

Many Signals, One Picture: A Multi-source Approach to Respiratory Illness Surveillance in Dane County

May 28, 2026

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Dane County Respiratory Illness Dashboard

Last Updated:
2026-04-30 15:51

Weekly Summary

Get a big-picture summary of the current state of respiratory viruses, based on emergency department data.

Click to filter by illness

- ☒ All respiratory illnesses
- ☐ COVID-19
- ☐ Flu
- ☐ RSV

[Why do you use emergency department data?](#)

First Alert

We update our data weekly. For most current wastewater data, see the [DHS wastewater dashboard](#).

[Learn more about how to use first alert data](#)

All respiratory illnesses

Level

 **Very Low**

Trend

 **Stable**

Level order: Very Low, Low, Moderate, High, Very High

COVID wastewater

Status

No alert

Learn more

Click on a tab to get more data.

Overall trends

Lab testing trends

School absences

Air samplers

Hospitalizations

Hospitalization rates

Death data

Take action

 **Public Health**
MADISON & DANE COUNTY
Healthy people. Healthy places.

 **Public Health**
MADISON & DANE COUNTY
Healthy people. Healthy places.

Objectives

1

Background and development of the Dane County Respiratory Illness dashboard

2

Data sources behind the dashboard as well as their strengths and limitations

3

Head-to-head: how the data sources perform

4

What is important to dashboard users?

Why a respiratory illness dashboard?



Increased public interest in public health data



Combine available data to present a more complete and localized picture to the community



Chance to integrate novel data sources with more traditional – school absenteeism and air sampling

Our Process



**What
dashboards
already exist?**



**Convene a group
of data owners and
stake holders**



**Data sharing
and data use
agreement
conversations**



**Incorporate
lessons from
Dane County
COVID-19
Dashboard**

Our Process



**Community
feedback
conversations**



**Dashboard
brainstorm – aka
Dashboard Jam!**



**Construction
time**



**Continuous
quality
improvement**

Result...Dane County Respiratory Illness Dashboard



PHMDC releases respiratory illness dashboard ahead of flu season

Wyatt Bandt **Oct 16, 2023** Updated **Oct 16, 2023** 0



Dashboard Views

4,200 views

average per month since launch in October 2023

Ranked in the top 3

most visited Public Health Madison & Dane County web pages

127,000+ views

total views since launch in October 2023



Emergency Department Data – Weekly Summary & Overall Trends

Weekly Summary

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- ☐ Flu
- ☐ RSV

[Why do you use emergency department data?](#)

All respiratory illnesses

Level

 **Very Low**

Trend

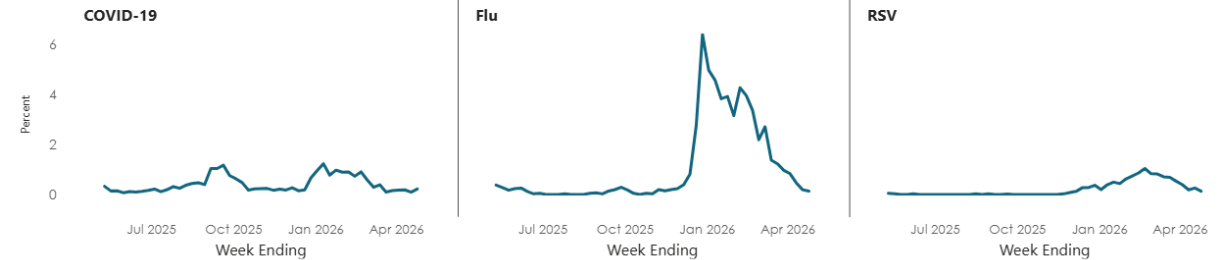
 **Stable**

Level order: Very Low, Low, Moderate, High, Very High

CDC's Syndromic Surveillance system: **Electronic Surveillance System for the Early Notification of Community-based Epidemics**

Overall trends

Percent of all emergency room visits due to COVID-19, flu, or RSV



Percent of emergency room visits due to any respiratory illness



Emergency department data can tell us about overall respiratory illness trends.

When someone goes to the emergency department with respiratory symptoms, they often receive a diagnosis before being discharged. Tracking these diagnoses over time lets us see trends for all respiratory illnesses, including COVID-19, flu, and RSV. Data are shown as a percent of all emergency department visits by week.

Note that the graph to the left is for any respiratory illness—not just COVID-19, flu, or RSV. The axis is also different than the graphs up top since the scale is greater for all respiratory illnesses.

Filter all graphs by age group

- ☐ 00-04
- ☐ 05-17
- ☐ 18-44
- ☐ 45-64
- ☐ 65+

☒ All

Filter all graphs by date

Last 1 Years

5/8/2025 - 5/7/2026

Captures discharge diagnoses from all the emergency departments in Dane County except the VA hospital; Stoughton Hospital data includes urgent care visits

Emergency Department Data

1

POPULATION / SIGNAL

Who and what does it capture?

Healthcare-seeking population, for respiratory viruses skewed towards younger and older populations, likely experiencing more severe symptoms

2

TIMELINESS

How quickly does it reflect community activity?

Near real-time data source: 24 to 48 hours from visit to data

3

SENSITIVITY & SPECIFICITY

How reliably does it identify true signals?

Depends on the virus and diagnosis category

4

EQUITY & REPRESENTATIVENESS

Does it reflect the whole community?

Limited to population that ends up in the emergency department

5

PRACTICAL LIMITATIONS

Access, reporting lag, cost, sustainability?

Facility level data, captures people outside of Dane County
Smaller county-level volumes add week-to-week variability

Wastewater – First Alert

First Alert

We update our data weekly. For most current wastewater data, see the [DHS wastewater dashboard](#).

[Learn more about how to use first alert data](#)

COVID wastewater

Status

No alert

Sourced from the trajectory for the Madison Metropolitan Sewerage District on the [DHS COVID-19 Wastewater Dashboard](#)

Wastewater

1

POPULATION / SIGNAL

Who and what does it capture?

Community level signal, for people on the municipal sewers in Madison

2

TIMELINESS

How quickly does it reflect community activity?

Turnaround for results varies from 7-10 days

3

SENSITIVITY & SPECIFICITY

How reliably does it identify true signals?

Dependent on frequency of samples taken and virus

4

EQUITY & REPRESENTATIVENESS

Does it reflect the whole community?

Limited to population on sewershed but independent of healthcare-seeking behavior

5

PRACTICAL LIMITATIONS

Access, reporting lag, cost, sustainability?

Resources required to sustain robust wastewater monitoring

Lab Testing Trends

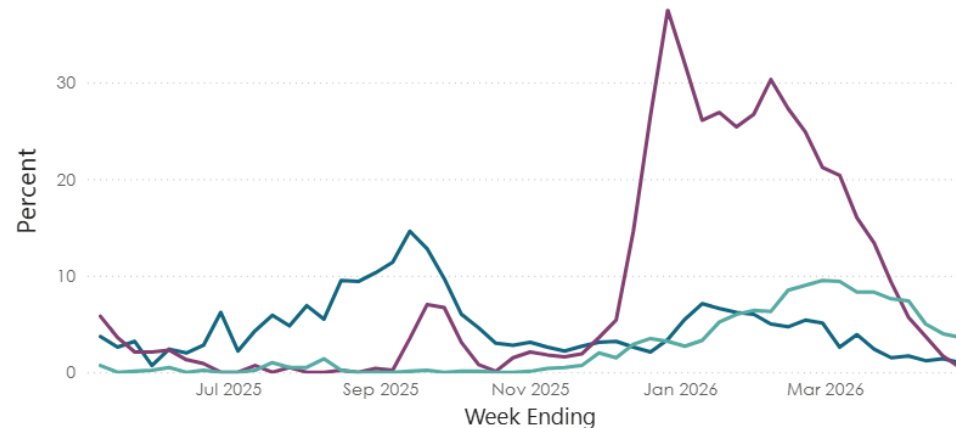
National Respiratory and Enteric Virus Surveillance System; CDC-run, voluntary lab participation

Currently data is shared from Meriter laboratories, Stoughton Hospital, Associated Physicians, St. Mary's Hospital Medical Center, and UW Medical Center and Clinics.

← Lab testing trends

Percent of tests that are positive by virus

Virus ● COVID-19 ● Flu ● RSV



This graph shows select testing data from some Dane County labs.

One way we know which viruses are circulating are when people get a lab test. When there is an increase in the percentage of tests that are positive, it indicates increasing rates of infections in our community. A subset of testing labs voluntarily share test result data with the health department so we can monitor for trends. In addition to COVID, flu, and RSV, these lab data help us see trends for pathogens like parainfluenza and rhinoviruses, which cause a variety of mild to severe respiratory illnesses. This graph shows the weekly percent positivity for each virus listed in the filter on the right: COVID-19, flu, RSV, adenovirus, hMPV, parainfluenza, and rhino- and enterovirus. For regional and statewide trends, visit the [State Lab website](#). You can learn more in our [data notes](#).

[Click to see COVID, Flu, and RSV](#)

[Click to see other viruses](#)

[Click to see all illnesses](#)

Filter graph by virus

- ☒ COVID-19
- ☒ Flu
- ☒ RSV
- ☐ Adenovirus
- ☐ Human metapneumovirus (hMPV)
- ☐ Parainfluenza
- ☐ Rhino- and enterovirus

Filter graph by date

Last 1 Years

5/8/2025 - 5/7/2026

Lab Testing Trends

1

POPULATION / SIGNAL

Who and what does it capture?

Patients tested at participating healthcare facilities

2

TIMELINESS

How quickly does it reflect community activity?

Weekly reporting cycle, captures data through end of the previous week

3

SENSITIVITY & SPECIFICITY

How reliably does it identify true signals?

Represents results of PCR testing, but sensitivity dependent on overall testing volume

4

EQUITY & REPRESENTATIVENESS

Does it reflect the whole community?

Captures those with access to healthcare and/or severe symptoms

5

PRACTICAL LIMITATIONS

Access, reporting lag, cost, sustainability?

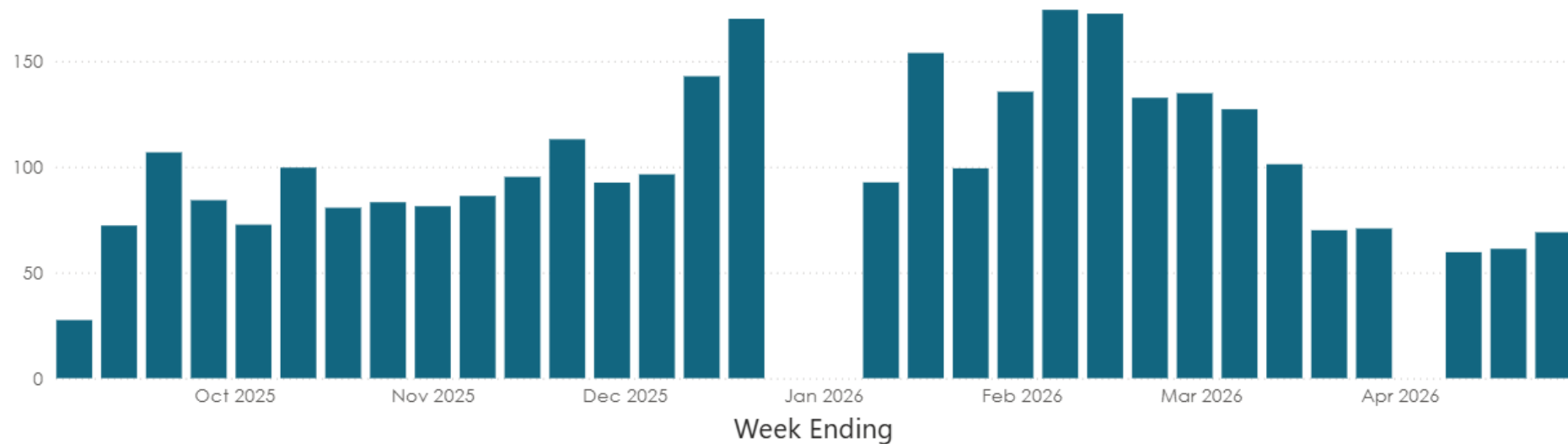
Entirely reliant on voluntary participation from labs and capacity of staff

School absences

← School absences



Average number of school absences due to any illness per school day



Click to view by school year

- ☐ 2022-2023
- ☐ 2023-2024
- ☐ 2024-2025
- ☒ 2025-2026

School data can help us predict trends in the general community.

When lots of students start getting sick, research has shown that levels of flu in the surrounding community increase about a week later. In other words: when illnesses start going around in schools, they soon start going around everywhere.

Here, we show [data from an ongoing study](#) that tracks the level of absences in a Dane County school district with roughly 4,000 students, as well as the specific types of viruses that students are sick with. Each column here is a full week of data from multiple schools combined.

Learn more in our [data notes](#).

School absences

1

POPULATION / SIGNAL

Who and what does it capture?

School-aged kids that are absent from school due to illness in a single Dane County school district

2

TIMELINESS

How quickly does it reflect community activity?

Weekly reporting cycle, captures data through end of the previous week

3

SENSITIVITY & SPECIFICITY

How reliably does it identify true signals?

Sensitive to increased respiratory illness activity but low specificity

4

EQUITY & REPRESENTATIVENESS

Does it reflect the whole community?

Pediatric population from a single school district

5

PRACTICAL LIMITATIONS

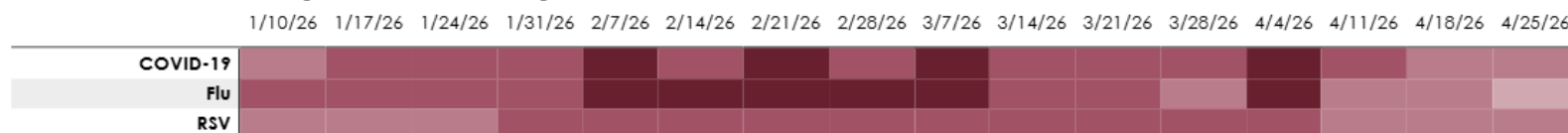
Access, reporting lag, cost, sustainability?

Dependent on UW research team and continued district partnership (No data available during school breaks)

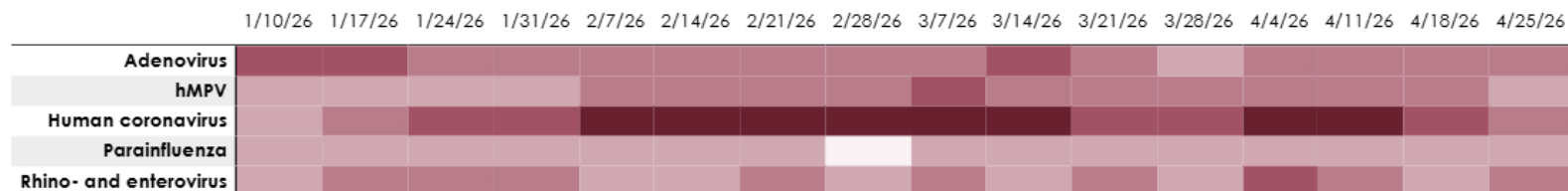
Air Samplers

← Air samplers

Percent of air samples that were positive for COVID-19, flu, or RSV each week in schools



Percent of air samples that were positive for common cold-like viruses each week in schools



● = 0% ● = 0.1-24.9% ● = 25-49.9% ● = 50-74.9% ● = 75%-100%

Filter graphs by school type

- ☐ Elementary
- ☐ Middle/High

Filter graphs by date

Last 4 Months

1/8/2026 - 5/7/2026

Air samplers capture the air we breathe so we can test it for viruses.

Picture a dehumidifier running in a public space, but instead of collecting moisture, it collects airborne viruses. This is what air samplers do! Researchers at UW-Madison have air samplers in multiple K-12 schools in or near Dane County. They regularly collect the filters and test them for flu, COVID-19, and other common viruses to see what's in the air.

These graphs are heat maps. The darker the color on the heat maps above, the greater number of air samplers had a positive virus reading during that week. You can hover over each box to see the number and percentage that tested positive. Note that these data don't tell us how much virus each sampler found-- just whether it found any virus or not.

For the 2023-2024 school year, testing was done to detect COVID-19 and flu A viruses. For the 2024-2025 school year, testing was done to detect COVID-19, flu A and B (combined to just "Flu" on this dashboard), adenovirus, hMPV, human coronavirus, parainfluenza, and RSV. For the 2025-2026 school year, testing was added to also include rhino- and

Air Sampling

1

POPULATION / SIGNAL

Who and what does it capture?

School-aged kids in 4 districts across Dane County

2

TIMELINESS

How quickly does it reflect community activity?

Weekly reporting cycle, captures data through end of the previous week

3

SENSITIVITY & SPECIFICITY

How reliably does it identify true signals?

Continuous improvement year to year as assay methodology advances and research protocols are refined

4

EQUITY & REPRESENTATIVENESS

Does it reflect the whole community?

Captures population at participating schools

5

PRACTICAL LIMITATIONS

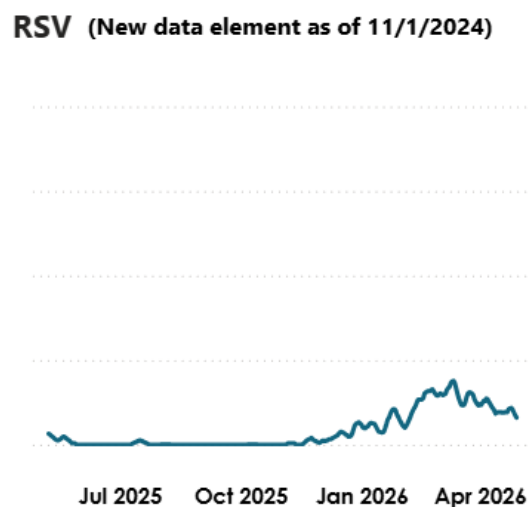
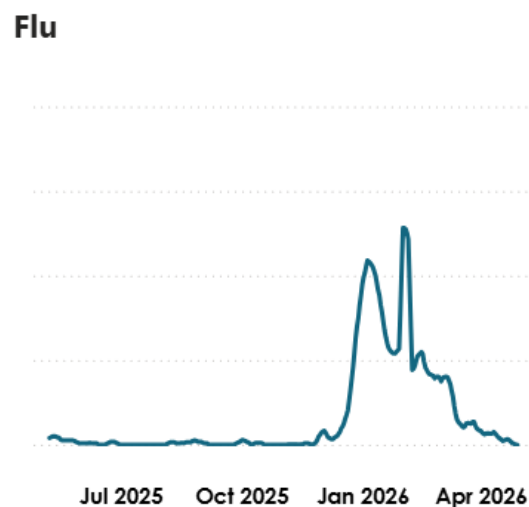
Access, reporting lag, cost, sustainability?

No collection during breaks/closures; Resource-intensive: cartridges, lab capacity and staffing, multiplex assay costs

Daily Hospitalization Data

⬅ Hospitalizations

People hospitalized with COVID-19, flu, or RSV by date



Daily hospital counts can tell us about severe illness.

These graphs represent people who are inpatients in Dane County with a COVID-19, flu, or RSV diagnosis. Each day is a rolling 7-day average number of people in the hospital. RSV hospitalization data was not required to be reported until 11/1/2024, so it is only available beginning that date and later.

As of spring 2023, our local hospitals shifted from testing all inpatients for COVID-19 to only testing people suspected of having COVID-19. This means that most COVID-19 hospitalizations are likely to be due at least in part to COVID-19.

Learn more in our [data notes](#).

Filter graphs by date

Last ▾ 1 Years ▾

📅 5/8/2025 - 5/7/2026

Daily Hospitalization Data

1

POPULATION / SIGNAL

Who and what does it capture?

People hospitalized at Dane County hospitals with positive COVID, flu, or RSV test; includes people who don't live in Dane County

2

TIMELINESS

How quickly does it reflect community activity?

Daily reporting, trends observed once a week

3

SENSITIVITY & SPECIFICITY

How reliably does it identify true signals?

Testing required but capturing hospitalizations means there has more than likely already been a period of community spread

4

EQUITY & REPRESENTATIVENESS

Does it reflect the whole community?

Typically represents those most vulnerable to COVID, flu, or RSV;
Represents most severe outcomes

5

PRACTICAL LIMITATIONS

Access, reporting lag, cost, sustainability?

State level reporting system, reporting requirement maintained via state/CMS rules, vulnerable to federal rule changes, captures severe outcomes

Annual Hospitalization Rates

⬅ Hospitalization rates (2023-2025)

Differences in hospitalization rates by race/ethnicity shine a light on systemic inequities.

This page shows age-adjusted yearly data. It's updated just once each fall because hospitalization numbers are small when we divide them by race/ethnicity, so we need to combine a larger period of time for meaningful results. This page is intended to show a [longer-term look at inequities](#).

If everything in our society was equal, everyone would have the same hospitalization rates from respiratory illnesses. However, systemic issues like health care access, paid sick leave, income inequality, and more can lead to different outcomes for different racial groups. These data take a look at the local inequities happening in Dane County with COVID, flu, and RSV.

The graph on the left shows the hospitalization rates for Hispanic or Latino people, Not Hispanic or Latino people, and everyone combined. The graph on the right shows the hospitalization rates for Black people, American Indian or Alaska Native people, White people, Asian or Pacific

By ethnicity

- 2023-2024
- 2024-2025

- = Hispanic or Latino
- = Not Hispanic or Latino
- = All ethnicities

COVID-19

Flu

RSV

0 50 100
Age-Adjusted Hospitalization Rate per 100,000
With 95% confidence intervals

By race

- 2023-2024
- 2024-2025

- = Black
- = American Indian/Alaska Native
- = White
- = Asian or Pacific Islander
- = All races

COVID-19

Flu

RSV

0 200 400 600 800
Age-Adjusted Hospitalization Rate per 100,000
With 95% confidence intervals

Race and ethnicity demographics are sourced from hospitalization reports in the **Wisconsin Electronic Disease Surveillance System**

Annual Hospitalization Rates

1

POPULATION / SIGNAL

Who and what does it capture?

Dane County residents hospitalized for respiratory illness: flu (since 2010), COVID & RSV (since Nov 1, 2023)

2

TIMELINESS

How quickly does it reflect community activity?

Data only refreshed on the dashboard once a year

3

SENSITIVITY & SPECIFICITY

How reliably does it identify true signals?

Testing required

4

EQUITY & REPRESENTATIVENESS

Does it reflect the whole community?

Only data source to provide reliable race or ethnicity data

5

PRACTICAL LIMITATIONS

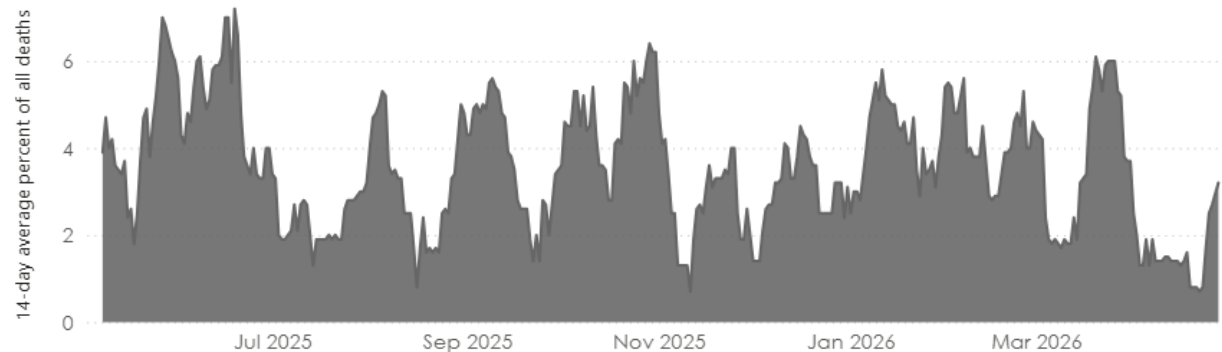
Access, reporting lag, cost, sustainability?

Reporting is reliant on state law; small numbers at county level; incomplete or conflicting race/ethnicity variables

Death Data

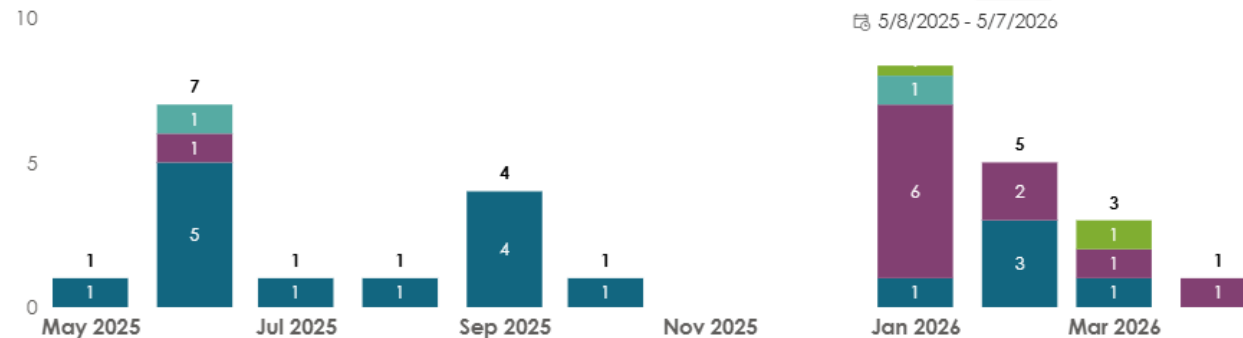
← Deaths

Percent of all deaths caused by respiratory illness



Number of deaths by date

● COVID-19 ● Flu ● RSV ● Coinfection



Filter top graph by date

Last ▾ 1 Years ▾

📅 5/8/2025 - 5/7/2026

Respiratory-related deaths are a significant part of all deaths.

The first graph on this page shows the 14-day average percent of all deaths among people who live in Dane County where pneumonia, influenza, COVID, or RSV were listed on the death certificate. The graph on the bottom shows deaths by disease by month for COVID-19, flu, RSV, and coinfections (where more than one of those three were listed on the death certificate).

Death certificates undercount the number of deaths attributable to COVID-19, flu, and RSV, which is why pneumonia is included in the top graph to better represent the full burden of these deaths. Infections are often not confirmed with a test, or people are hospitalized later due to secondary complications like pneumonia, and the virus is no longer detectable.

Both graphs use vital statistics data. Learn more in our [data notes](#).

Wisconsin
Department of
Health Services
Statewide
Vital Records
Information
System

Death certificate
data for Dane
County Residents

Death Data

1

POPULATION / SIGNAL

Who and what does it capture?

Dane County residents with a cause of death listed as COVID-19, influenza, RSV, or pneumonia

2

TIMELINESS

How quickly does it reflect community activity?

Data usually available about 4 weeks after death for most people.

3

SENSITIVITY & SPECIFICITY

How reliably does it identify true signals?

Excludes people who weren't tested or tested too late

4

EQUITY & REPRESENTATIVENESS

Does it reflect the whole community?

Typically represents those most vulnerable to COVID, flu, or RSV;
Represents most severe outcomes

5

PRACTICAL LIMITATIONS

Access, reporting lag, cost, sustainability?

Reliant on health care providers to submit information to vital records.

Summary



8 different data sources represented



All designed for different purposes (+/-)



3 seasons of data to evaluate how to best use each source



Comparison of performance for COVID, flu, and RSV

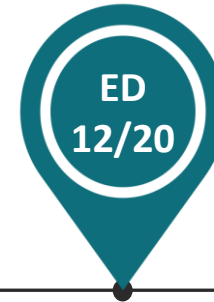
**How do some of the
data sources perform at
the beginning of a
respiratory illness
season?**

COVID-19 Detection Timeline

2024–2025



2025–2026

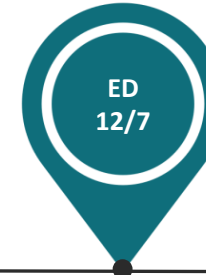


November

December

Flu Detection Timeline

2023–2024



2024–2025



2025–2026



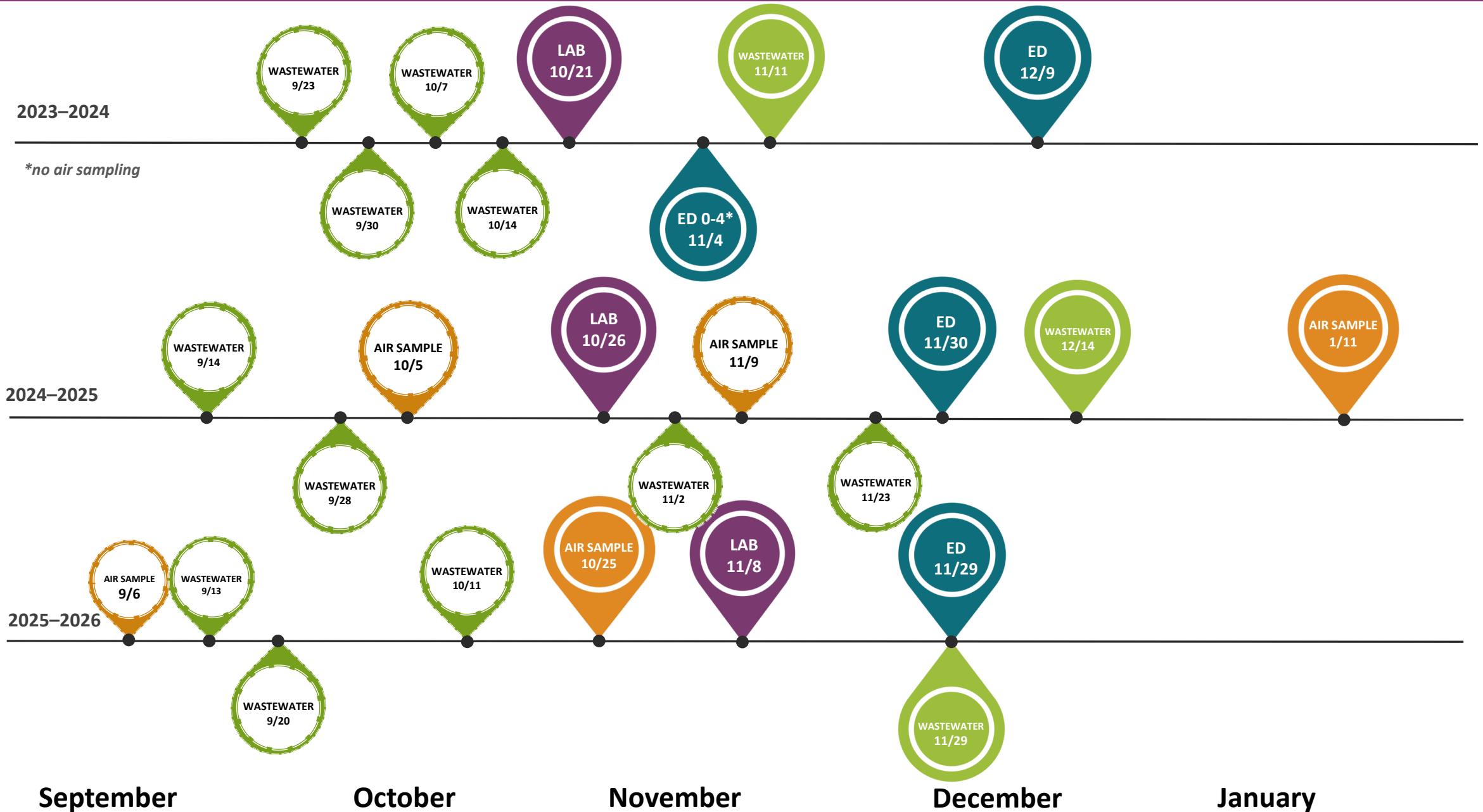
September

October

November

December

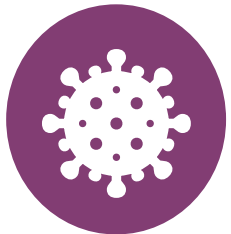
RSV Detection Timeline



Summary



No single data source is consistently the earliest indicator



Detection patterns are shaped by real-world factors



Importance of layered approach using a combination of non-clinical and clinical data

**How is the dashboard
used and what is
important to the people
who use the dashboard?**

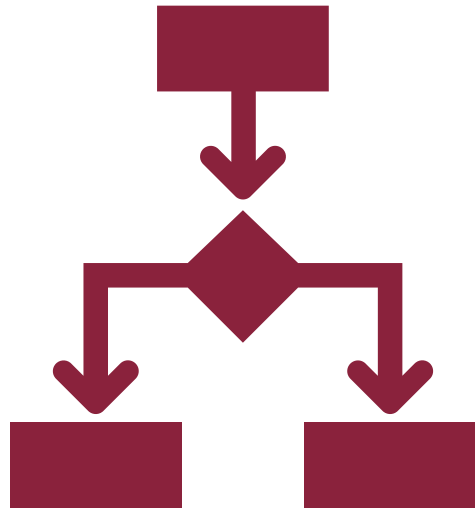
How is the dashboard used?

N= 119, (114 Complete + 5 Partial)



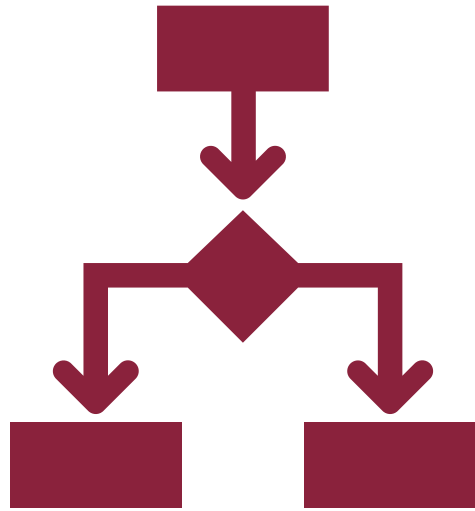
- **93%** use the dashboard for personal decision-making
- **42%** check it weekly or more, year-round
- Top age groups of interest:
 - **Seniors (65+):** 57%
 - **Adults (19-64):** 50%
- Most users found the dashboard through Public Health Madison & Dane County website or newsletter/press release, news media, or internet search

How is the dashboard used?



- **77%** are likely or very likely to check before a workplace visit, large gathering, or trip
- Users rely on the dashboard to decide:
 - When to mask in public settings
 - Whether to attend gatherings or travel
 - How to protect vulnerable household members
- Particularly valued by **immunocompromised users, caregivers, and seniors**

How is the dashboard used?



- **3 Most Commonly Used Dashboard Pages**
 1. Landing Page
 2. Overall Trends (Emergency Department Data)
 3. Lab Testing Trends
- **82%** say the amount of data is “just enough”
- Dashboard is filling a federal-data trust gap

What do users tell us they need?



- **84%** read the Key Takeaways, however some were not aware of them
- Requests for **age-stratified data**, particularly hospitalizations by age group
- Near-unanimous interest (**118 of 119**) in expanding to “**what else is going around**” – symptom and condition data beyond COVID, flu, and RSV
- Stronger **mobile experience**

What do users tell us they need?



- Continued interest in **wastewater data** integration and visibility
- More **awareness** is needed
- Email or push **alerts** when levels rise
- Air sampler **expansion**

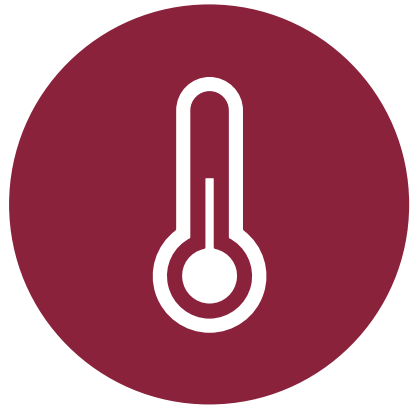
Summary



The dashboard is primarily used as a personal decision-making tool



Especially valued by immunocompromised, caregivers, and elderly



Opportunities for continued improvements



Interest in addition of data on other respiratory illnesses

I just want to THANK
YOU for continuing
to do this dashboard.
I find it VERY
important.

“Especially given the lack of
science-driven data via the
CDC right now, I am VERY
grateful for the transparency
of info you provide. Please
keep it up!”

Words of Appreciation

“Appreciate the work
you're putting into
this despite the
current political
climate out there”

“It is a marvelous
resource that
helps me to stay
healthy.”



Questions?

