Laboratory Outreach Communication System (LOCS) Call

Monday, September 18, 2023, at 3:00 P.M. EDT

- **Welcome**
  - Sean Courtney, CDC Division of Laboratory Systems
- **COVID-19, Influenza, and RSV Situation Report**
  - Manisha Patel, National Center for Immunization and Respiratory Diseases
- **SARS-CoV-2 Variants Update**
  - Lydia Atherton, CDC Coronavirus and Other Respiratory Viruses Division
- **Monitoring Respiratory Viruses with Congregate Air Sampling: Spaces, Not Cases**
  - David O'Connor and Shelby O'Connor, University of Wisconsin-Madison
- **CDC's Logical Observation Identifier Names and Codes (LOINC) In Vitro Diagnostic (LIVD) Test Code Mapping Webpage Update**
  - Muktha Natrajan, CDC Division of Laboratory Systems

About DLS

Vision

Exemplary laboratory science and practice advance clinical care, public health, and health equity.

Mission

Improve public health, patient outcomes, and health equity by advancing clinical and public health laboratory quality and safety, data and biorepository science, and workforce competency.

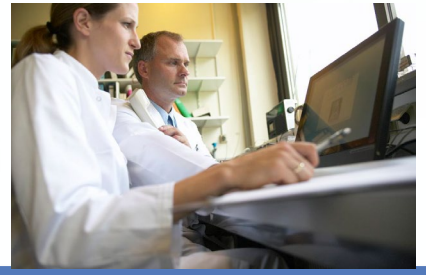
Four Goal Areas

Quality Laboratory Science

- Improve the quality and value of laboratory medicine and biorepository science for better health outcomes and public health surveillance

Highly Competent Laboratory Workforce

- Strengthen the laboratory workforce to support clinical and public health laboratory practice



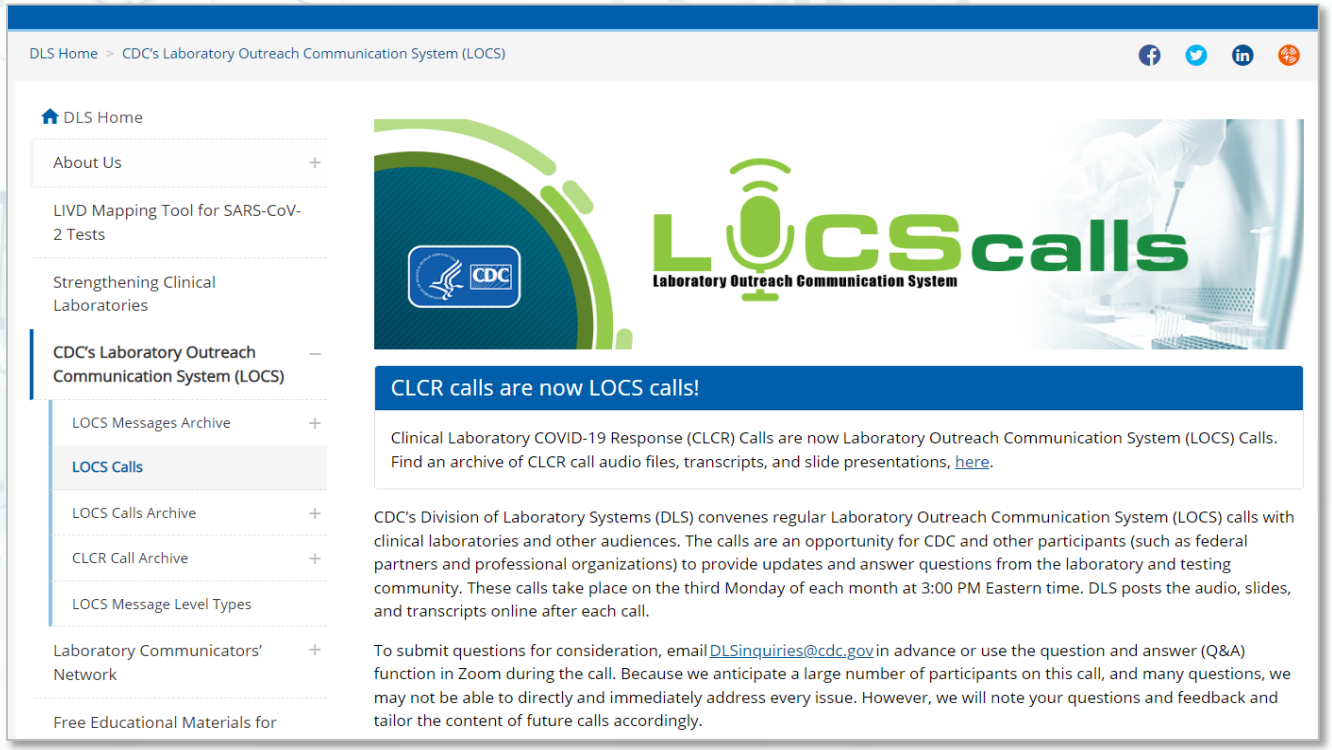
Safe and Prepared Laboratories

- Enhance the safety and response capabilities of clinical and public health laboratories

Accessible and Usable Laboratory Data

- Increase access and use of laboratory data to support response, surveillance, and patient care

LOCS Calls



On this page, you can find:

- LOCS Call information
- Transcripts
- Slides
- Audio Recordings

https://www.cdc.gov/locs/calls

We Want to Hear From You!

Training and Workforce Development

Questions about education and training?

Contact LabTrainingNeeds@cdc.gov

OneLab Partner Toolkit is now updated with all OneLab elements!

We invite you to use the customizable materials in this toolkit to share information about these resources with your networks, today!

DOWNLOAD TOOLKIT

What's in the toolkit?

- Email Templates
- Social Media and Images
- Postcard
- Blog Post

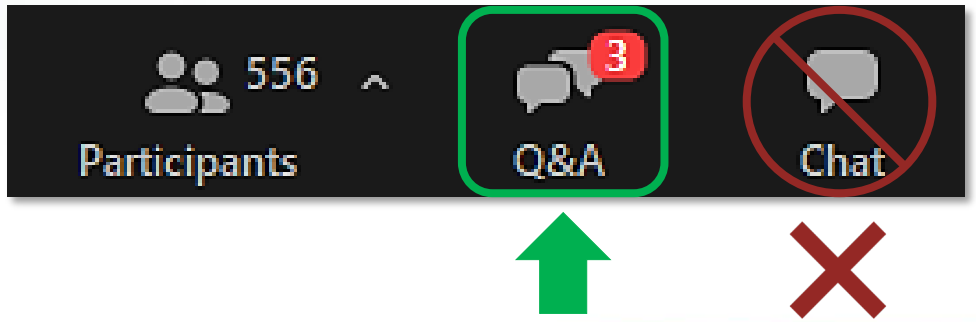
18th CDC International Symposium on Biosafety

- March 10-14, 2024
- Crowne Plaza Ravinia, Atlanta, Georgia
- Symposium will provide a series of engaging sessions about modernizing biosafety operations and practices, focused on the areas of Clinical Care, Public Health, Research, and Animal Care

Registration opening soon:
https://www.eagleson.org/conferences/cdc-international-biosafety-symposium/

How to Ask a Question

- **Using the Zoom Webinar System**
  - Click the **Q&A button** in the Zoom webinar system
  - Type your question in the **Q&A box** and submit it
  - Please do not submit a question using the chat button



- For media questions, please contact CDC Media Relations at media@cdc.gov
- If you are a patient, please direct any questions to your healthcare provider

Slide decks may contain presentation material from panelists who are not affiliated with CDC. Presentation content from external panelists may not necessarily reflect CDC's official position on the topic(s) covered.

COVID-19, Influenza, and RSV Situation Report

September 18, 2023

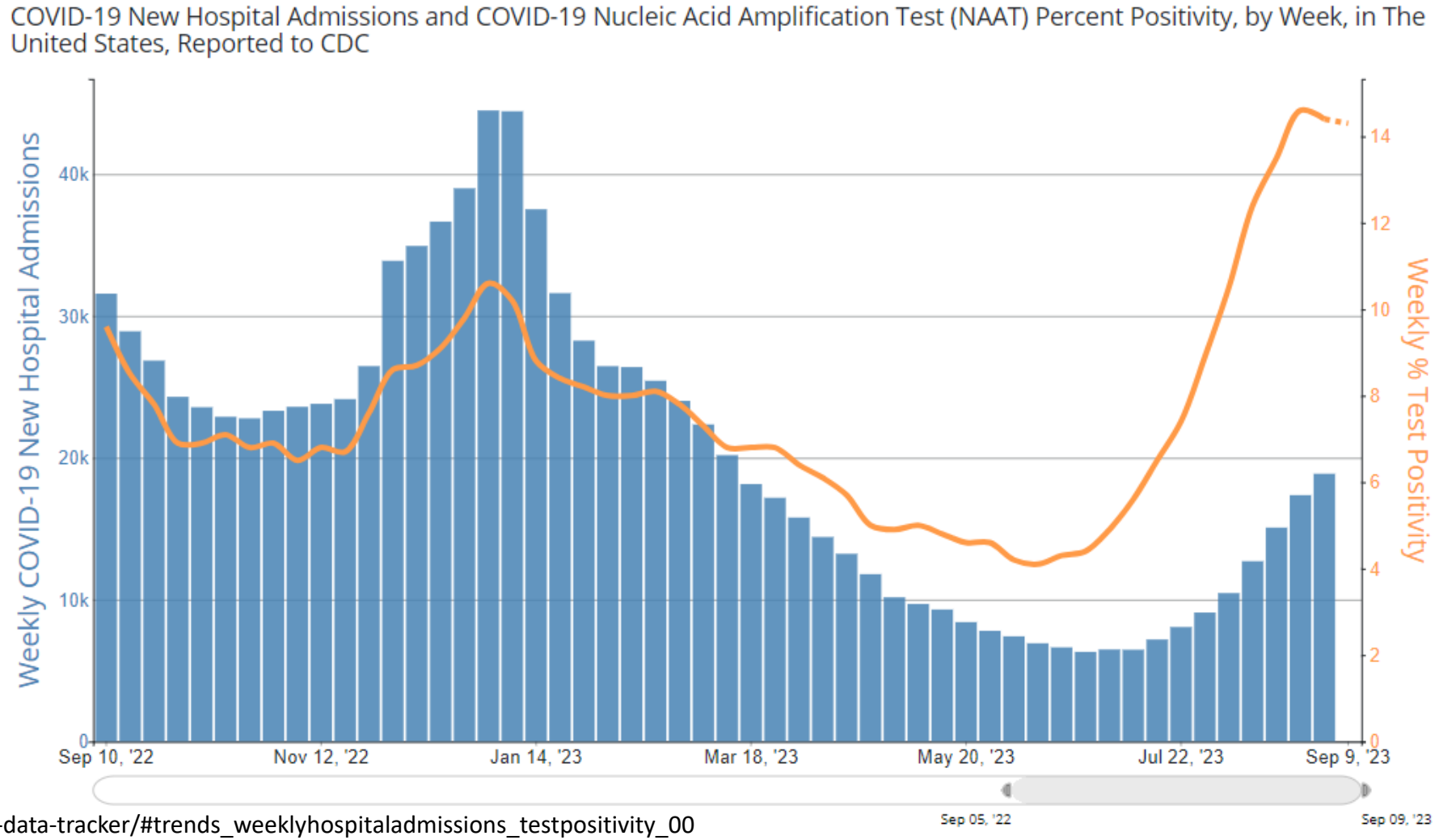
Respiratory Viruses Summary – Week Ending Sept 15, 2023

- **COVID-19 activity**
  - Early indicators (ED visits, test positivity, wastewater) are declining
  - Late indicators (hospital admissions) continue to increase but at lower rate than previous weeks

- **RSV activity** still increasing in Southeast, especially Florida, but low nationally

- **Influenza activity** remains low

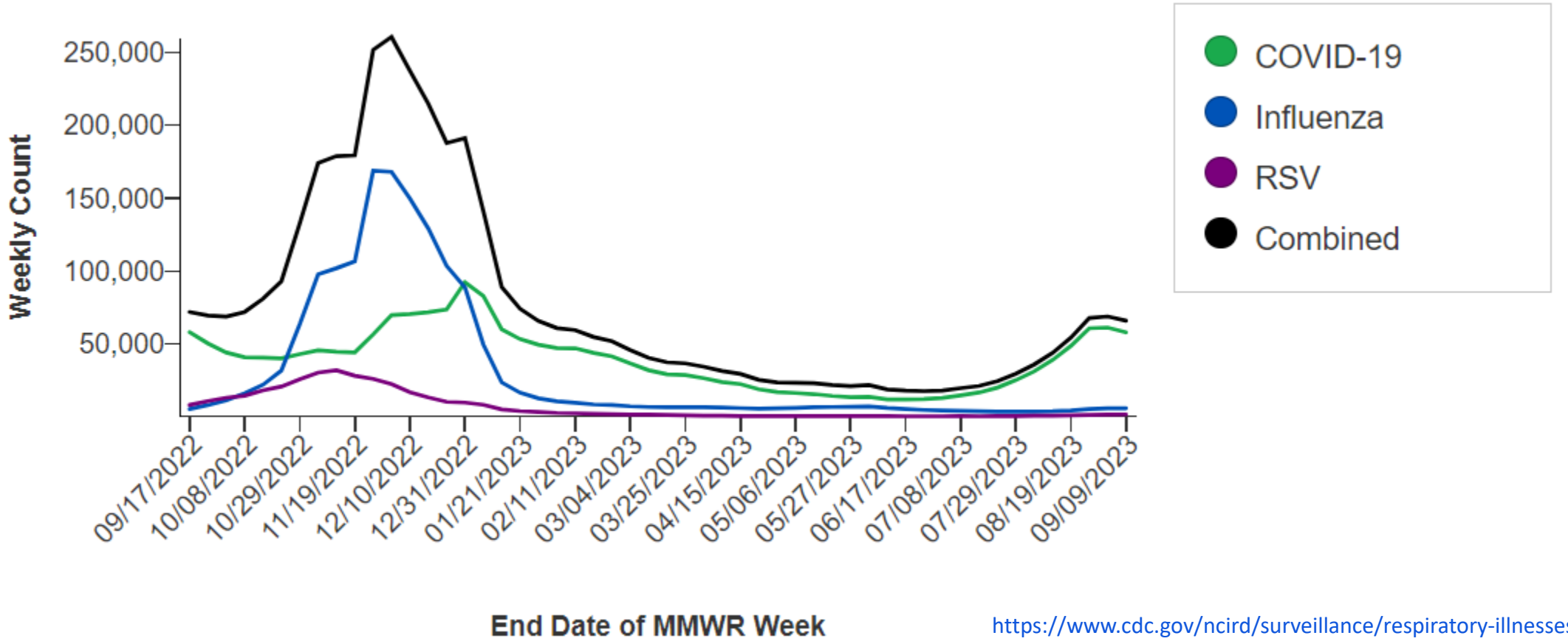
COVID-19 test positivity also declining (orange line)



https://covid.cdc.gov/covid-data-tracker/#trends_weeklyhospitaladmissions_testpositivity_00

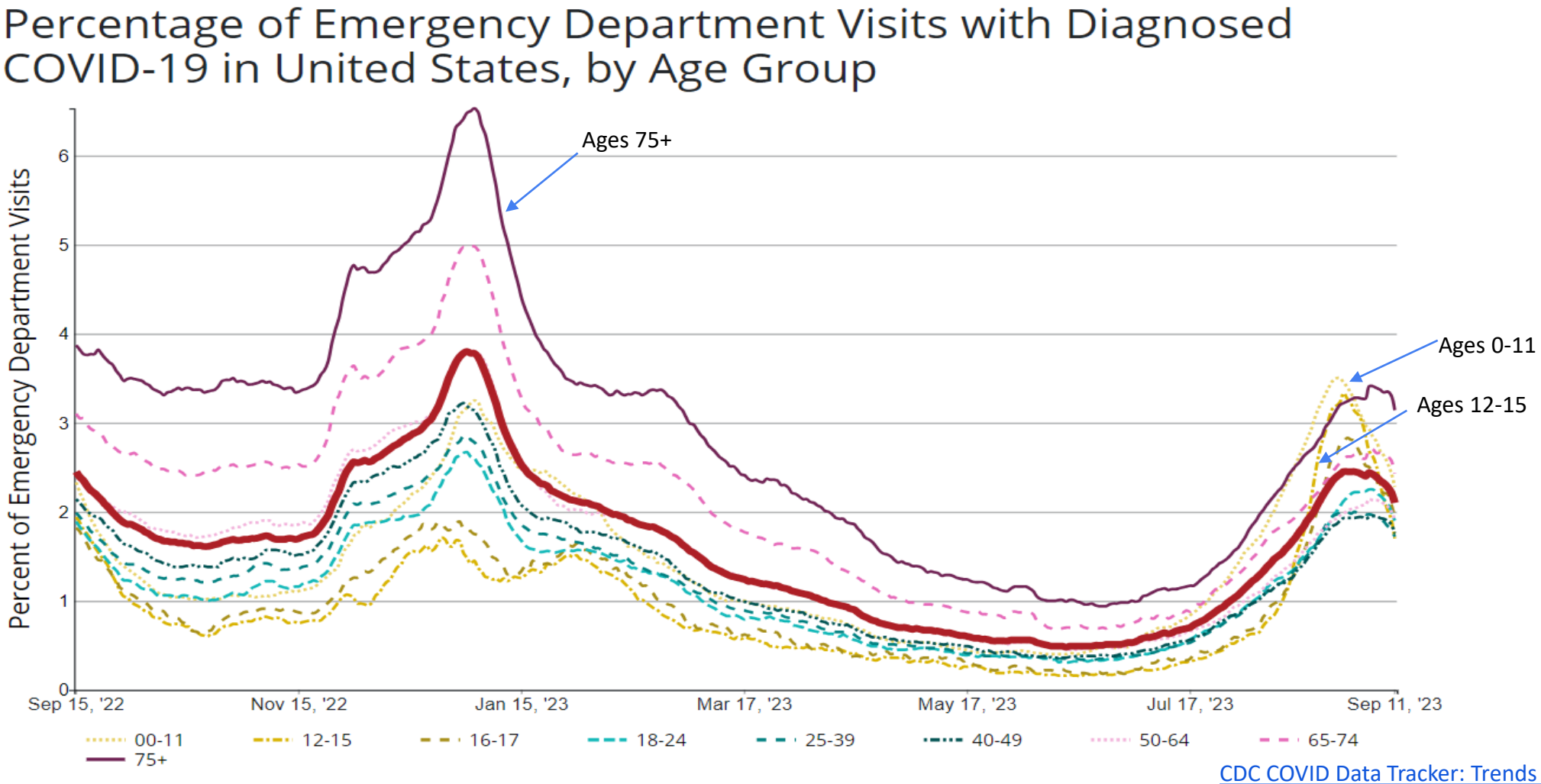
COVID-19 emergency department visits declining nationally

Influenza and RSV ED visits nationally continue to be low



https://www.cdc.gov/ncird/surveillance/respiratory-illnesses/index.html

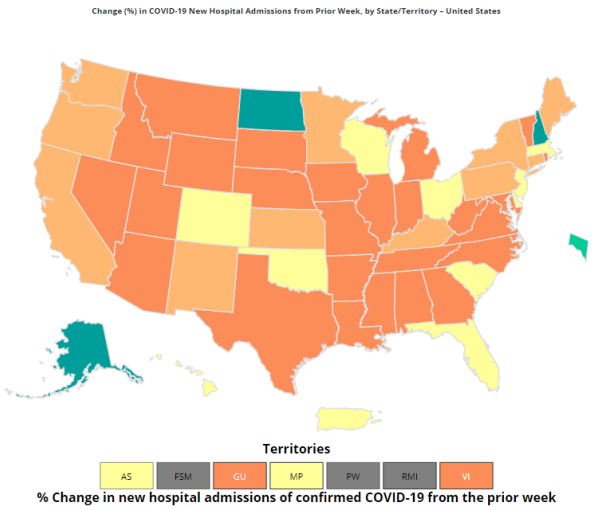
COVID-19 emergency department visits decreasing in all age groups



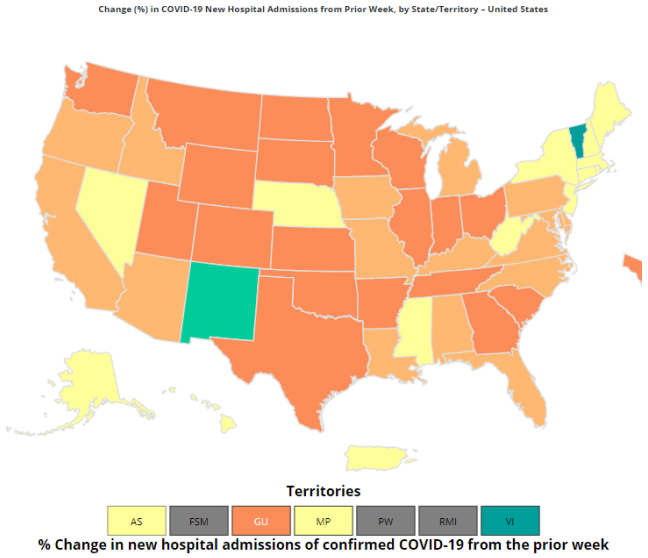
CDC COVID Data Tracker: Trends in ED Visits

COVID-19 emergency department visits stable or declining in parts of Southeast, Midwest, and West

Weekly change 2 weeks ago

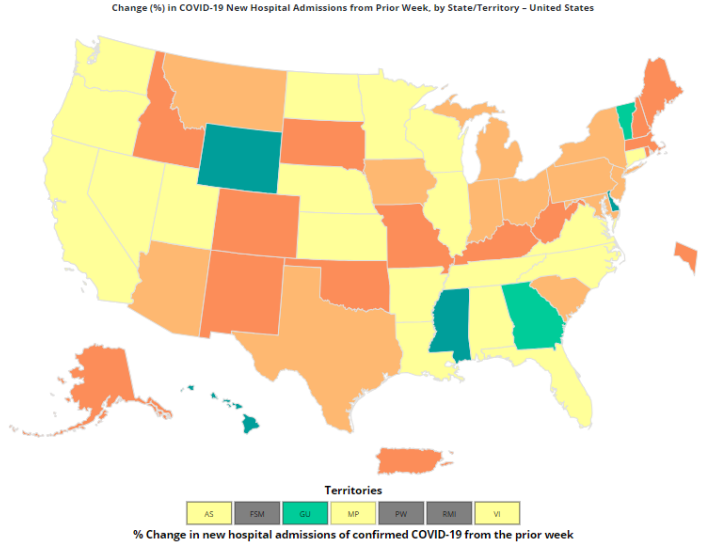


Weekly change 1 week ago



Weekly change this week

Current



Insufficient Data

Substantial Decrease (≤ -20%)

Moderate Decrease (-19.9% to -10.0%)

Stable (-9.9% to 9.9%)

Moderate Increase (10.0% to 19.9%)

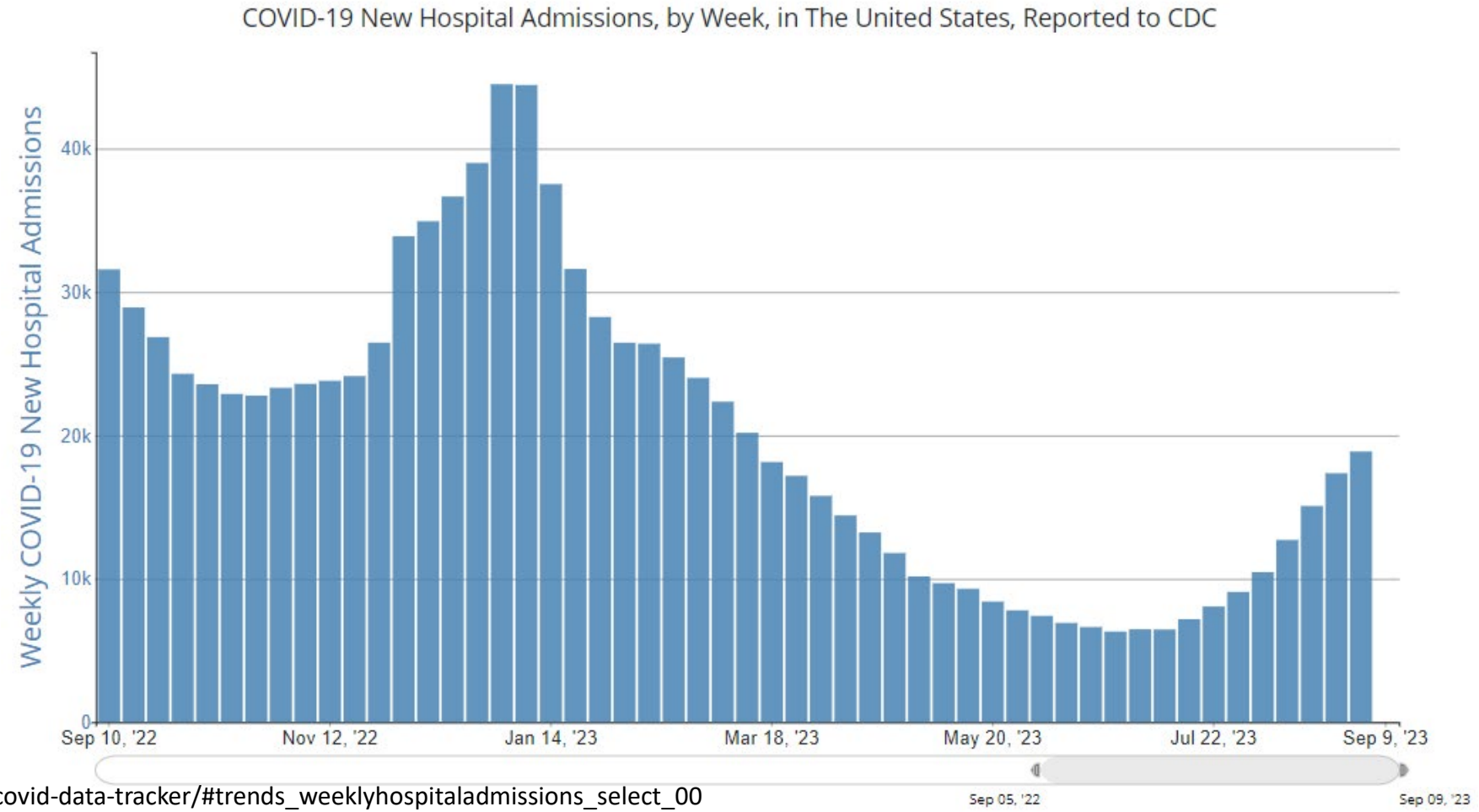
Substantial Increase (≥20%)

https://covid.cdc.gov/covid-data-tracker/#maps_new-admissions-percent-change-state

COVID-19 hospital admissions still increasing (+9%), but at lower rate than previous weeks

These data lag ED visits, test positivity, and wastewater

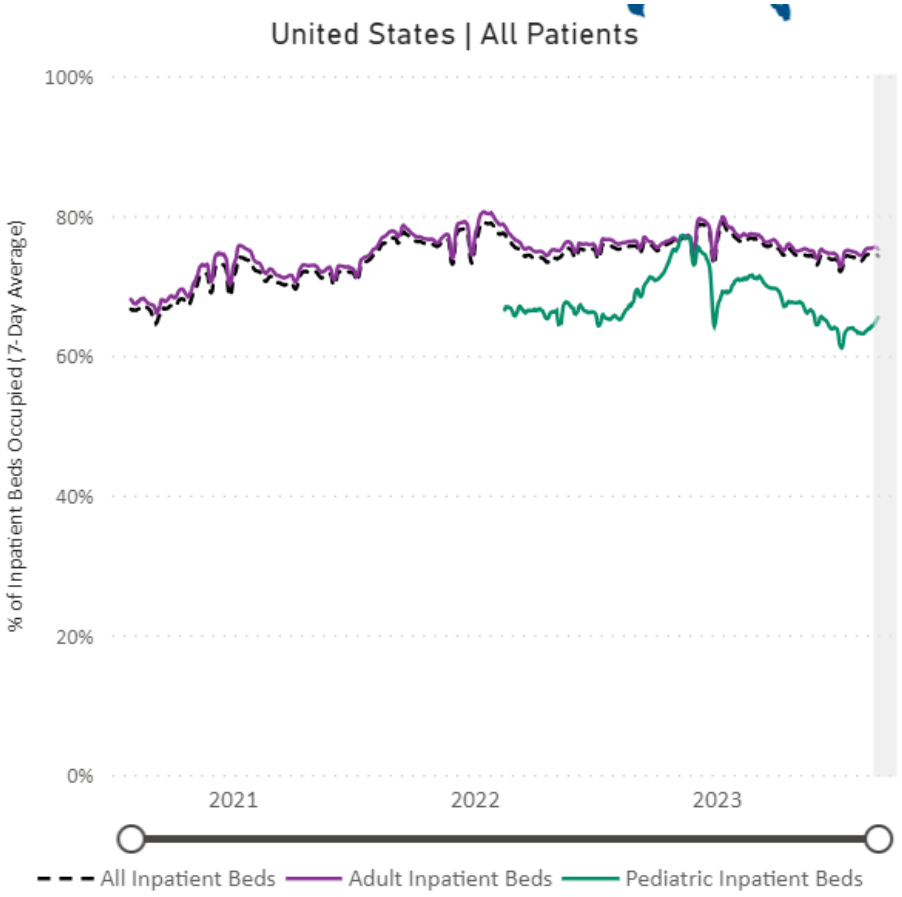
- Increases smallest in Regions 4 and 9



https://covid.cdc.gov/covid-data-tracker/#trends_weeklyhospitaladmissions_select_00

Hospital utilization stable

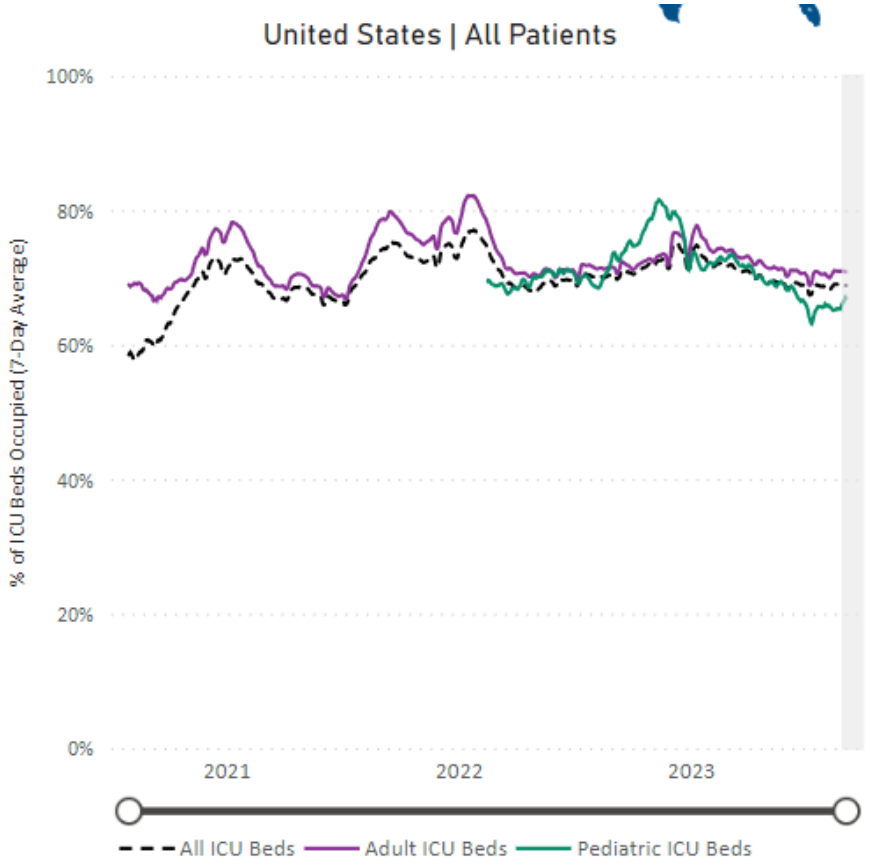
Inpatient beds



Adult: 75%

Pediatric: 65%

ICU beds



Adult: 71%

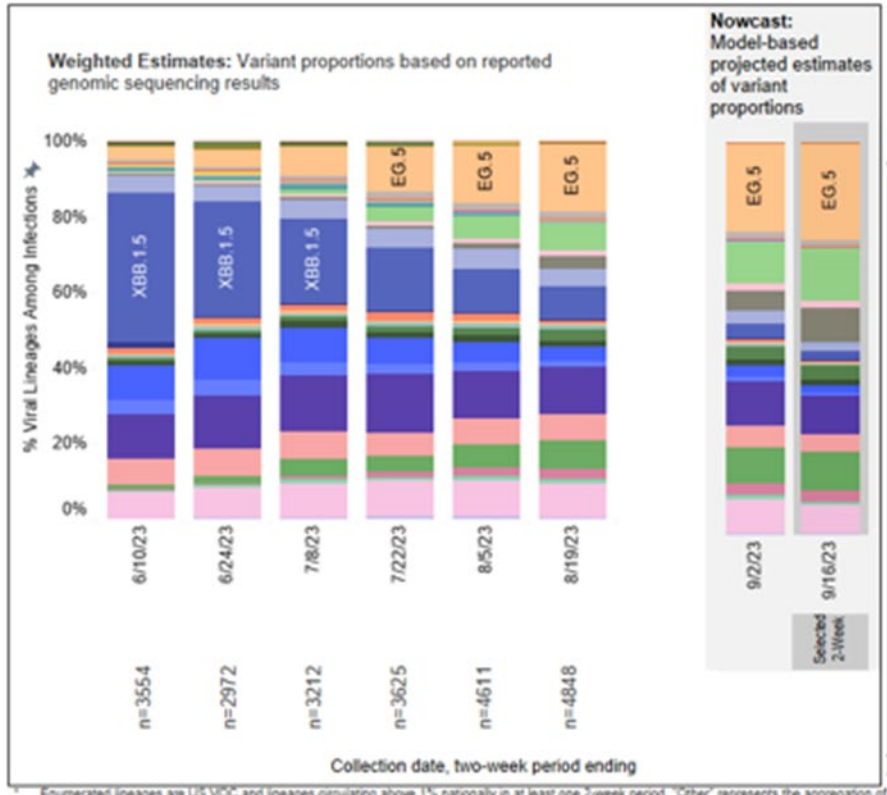
Pediatric: 67%

https://covid.cdc.gov/covid-data-tracker/#hospital-capacity

SARS-CoV-2 Variants – Nowcast Estimates

- No major changes in variant mix
- EG.5, FL.1.5.1, and HV.1 increasing at low rate
- BA.2.86 grouped with BA.2, but still rare in United States

Weighted and Nowcast Estimates in United States for 2-Week Periods in 5/28/2023 – 9/16/2023



Nowcast Estimates in United States for 9/3/2023 – 9/16/2023

USA

WHO label	Lineage #	%Total	95%PI
Omicron	EG.5	24.5%	22.5-26.6%
	FL.1.5.1	13.7%	9.8-18.7%
	XBB.1.16	10.2%	8.6-11.9%
	XBB.1.16.6	9.9%	8.4-11.7%
	HV.1	8.4%	6.6-10.5%
	XBB.2.3	7.2%	6.2-8.5%
	XBB.1.16.1	4.1%	3.4-4.9%
	XBB.1.5.70	3.8%	2.9-4.9%
	XBB.1.16.11	3.0%	2.3-3.8%
	XBB	2.5%	2.1-2.9%
	XBB.1.5	2.2%	1.9-2.6%
	XBB.1.9.1	1.9%	1.6-2.2%
	GE.1	1.7%	1.3-2.3%
	EG.6.1	1.5%	1.0-2.1%
	XBB.1.5.72	1.2%	0.9-1.6%
	XBB.1.42.2	0.9%	0.5-1.7%
	XBB.1.9.2	0.7%	0.6-0.9%
	XBB.1.5.68	0.6%	0.4-0.9%
	XBB.1.5.10	0.6%	0.4-0.7%
	XBB.2.3.8	0.4%	0.2-0.6%
	CH.1.1	0.3%	0.2-0.4%
	FD.1.1	0.3%	0.2-0.4%
	XBB.1.5.59	0.2%	0.1-0.4%
	FE.1.1	0.2%	0.1-0.3%
	EU.1.1	0.0%	0.0-0.1%
	XBB.1.5.1	0.0%	0.0-0.0%
	BQ.1	0.0%	0.0-0.1%
	BA.2.12.1	0.0%	0.0-0.0%
	B.1.1.529	0.0%	0.0-0.0%
	BA.5	0.0%	0.0-0.0%
	FD.2	0.0%	0.0-0.0%
Other	Other*	0.1%	0.0-0.1%

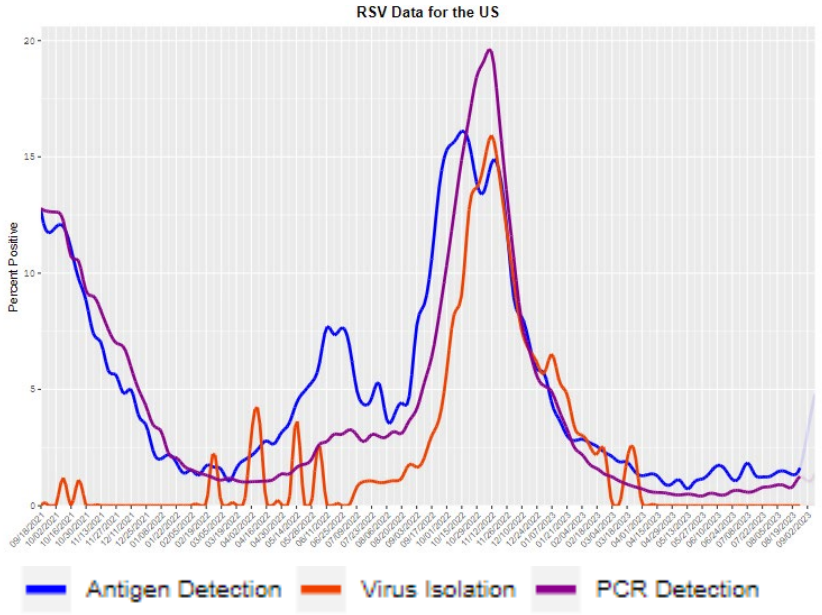
* Enumerated lineages are US VOC and lineages circulating above 1% nationally in at least one 2-week period. "Other" represents the aggregation of lineages which are circulating <1% nationally during all 2-week periods displayed.
# BA.1, BA.3 and their sublineages (except BA.1.1 and its sublineages) are aggregated with B.1.1.529. Except BA.2.12.1, BA.2.75, XBB and their sublineages. BA.2 sublineages are aggregated with BA.2. Except BA.2.75.2, CH.1.1 and BN.1, BA.2.75 sublineages are aggregated with BA.2.75. Except BA.4.6, sublineages of BA.4 are aggregated to BA.4. Except BF.7, BF.11, BA.5.2.6, BQ.1 and BQ.1.1, sublineages of BA.5 are aggregated to BA.5. Except the lineages shown and their sublineages, sublineages of XBB are aggregated to XBB. Except XBB.1.5.1,XBB.1.5.10,FD.2,EU.1.1,XBB.1.5.68 and XBB.1.5.70 sublineages of XBB.1.5 are aggregated to XBB.1.5. Except FL.1.5.1, sublineages of XBB.1.9.1 are aggregated to XBB.1.9.1. Except XBB.1.16.1,XBB.1.16.11 sublineages of XBB.1.16 are aggregated to XBB.1.16, sublineages of XBB.1.42.2 are aggregated to XBB. Except FE.1.1, sublineages of XBB.1.18.1 are aggregated to XBB. For all the other lineages listed, their sublineages are aggregated to the listed parental lineages respectively. Previously, FL.1.5.1, GE.1, EG.6.1 and HV.1, FD.1.1, XBB.2.3.8 was aggregated to XBB.1.9.1, XBB.2.3.10, XBB.1.9.2, XBB.1.5.15 and XBB.2.3 respectively. Lineages BA.2.75.2, XBB, XBB.1.5 , XBB.1.5.1, XBB.1.5.10, FD.2, XBB.1.9.1, XBB.1.9.2, XBB.1.16, XBB.1.16.1, XBB.2.3, BN.1, BA.4.6, BF.7, BF.11, BA.5.2.6 ,BQ.1.1, EU.1.1, XBB.1.5.68, FE.1.1, EG.5, XBB.1.5.72 , FL.1.5.1, GE.1, EG.6.1,XBB.1.16.11, FD.1.1, XBB.1.5.70, XBB.2.3.8, HV.1 and XBB.1.42.2 contain the spike substitution R346T.

https://covid.cdc.gov/covid-data-tracker/#variant-proportions

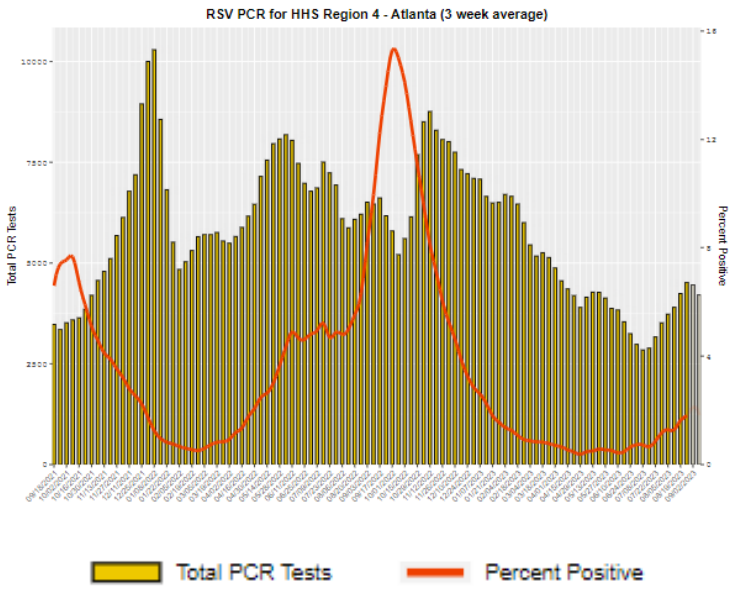
RSV continues to increase in Southeast, particularly in Florida

- RSV activity nationally remains low

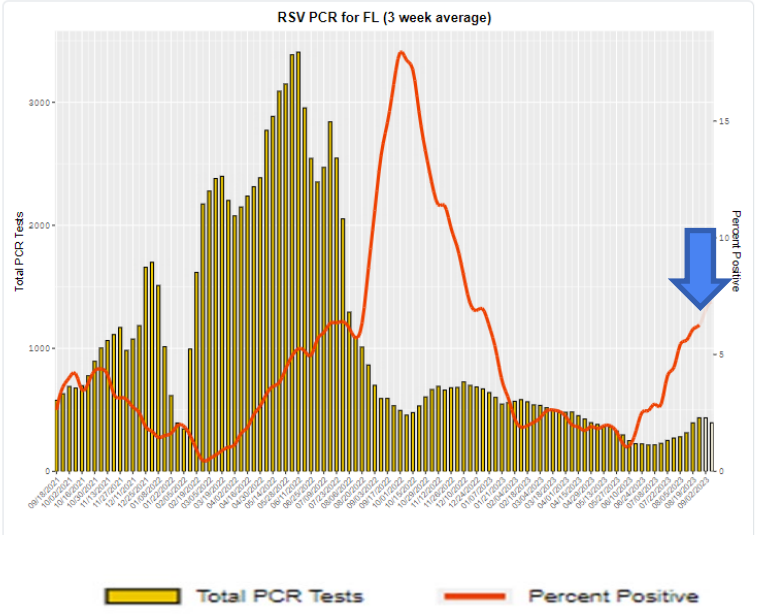
National



Region 4 (Southeast)



Florida

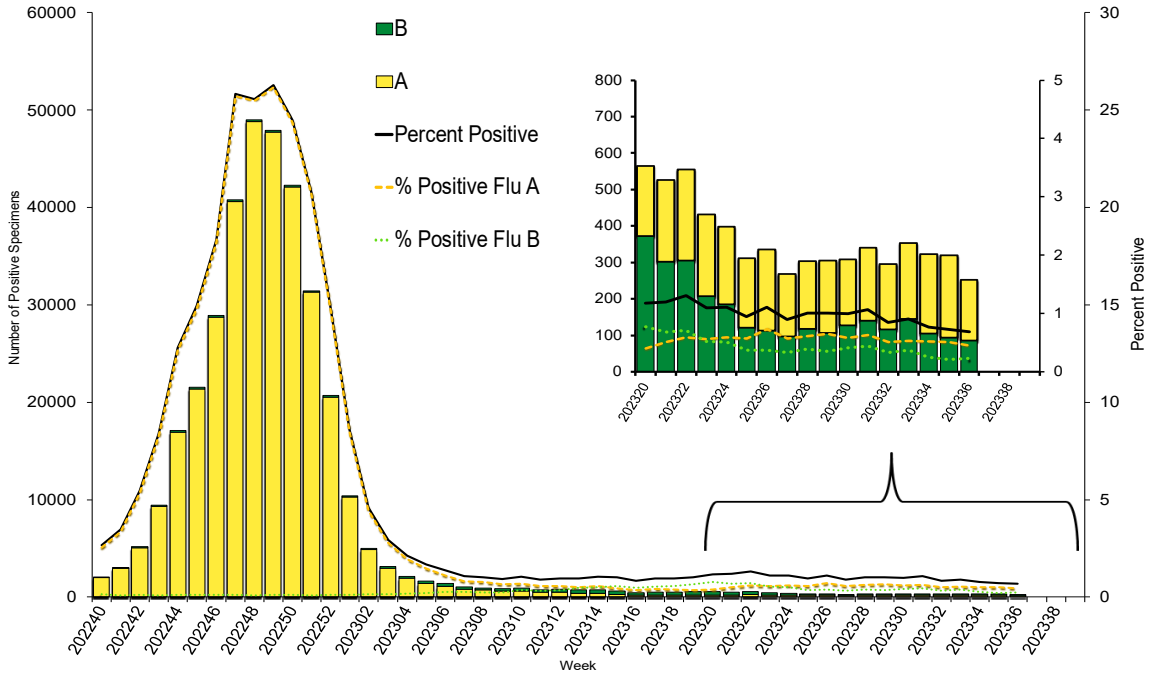


https://www.cdc.gov/surveillance/nrevss/rsv/index.html

Influenza

- Flu activity remains low this week
- Percent positivity is stable at 0.7%

Influenza Positive Tests Reported to CDC by U.S. Clinical Laboratories, National Summary, October 2, 2022 – September 9, 2023



	Week 36	Data Cumulative since October 2, 2022 (Week 40)
No. of specimens tested	36,600	4,023,390
No. of positive specimens (%)	253 (0.7%)	358,781 (8.9%)
Positive specimens by type		
Influenza A	167 (66.0%)	349,050 (97.3%)
Influenza B	86 (34.0%)	9,731 (2.7%)

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

SARS-CoV-2 Variants Update

Lydia Atherton, DVM, PhD
CDC Coronavirus and Other Respiratory Viruses Division

Monitoring Respiratory Viruses with Congregate Air Sampling: Spaces, Not Cases

David O'Connor, PhD
Shelby O'Connor, PhD
University of Wisconsin-Madison

Monitoring respiratory viruses with congregate air sampling

Spaces, not cases

UW-Madison AVRL - September 2023

Why consider indoor air sampling?

- Collects data from many individuals at once
  - Cost-effective
  - Anonymous
- Air sampling is versatile
  - New instruments can be deployed immediately
  - Instruments are portable
  - Managing air samplers and samples is simple

Applications for indoor air monitoring for viruses

- Monitoring of virus transmission within and between communities
  - Examples: Twice-weekly K-12 school monitoring or public health monitoring of disproportionate risk sites for SARS-CoV-2, influenza virus, and RSV nucleic acids
- Early warning of virus spread in settings at risk for consequential outbreaks
  - Example: Daily monitoring of complex care/long-term care facilities for SARS-CoV-2, influenza virus, and RSV nucleic acids
- Identification of novel viral threats
  - Example: Twice-weekly monitoring of international airports for viruses of concern

How does this work in real-world congregate settings?

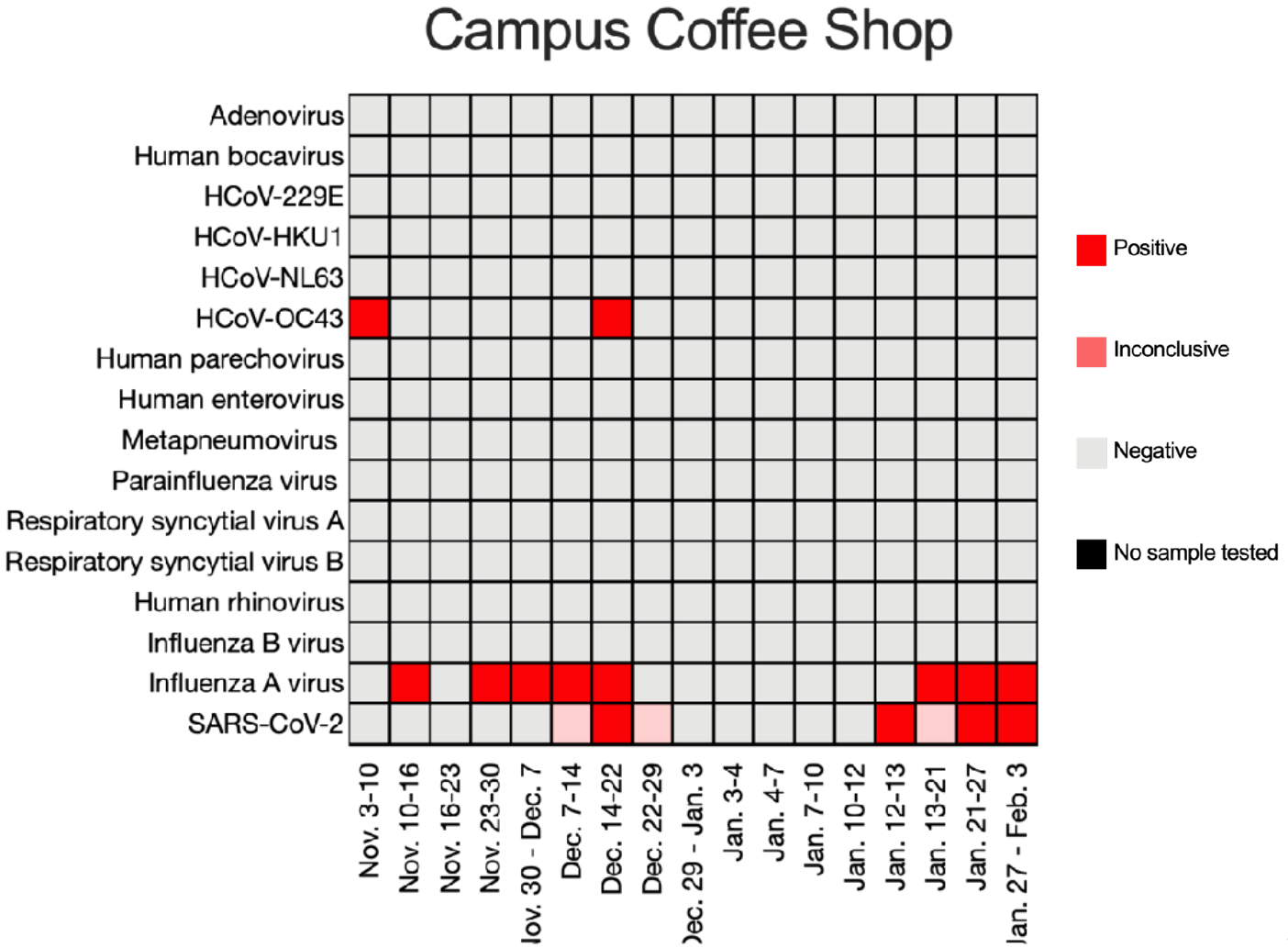
Air sampling detects SARS-CoV-2 RNA in congregate settings

Location	Site Name	Start Date	End Date	Number of Samples	Positive	Negative	Inconclusive
Dane County, WI	Preschool #1	8/18/21	2/8/22	49	3	43	3
	Preschool #2	8/11/21	10/14/21	22	2	18	2
	K-12 School #1	7/26/21	2/8/22	73	4	62	7
	K-12 School #2	10/14/21	2/9/22	15	8	5	2
	K-12 School #3	12/14/21	2/8/22	7	7	0	0
	K-12 School #4	12/15/21	2/8/22	8	6	1	1
	Hospital	8/20/21	10/25/21	51	18	33	0
	Campus Athletic Facility	7/19/21	2/9/22	179	20	141	18
	Campus Coffee Shop	8/17/21	2/3/22	54	5	44	5
	Office	9/30/21	12/10/21	8	0	8	0
Minneapolis, MN	Brewery taproom	10/18/21	2/7/22	26	11	2	13
Rochester, MN	Bar	9/27/21	11/24/21	9	5	4	0
	Hospital Cafeteria	9/20/21	11/24/21	10	6	4	0
Milwaukee, WI	Emergency Housing Facility #1	12/17/21	2/8/22	9	5	3	1
	Emergency Housing Facility #2	12/17/21	2/8/22	7	6	1	0
			Total	**527**	**106**	**369**	**52**

Ramuta et. al., Nature Comm, 2022, PMC9366802

Distinct pathogen signatures in different sites

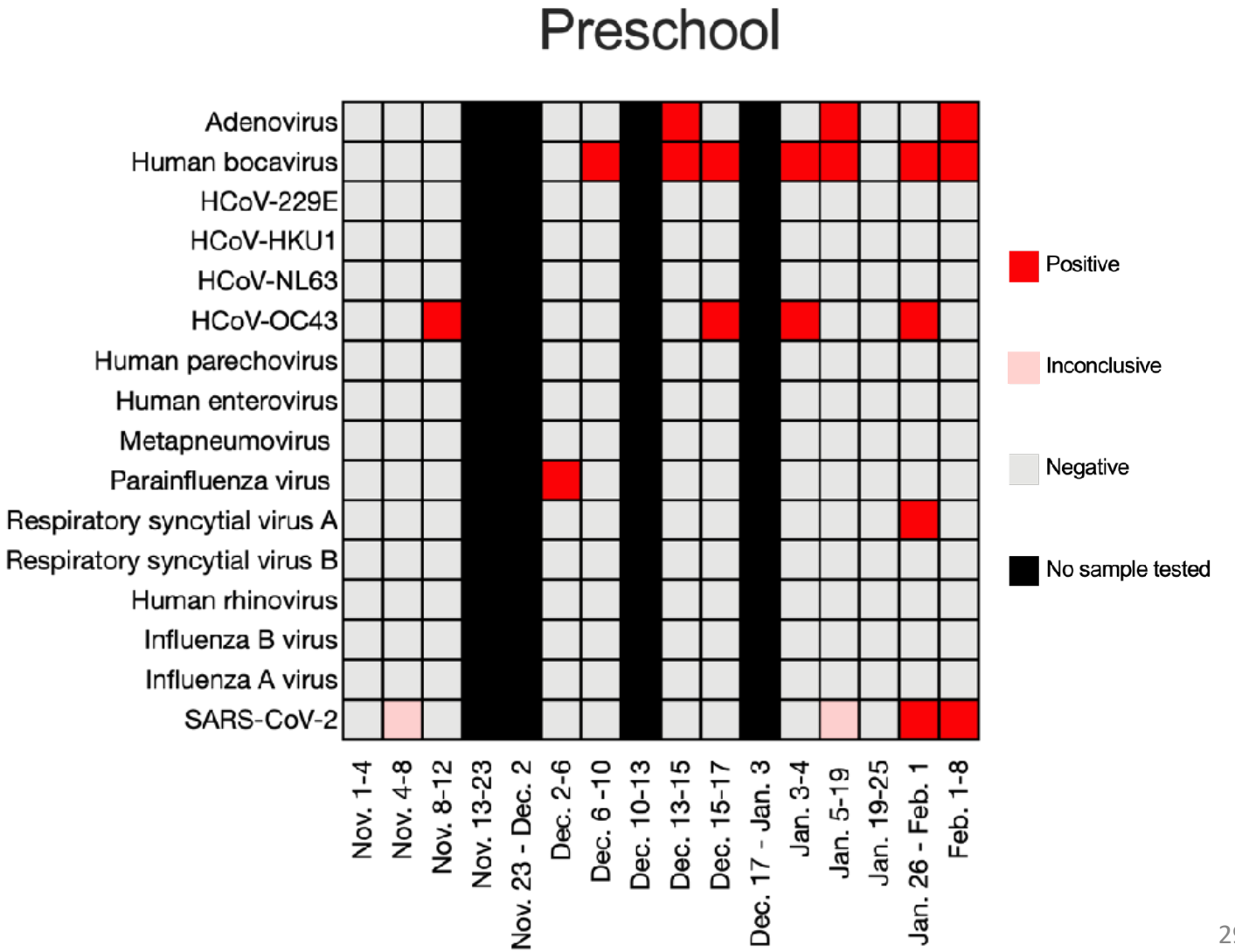
UW-Madison campus coffee shop, 2021-22



Ramuta et. al., Nature Comm, 2022, PMC9366802

Distinct pathogen signatures in different sites

UW-Madison preschool, 2021-22

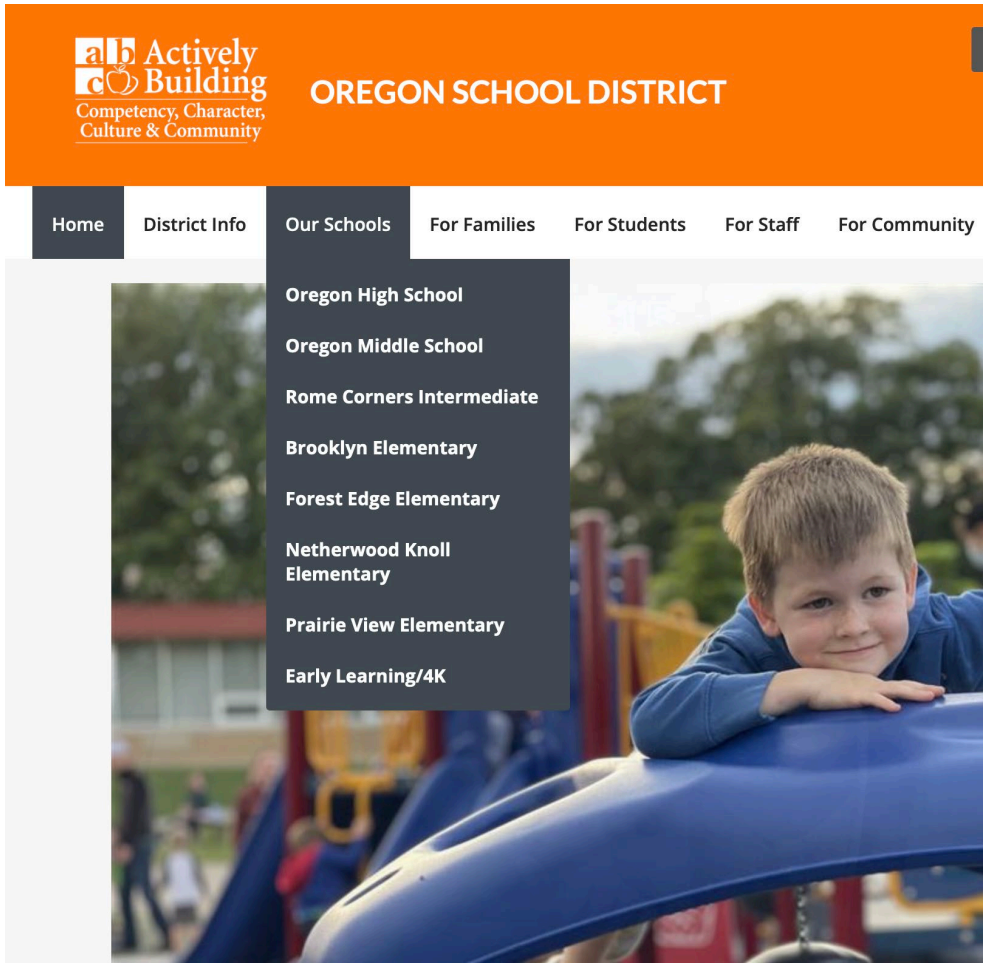


Ramuta et. al., Nature Comm, 2022, PMC9366802

How does air sampling correlate with other measures of respiratory virus activity?

Partnership with CDC-funded ORCHARDS program and Oregon School District

Meet our team! Carly, Maureen, Sarah, Kelly, Shari, Cecilia, Emily, and Cristalyne.



SARS-CoV-2 and IAV in school air correlate with individual data

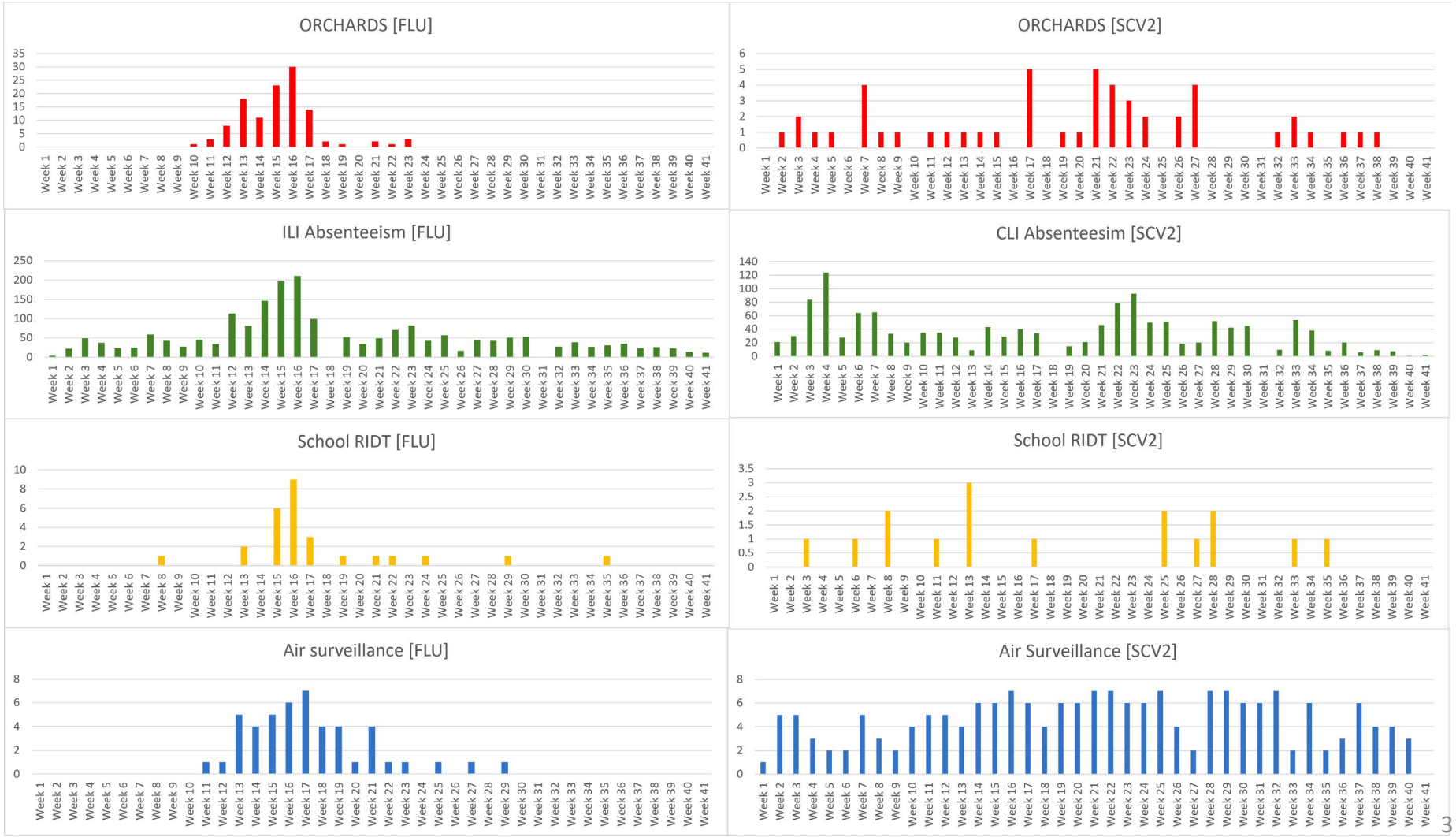
Such comprehensive individual sampling is rare in schools and other congregate settings

Households with sick students

School absence reporting

In-school rapid antigen tests

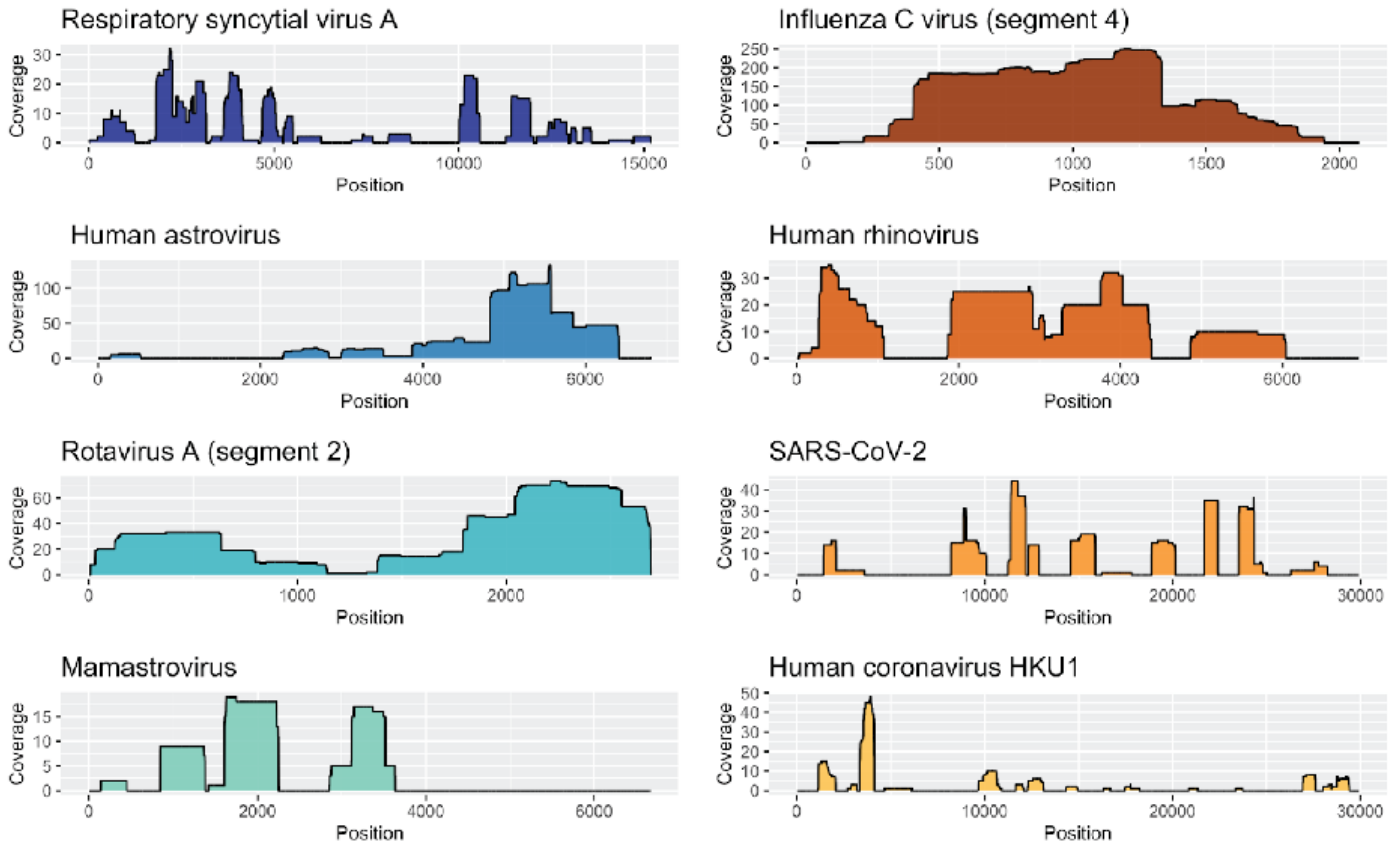
Cafeteria air sampling



Can air samples be used for unbiased viral detection?

Human virus detection using SISPA

- Viruses detected in 19/22 (86%) of samples
- 13 human RNA viruses detected
  - Influenza A and influenza C viruses
  - SARS-CoV-2
  - RSV A and RSV B
  - Rhinovirus
  - Human seasonal coronaviruses
  - Rotavirus
  - Astrovirus
  - Mamastrovirus

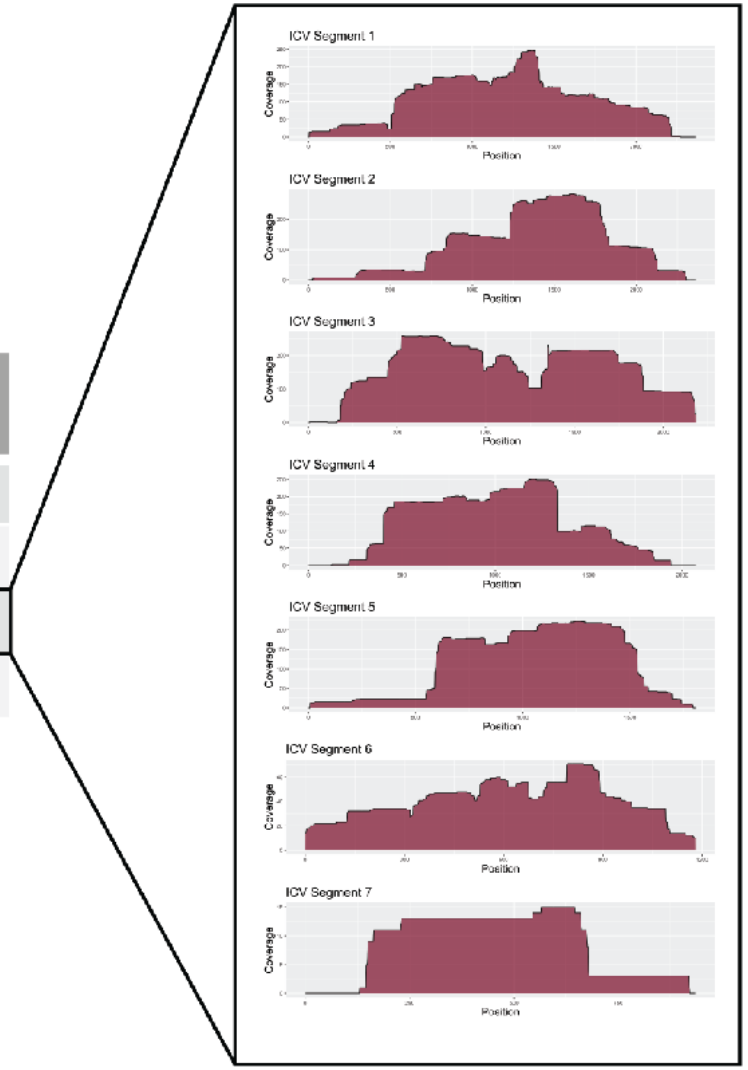


Ramuta et. al., medrxiv, 2023, PMC10312882

Influenza C virus detected in air from a preschool

Unexpected outbreak identified by air metagenomics

Air Sample	Location	Start Date	End Date	Influenza C virus segments	Mapped reads
Sample 1	Preschool	1.5.22	1.19.22	Not detected	NA
Sample 2	Preschool	1.26.22	2.1.22	Segments 1,4,7	15
Sample 3	Preschool	2.1.22	2.8.22	Segments 1-7	1,826
Sample 4	Preschool	2.23.22	3.1.22	Segments 1-5	884



Ramuta et. al., medrxiv, 2023, PMC10312882

Ongoing projects

- Extend therapeutic window for early intervention with daily air sampling pilot in an Intermediate Care Facility for Individuals with Intellectual Disability
- Continue discussions with Gingko/Concentric about incorporating air sampling into the Traveller Genomic Surveillance Program
- Improve sensitivity, cost, and throughput of viral metagenomics from air samples
- Introduce point-of-source testing for SARS-CoV-2, influenza, and RSV; improve high-throughput mulitplex detection
- Prototype recovery of live virus from air
- Dissemination of viral air sampling in partnership with local public health departments
  - Public Health Madison Dane County (K-12 schools; incorporate into data dashboard) (n=20)
  - Milwaukee Health Department (n=4)
  - Minneapolis Health Department / Hennepin County Health Department (n=6)
  - Chicago Department of Public Health (n=50-100)
  - Marathon County (n=0)

Acknowledgements

SARS-CoV-2 Air monitoring Team

UW-Madison
David O'Connor
Mitchell Ramuta
Savannah Brakefield
Dave Baker
Corrie Burmeister
Christina Newman
Jenna Rosinski
Miranda Stauss
Patrick Tiburico
Will Vuyk
Rhea Dalvie
Sydney Wolf
Eli O'Connor

Shelby O'Connor
Amy Ellis
Olivia Harwood

Tom Friedrich
Andrea Weiler

University of Minnesota
Matt Aliota
Anna Jaeger

Public Health Madison Dane County
Katarina Grande
Manjari Ojha

Air Sampling partners

Central Wisconsin Center

Deerfield School District

EAGLE School

Lodi School District

Madison Country Day School

Mayo Clinic

Milwaukee Health Department

Oregon School District

UW Hospitals and Clinics

UW-Madison Athletics

Wisconsin Institutes for Discovery

Others…

ORCHARDS Study
Jon Temte
Shari Barlow
Maureen Goss
Leslie Bergstrom

Support

NIH R01AI170737

Rockefeller Foundation Regional Accelerators

Thermo Fisher

Bill and Melinda Gates Foundation

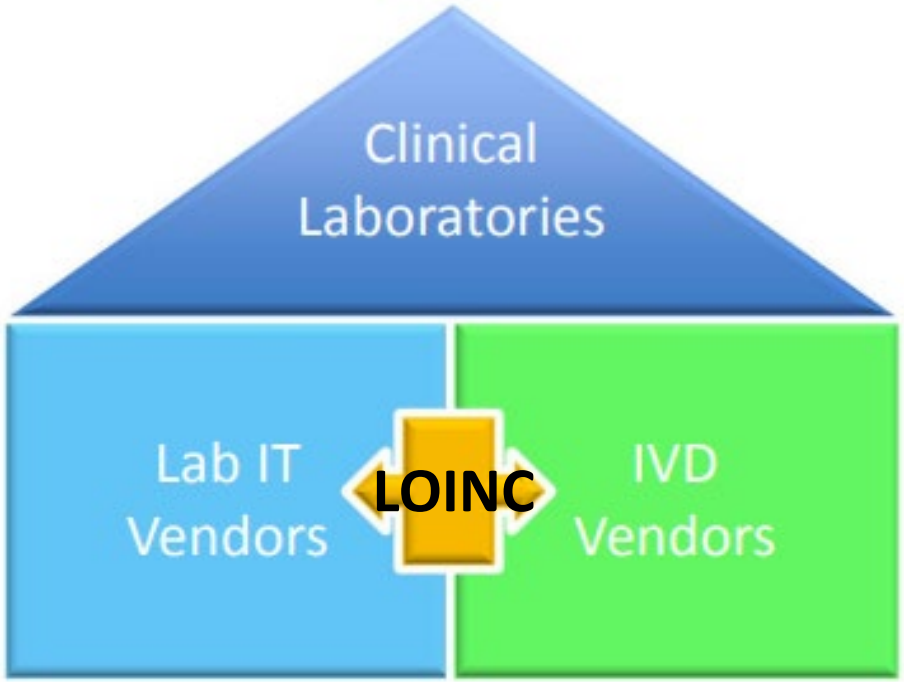
CDC's Logical Observation Identifier Names and Codes (LOINC) In Vitro Diagnostic (LIVD) Test Code Mapping Webpage Update

Muktha Natrajan, PhD, MPH
Informatics and Data Science Branch
CDC Division of Laboratory Systems

https://www.cdc.gov/csels/dls/livd-codes.html

Using Logical Observation Identifier Names and Codes (LOINC)

- Currently, there are no requirements for In Vitro Diagnostic (IVD) test Codes and Laboratory Information System (LIS) result codes to communicate using standard vocabulary
- Using LOINC to identify and report laboratory tests and results facilitates exchange of high-quality data



What are LIVD Test Code Mapping Tools?

- LIVD Mapping Tools can help improve interoperability between laboratories and healthcare systems

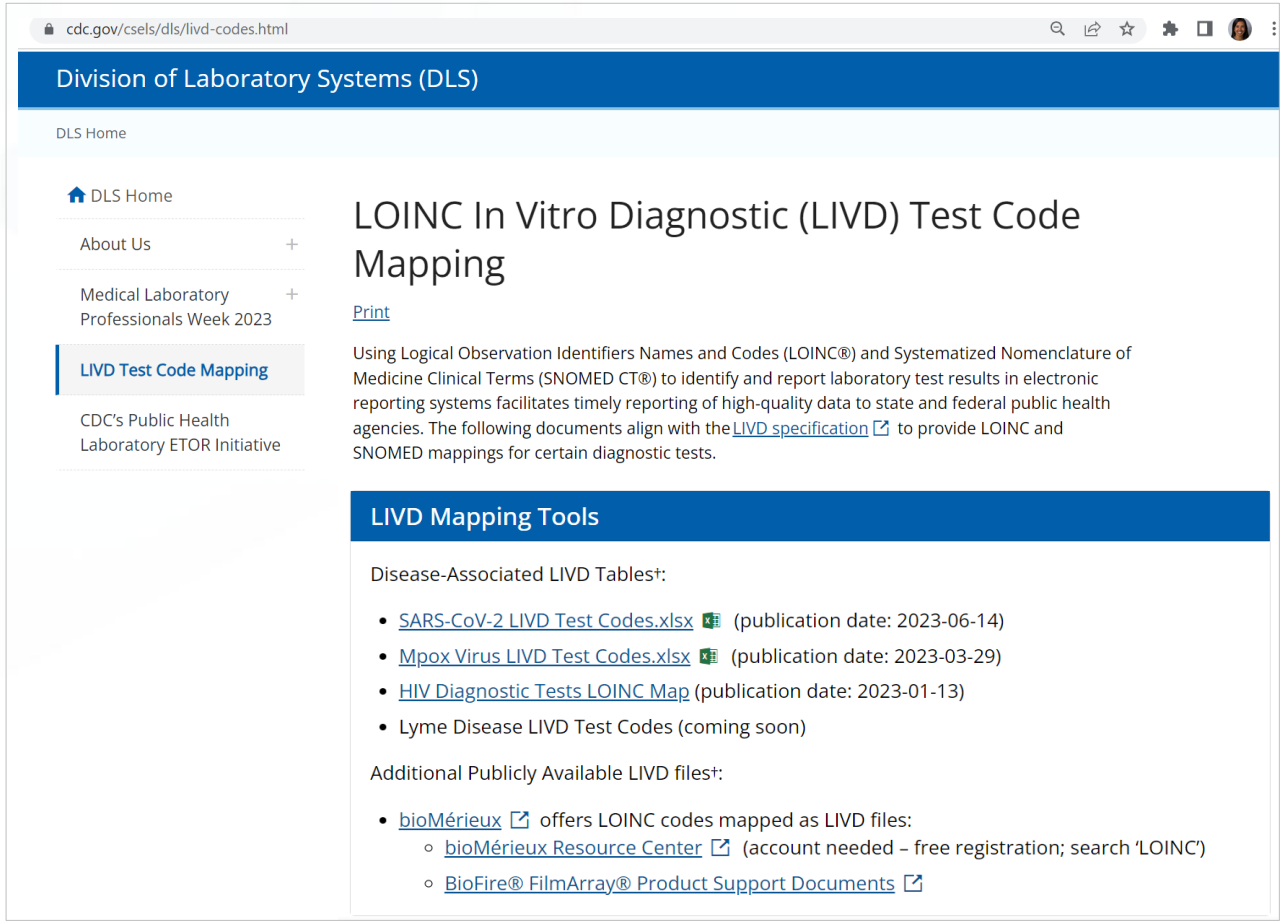
IVD Manufacturers

LIVD

- Manufacturer / Model
- Vendor Specimen / Results Descriptions
- Testkit IDs, Name and Type (or other Device Identifiers)
- LOINC Term (with individual constituents) and Long Name

LIVD Webpage Updates

- CDC collaborates with FDA, APHL, and other developers to create and collate codes for certain diseases or pathogens.
- The LIVD files are hosted by CDC, and the link below was updated on June 30, 2023, to reflect a change in focus from public health responses to the general use of LIVD tools.



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Questions?

Thank you!

Contact:
DLSinquiries@cdc.gov

Next Scheduled Call

Monday, October 16
3 PM - 4 PM EDT

https://www.cdc.gov/locs/calls

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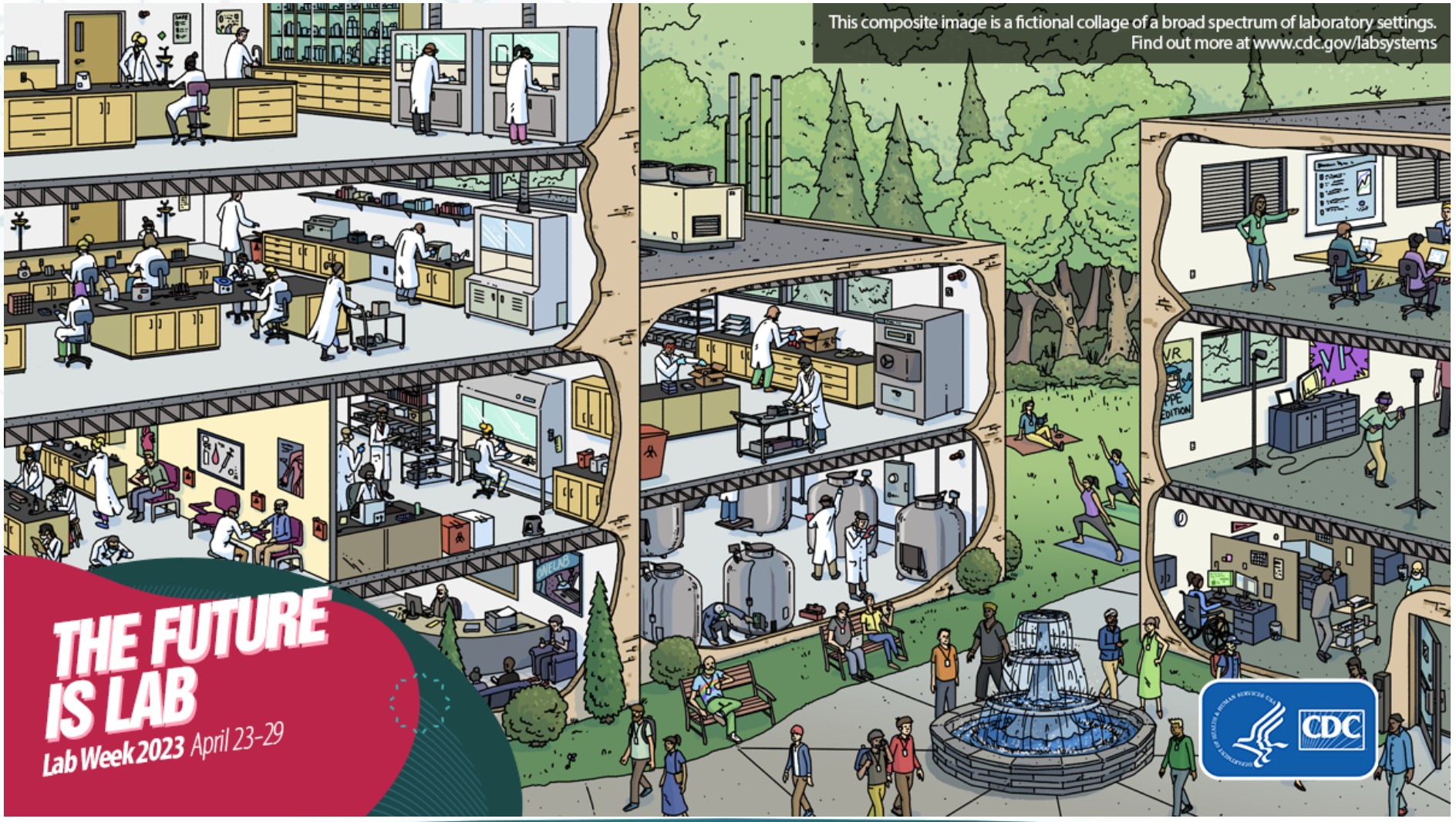
Thank You For Your Time!



For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov