FLUVIEW
A Weekly Influenza Surveillance Report Prepared by the Influenza Division

BIOCOMPLEXITY INSTITUTE

FluView Surveillance

Influenza Hospitalizations – Epidemic Growth



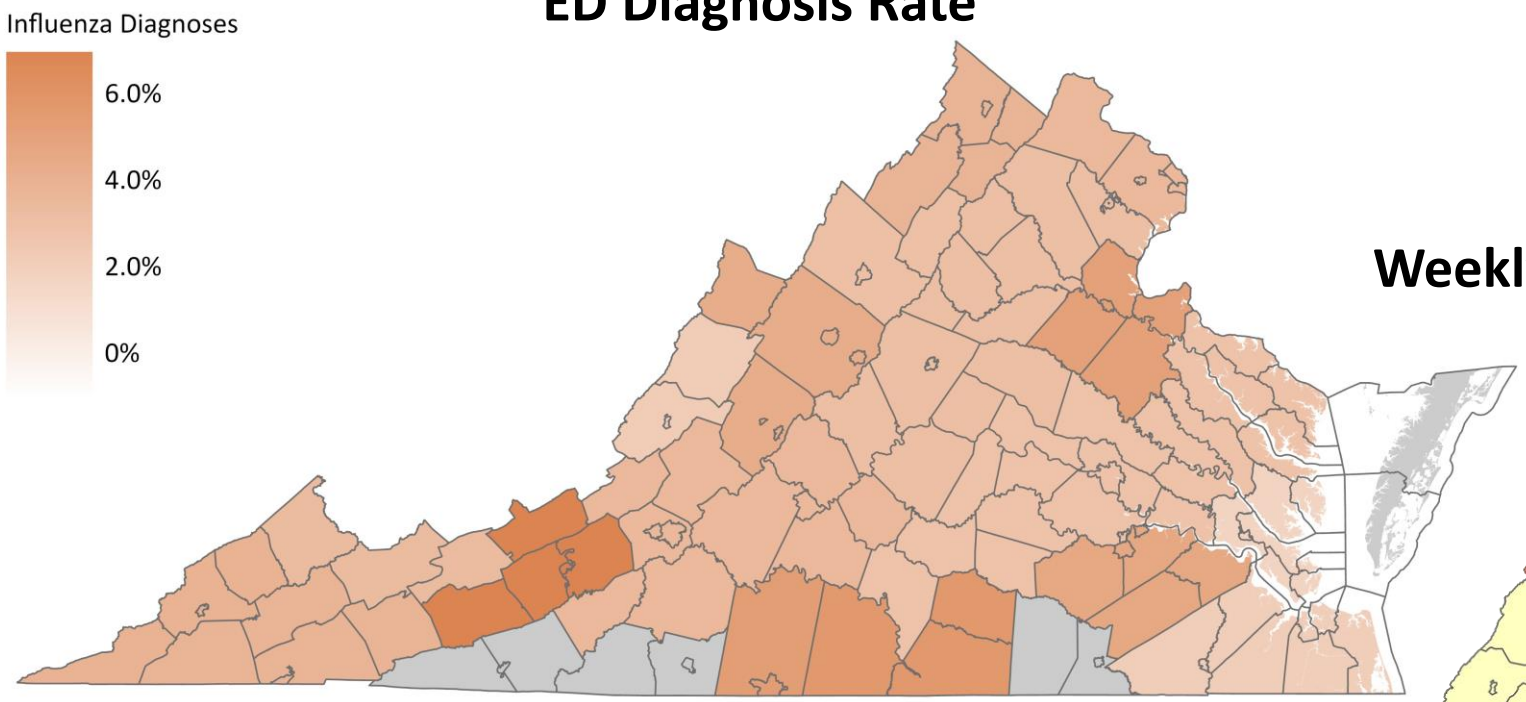
Data as of 2/22/24

[CDC – CFA Epidemic Growth]

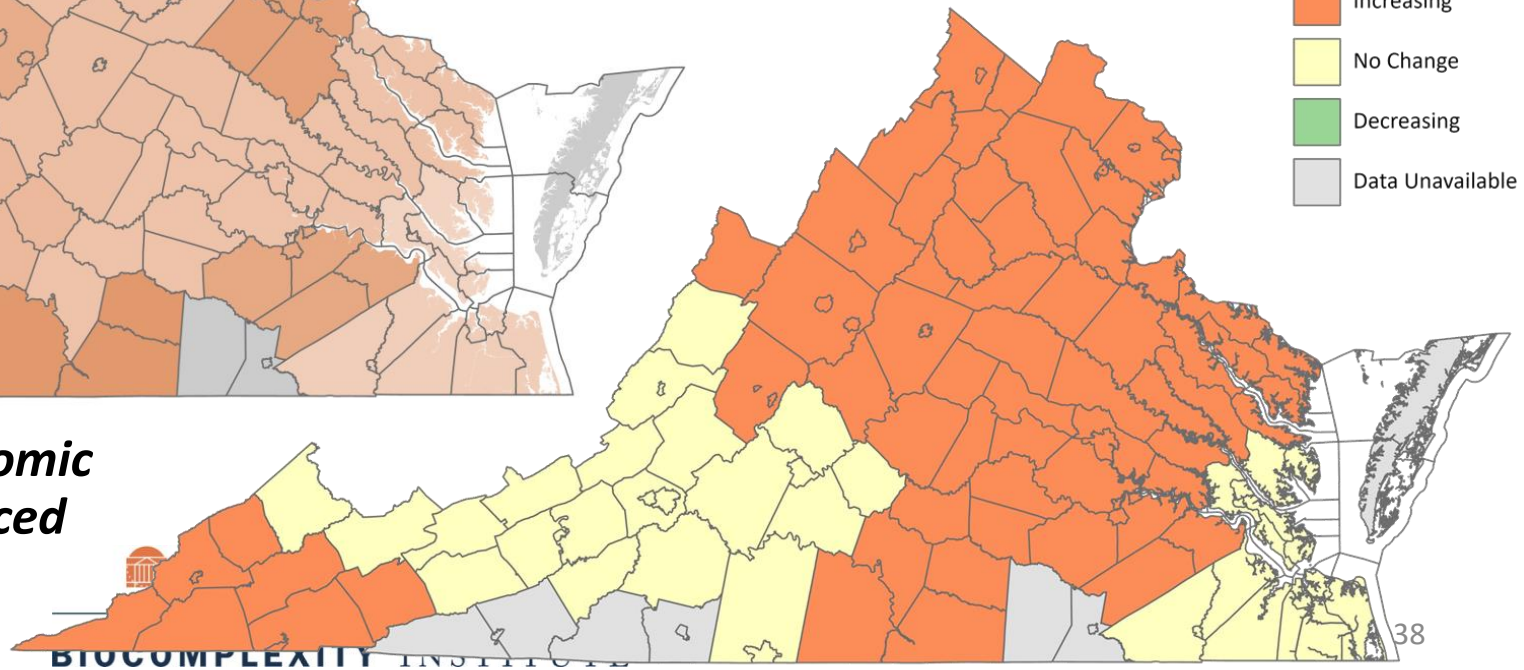
Emergency Department Diagnosis Rate – Influenza

Flu diagnoses are still highest in the New River Valley, with rates rivaling last month's reports (over 6%). Most of the Commonwealth reported increases from the week prior.

ED Diagnosis Rate



Weekly Trend of Diagnoses

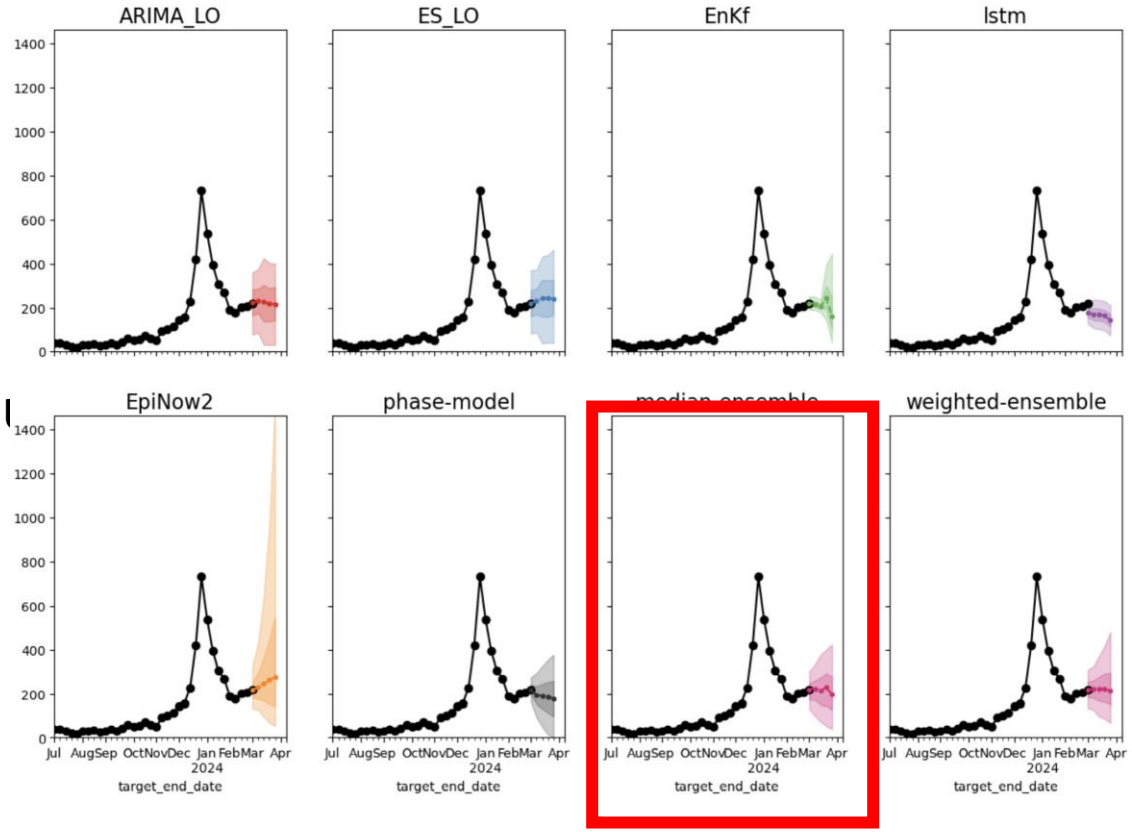


Derived from CDC National Syndromic Surveillance Program Data produced at the HSA level as of 2024-02-24.

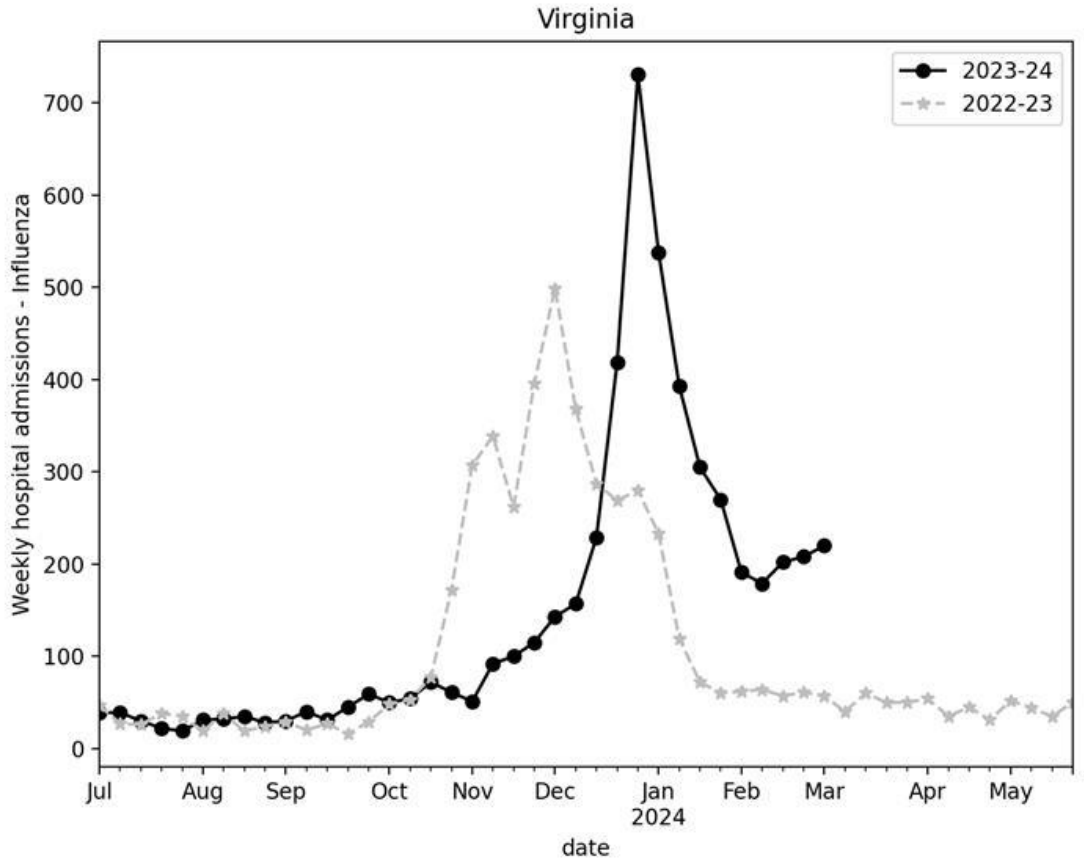
Influenza Forecasts – Hospitalization Admissions

Virginia

UVA forecast model only
Hospital Admissions for Influenza and Forecast for next 4 weeks



National Flu Hospital Admissions
Weekly hospital admissions
Last update: March 2nd, 2024



Forecast from March 6th from data of Mar 2nd

Current Influenza Hospitalization Forecast

Statistical models for submitting to CDC Influenza Forecasting Hub

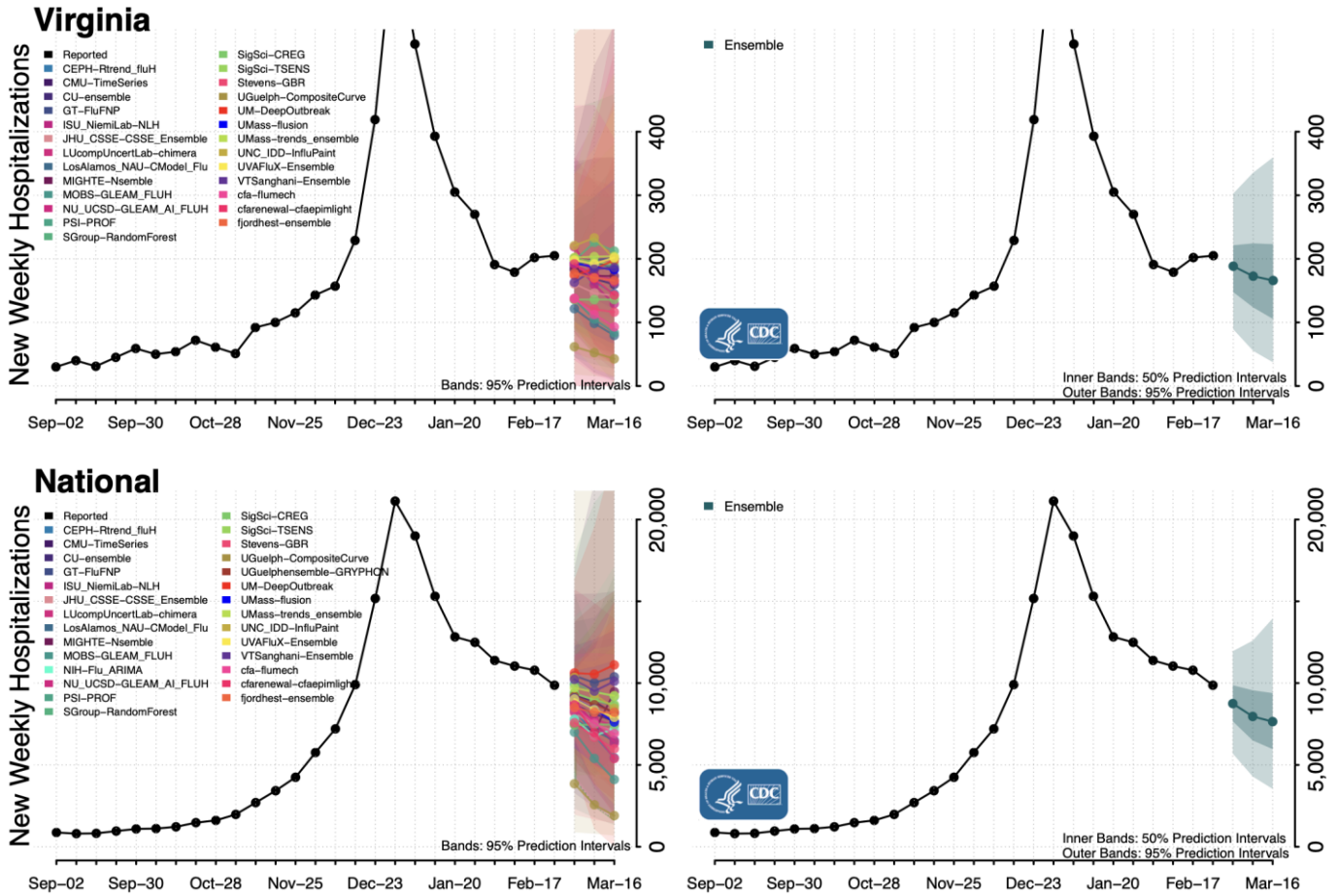
- Uses a variety of statistical and ML approaches to forecast weekly hospital admissions for the next 4 weeks for all states in the US

Hospital Admissions for Influenza and Forecast for next 4 weeks (CDC Influenza Ensemble)

From February 28th

CDC Flu Activity Surveillance

https://www.cdc.gov/flu/weekly/fluactivitysurv.htm



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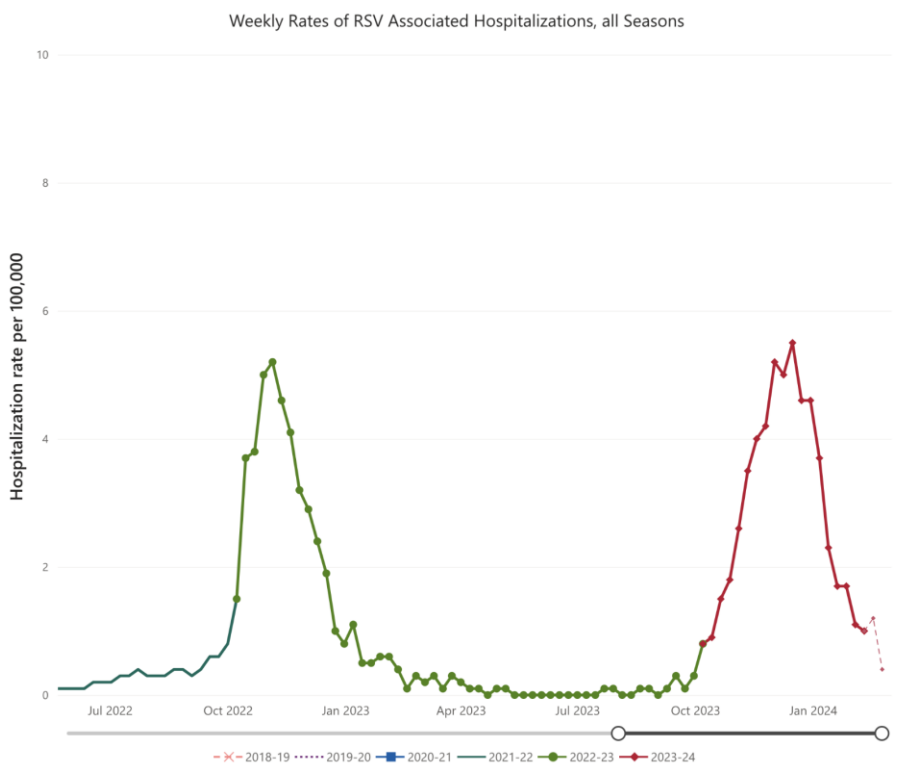
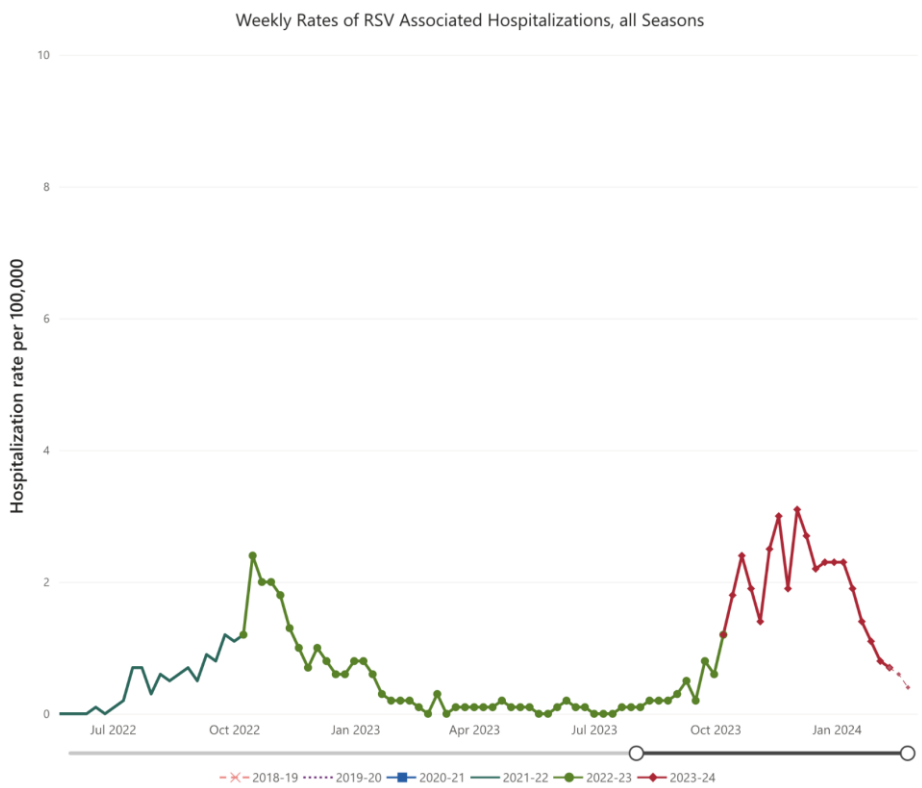
RSV Update

Current RSV Situation – Hospitalization Rates (RSV-Net)

Maryland (RSV-Net)



Tennessee (RSV-Net)



Surveillance data as of:
2/10 (last solid data)
2/24 (last recent but likely to be updated)

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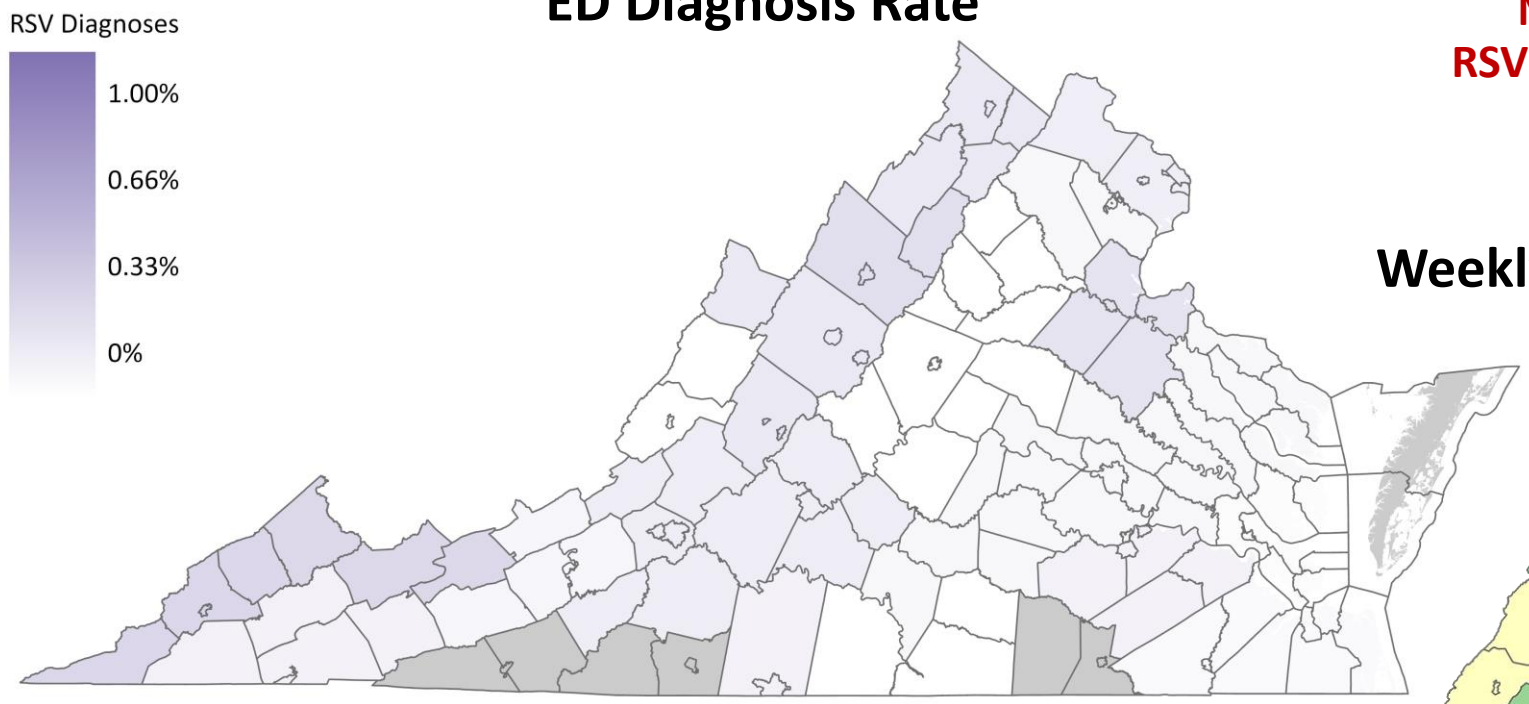
[RSV-Net Dashboard]

Emergency Department Diagnosis Rate – RSV

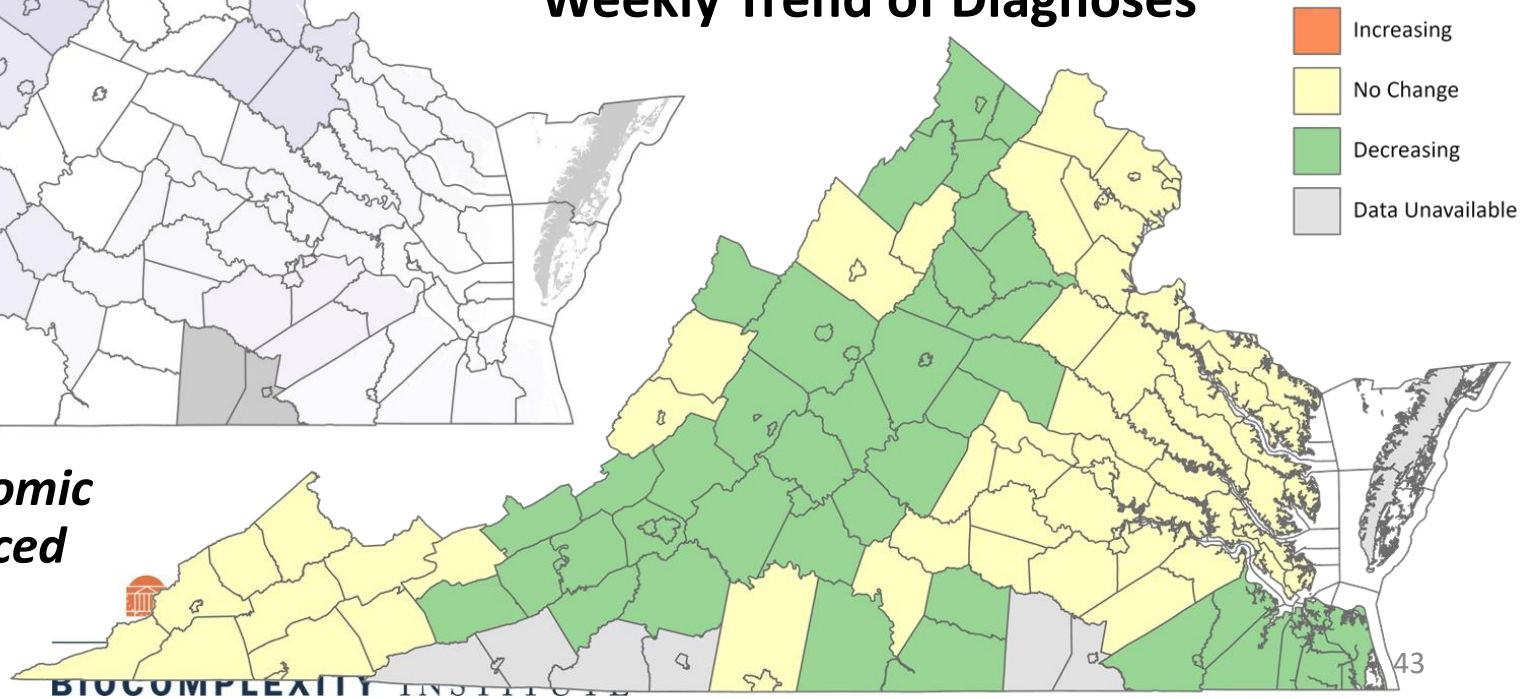
RSV rates are so low that a different color scale was required for maps. No counties report a diagnosis rate higher than 0.28%. Most counties continue to report weekly decreases.

ED Diagnosis Rate



Note color ramp stops at 1% for RSV as rates are very low compared to COVID-19 and Influenza.

Weekly Trend of Diagnoses

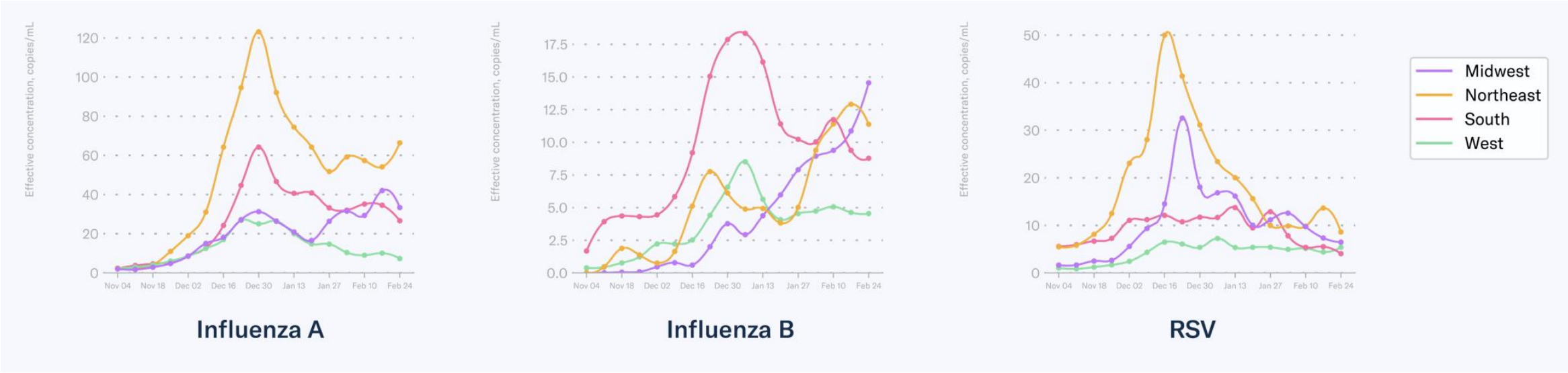


Derived from CDC National Syndromic Surveillance Program Data produced at the HSA level as of 2024-02-24.

Respiratory Illness Combined Update

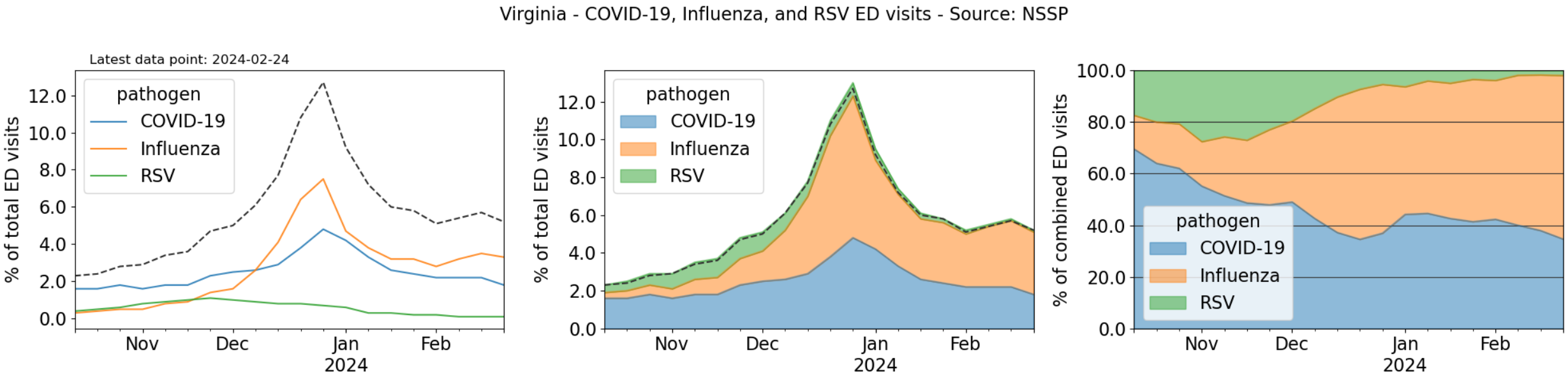
Combined Respiratory Illness Viruses - Wastewater

Regional Flu and RSV Wastewater Concentrations



Biobot Analytics https://biobot.io/data/

Combined Respiratory Illness Viruses – NSSP VA ED Visit



Data as of February 24th, 2024

Key Takeaways

COVID-19 indicators remain elevated, trends are mixed between steady and decline

- Hospital admissions and Visits with Diagnosed COVID are higher than they were at this point last year
  - Hospital admissions peak was ~20% lower than last year, but the peak this year is broader.
- Wastewater continues to show high viral loads
- Together this suggest continued plateaus in activity with likely decline in coming weeks.

Influenza is remains elevated in VA and across the US

RSV hospitalizations have reduced to minimal activity

Questions?

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