2026 Oregon Rural Health Conference Presentation Slides

Making Respiratory Viral Risk Accessible:

TOOLS FOR PUBLIC AWARENESS IN RURAL COMMUNITIES

MARTA FISHER

REBECCA FALENDER

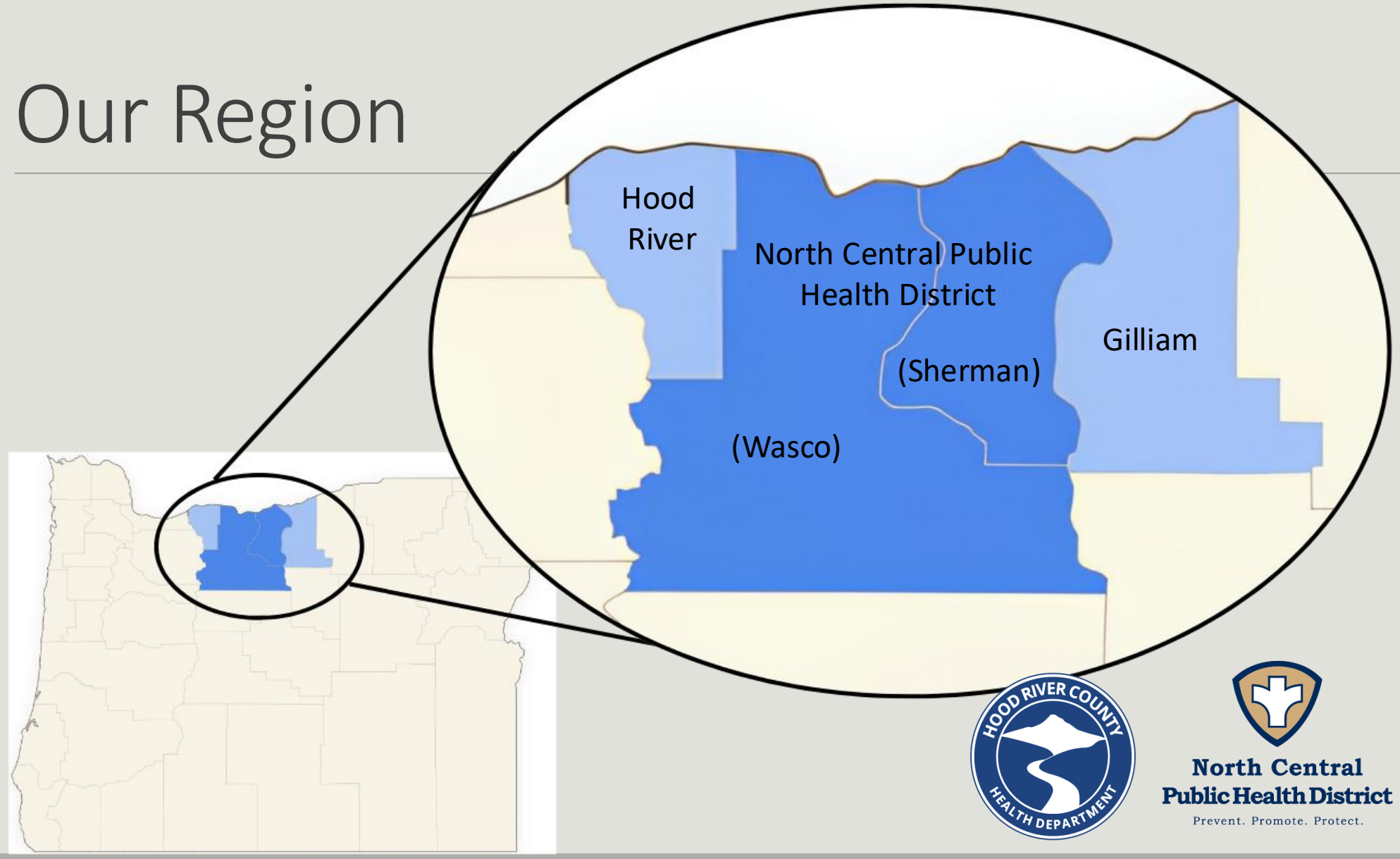
Oregon State University

Hood River County Health Department

North Central Public Health District
Prevent. Promote. Protect.

Gilliam County Public Health

Our Region



Map created on ultimaps.com

Stimuli for this project

Data sharing, but how?

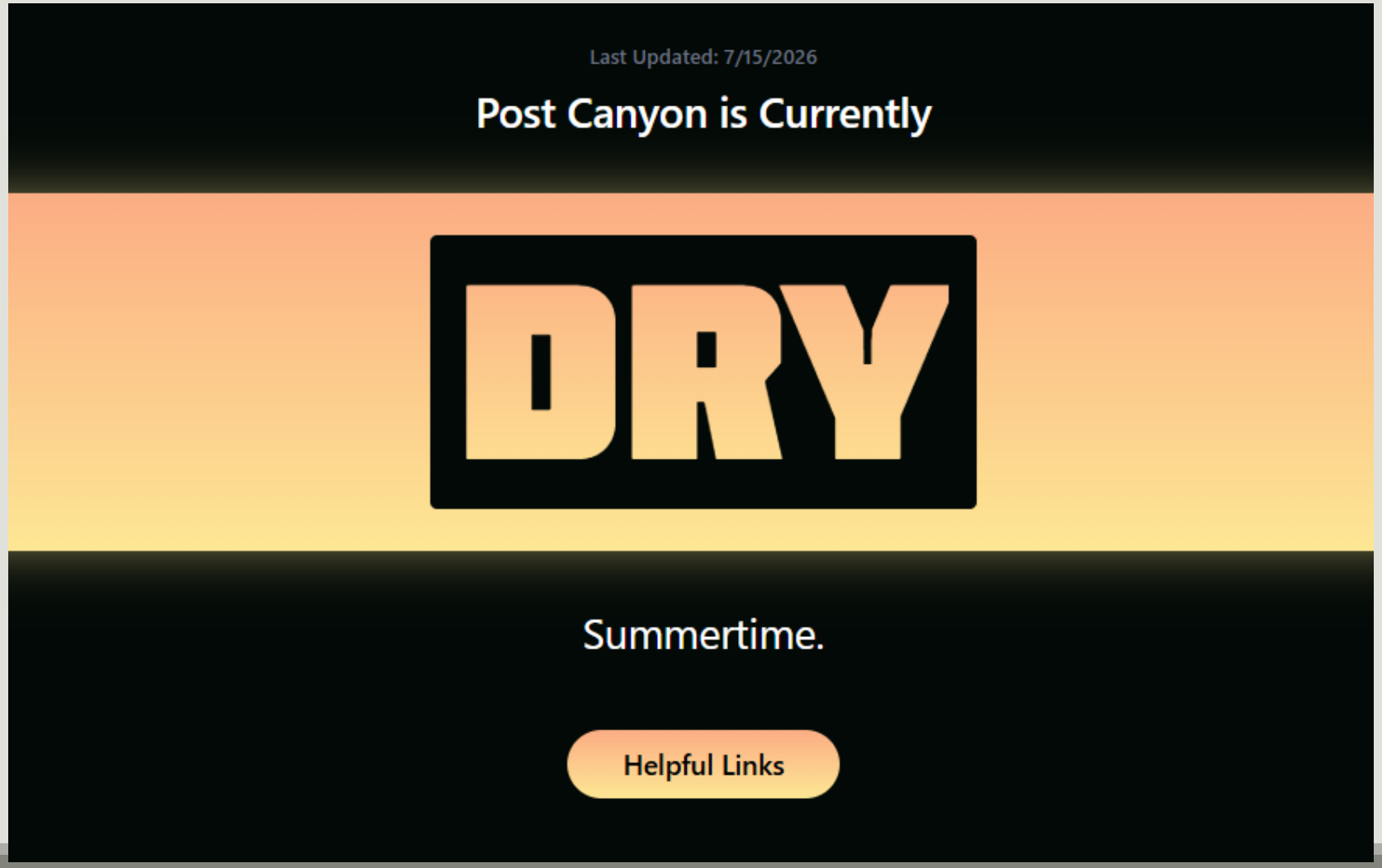
COVID = normal seasonal illnesses

New wastewater data

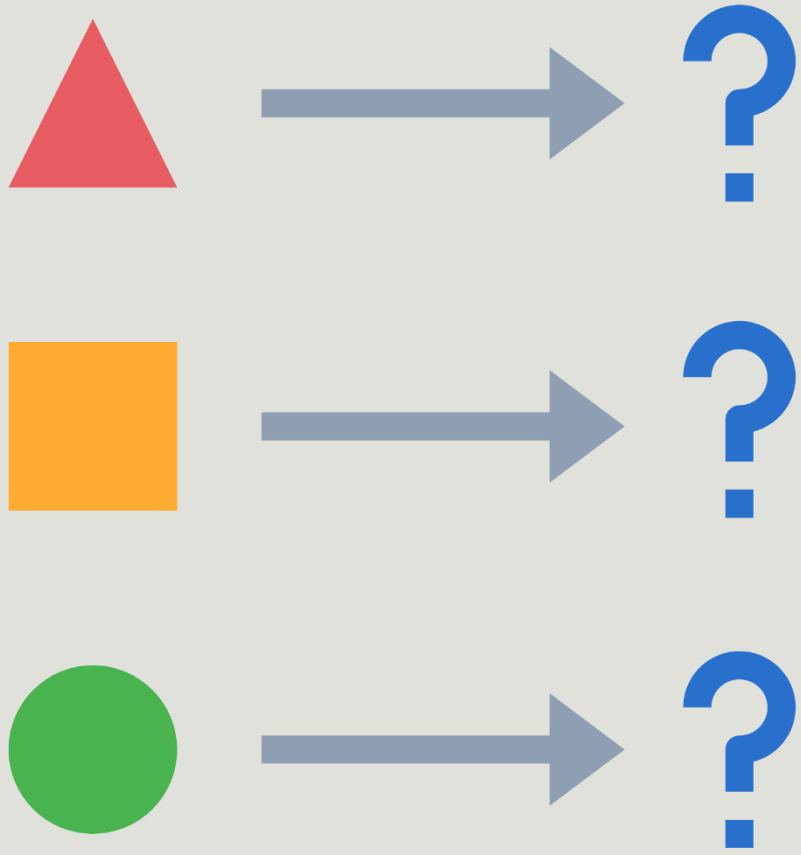
What if….

Single, localized COVID, flu, & RSV rating?

Feature of the Rating: Easy Main Message



Feature of the Rating:
Clear Actions for Each Risk Level



Feature of the Rating: Trustworthy

Data Transparency



We All Do Public health

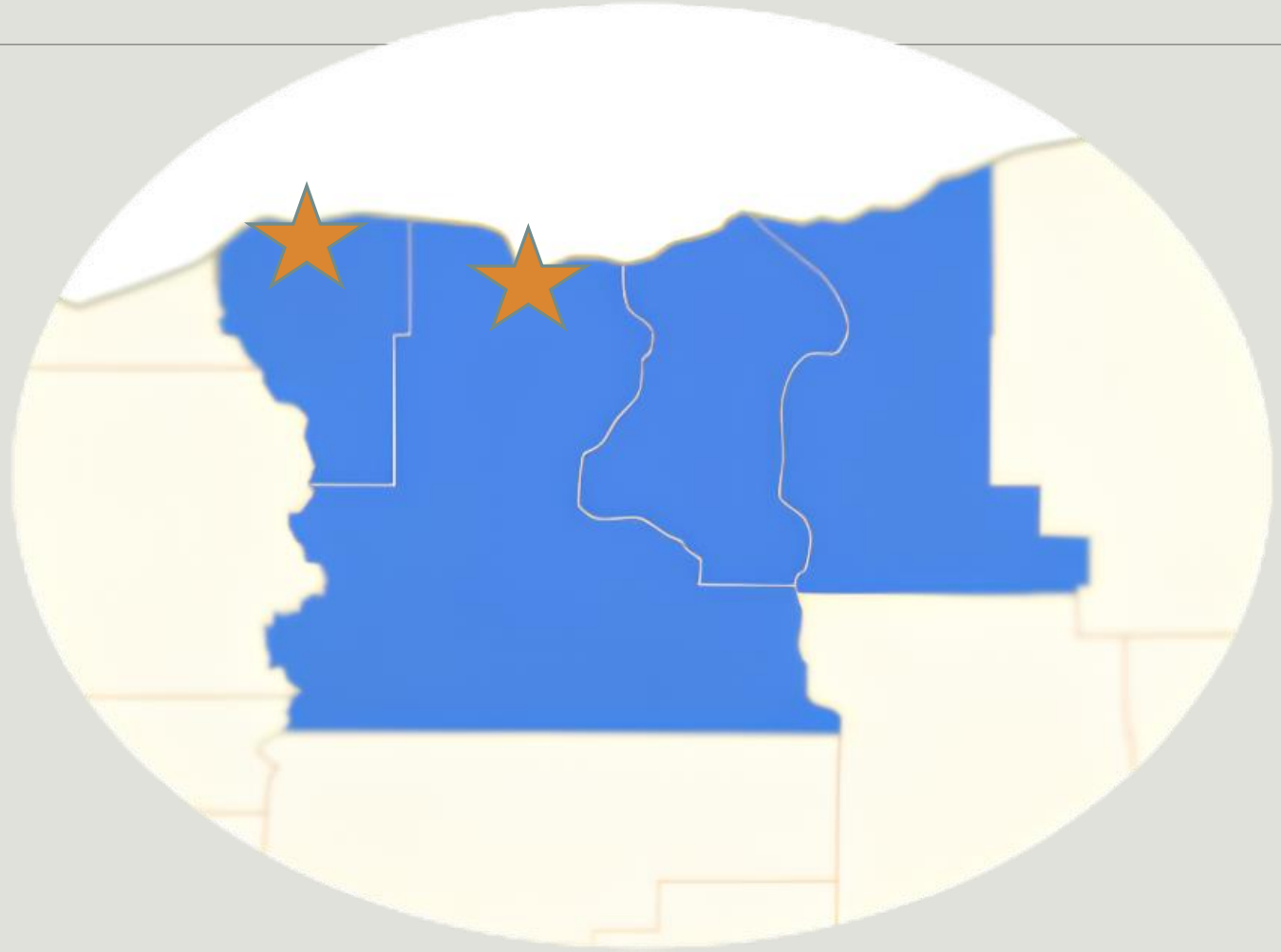


Data Sources

Wastewater testing

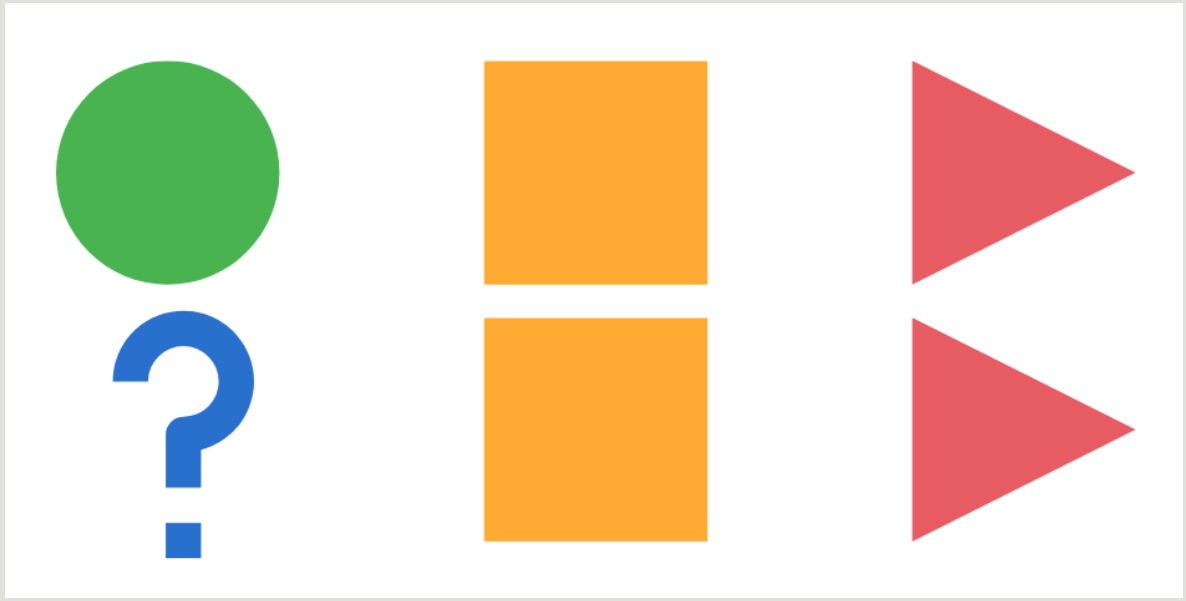
Percent Positivity

ED Symptoms



Map created on ultimaps.com

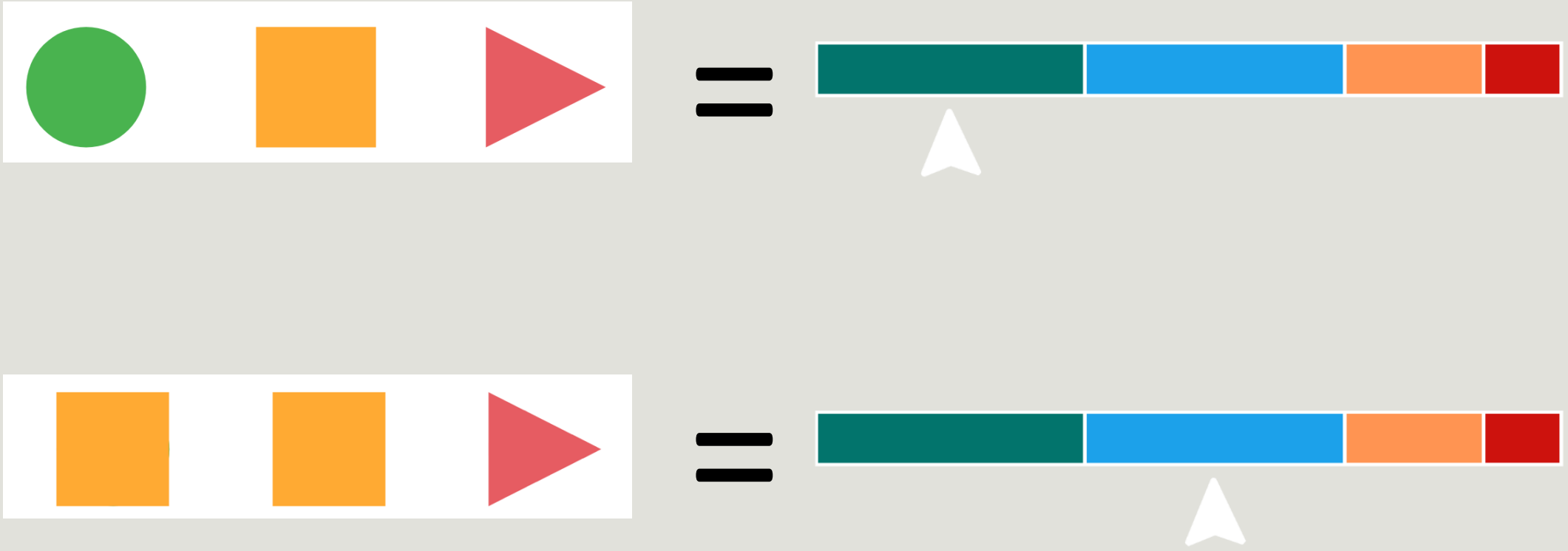
Multiple Data Sources: Missing Data



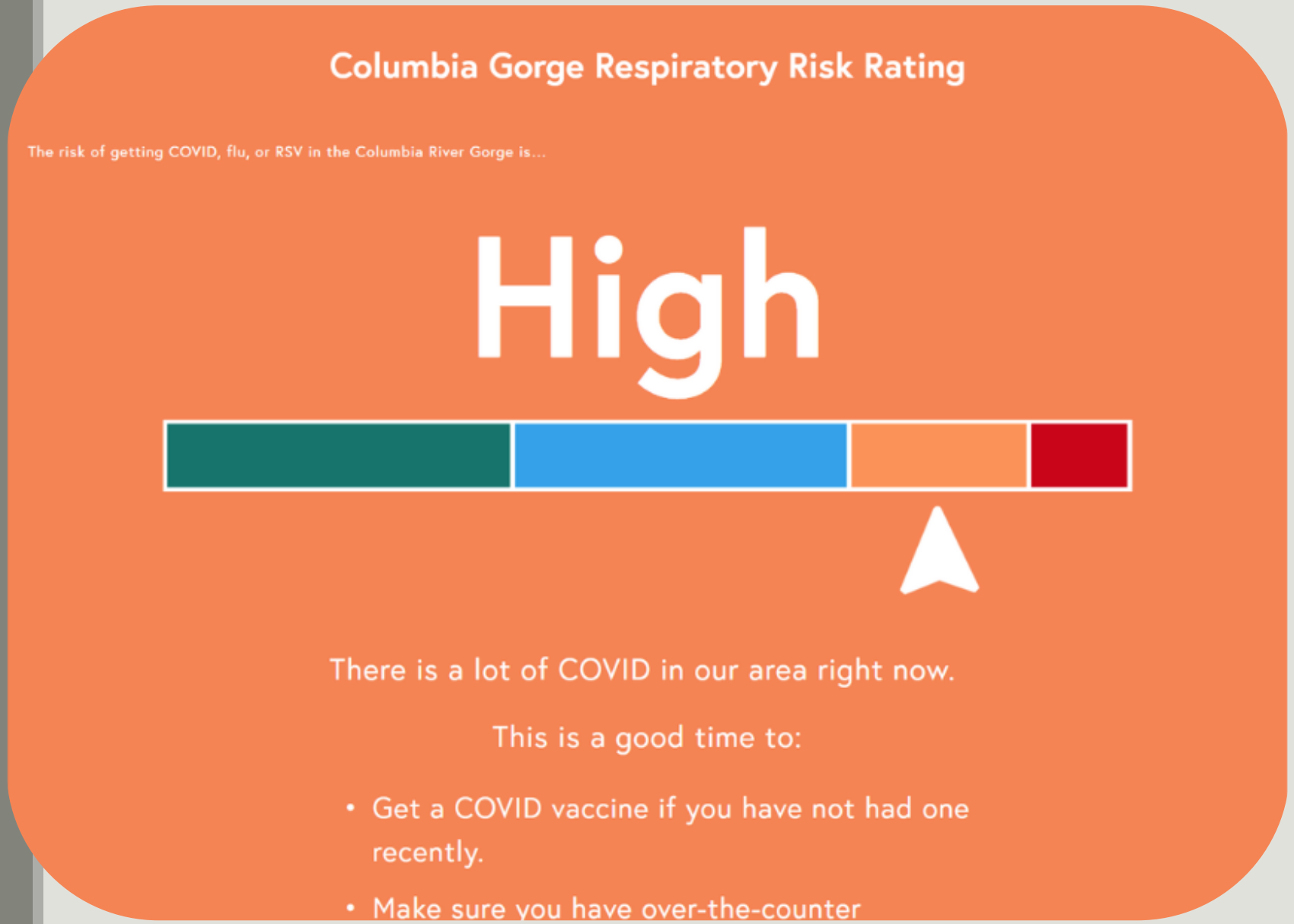
Multiple sources → robust to loss of individual source

- State percent positivity data when regional data unavailable
- ED visit data from Essence vs CDC
- Collaboration with OSU on wastewater data

Multiple Data Sources



https://www.ncphd.org/resp-risk-rating



Flu	COVID	RSV
Flu seems to be at at normal level right now.	COVID is above normal levels and seems to be increasing. COVID tends to peak around this time of year.	RSV seems to be at a normal level right now.

What do you mean by "respiratory risk rating?"

How do you determine the respiratory risk rating?

Can I see the data you use to determine the respiratory risk?

WHERE TO GET COVID AND FLU VACCINES LOCALLY

WHERE TO GET RSV VACCINES LOCALLY

WHAT TO DO IF YOU ARE SICK

This rating comes to you from the Columbia Gorge Wellness Partnership:

EN

Treatment plants collect wastewater in the plant, and send it to Oregon State University for testing.

Local hospitals and clinics share data on positive tests.

Local health districts pull together all the information to come up with the rating.

Changes for Year 2



Fine tuning the levels



Include more local data



More on wastewater surveillance...

Oregon State University

OREGON HEALTH AUTHORITY

Oregon's Wastewater Treatment Plant Partners

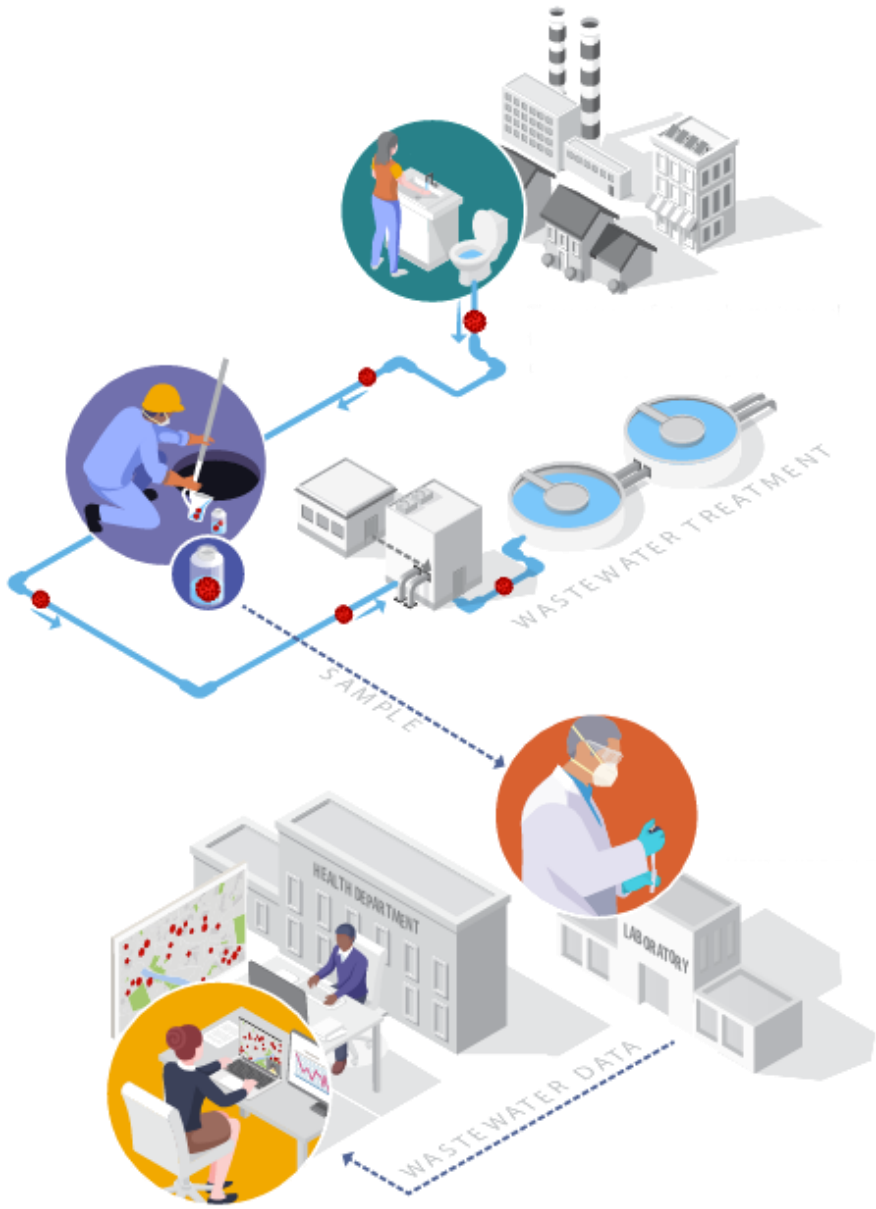
Understanding Wastewater Data

- The **identification** and **quantification** of excreted markers in wastewater to provide public health data
- Tracking community health through biological/chemical markers.



From Sewer to Signal

1. Shedding
2. Travel
3. Collection (usually influent)
    - 24-hour composite samples
    - Grab samples
4. Concentration
5. Detection/Quantification
6. Reporting



Strengths and Limitations



Advantages

- Community-level
- Mild/asymptomatic infections
- Independent of healthcare-seeking behavior
- Independent of testing access
- Near real-time (before shipping)
- Often more granular
- Cost effective
- Adaptable to changing public health priorities



Disadvantages

- People on public sewer only
- Requires WWTP cooperation
- Animal input
- Lack of standardization across jurisdictions

National Wastewater Surveillance System (NWSS)

Number of Wastewater Sampling Sites Reporting to NWSS in the Last Two Months

1,354

Estimated U.S. Population Covered by NWSS

147,000,000

(44.0%)

Explore Wastewater Data

COVID-19

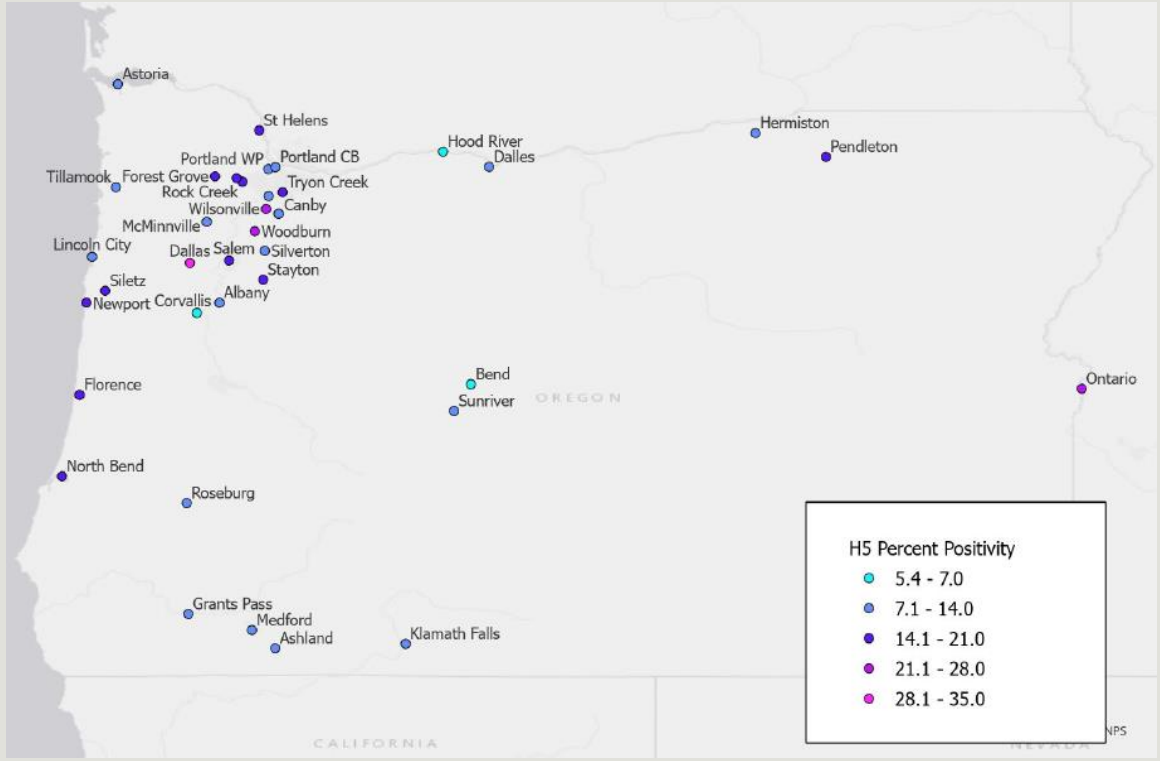
Influenza A

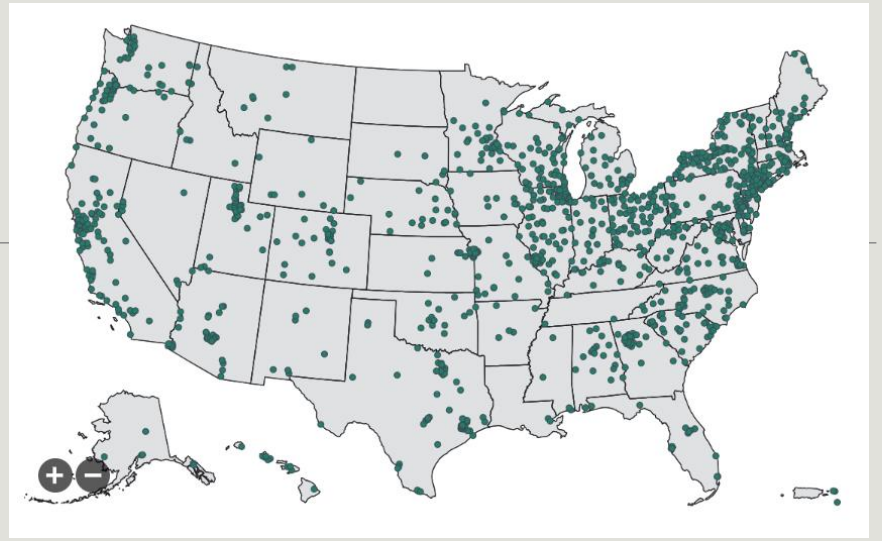
Avian Influenza A(H5)

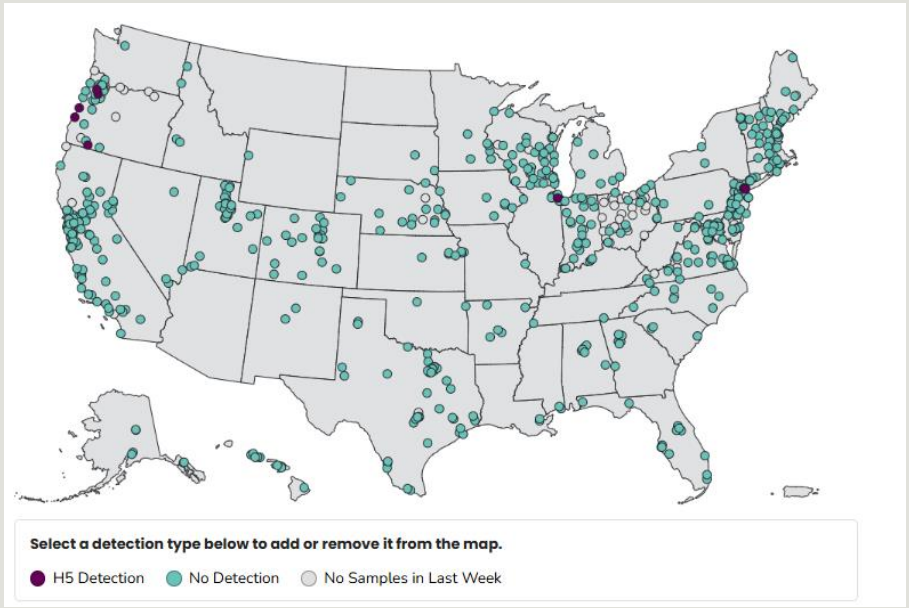
RSV

Monkeypox

Oregon Sampling Locations







Oregon Wastewater Surveillance

Surveillance Targets	**Special Studies**
SARS-CoV-2 including genomic (2020)	Retrospective H5
Influenza A/B and piloting genomic (2022)	Cryptosporidium
Influenza A(H5) (2023)	MDRO at facility level
RSV and piloting genomic (2024)	World Athletics Championship 2022
Measles (WT and VA) (2025)	Retrospective MeV





Where to find routine wastewater surveillance data?

CDC's Wastewater Monitoring Program

EXPLORE THIS TOPIC

Data snapshot

Time Period: September 06, 2026 - September 12, 2026

Influenza A

Wastewater viral activity levels for influenza A are **very low**.



COVID-19

Wastewater viral activity levels for COVID-19 are **low**.



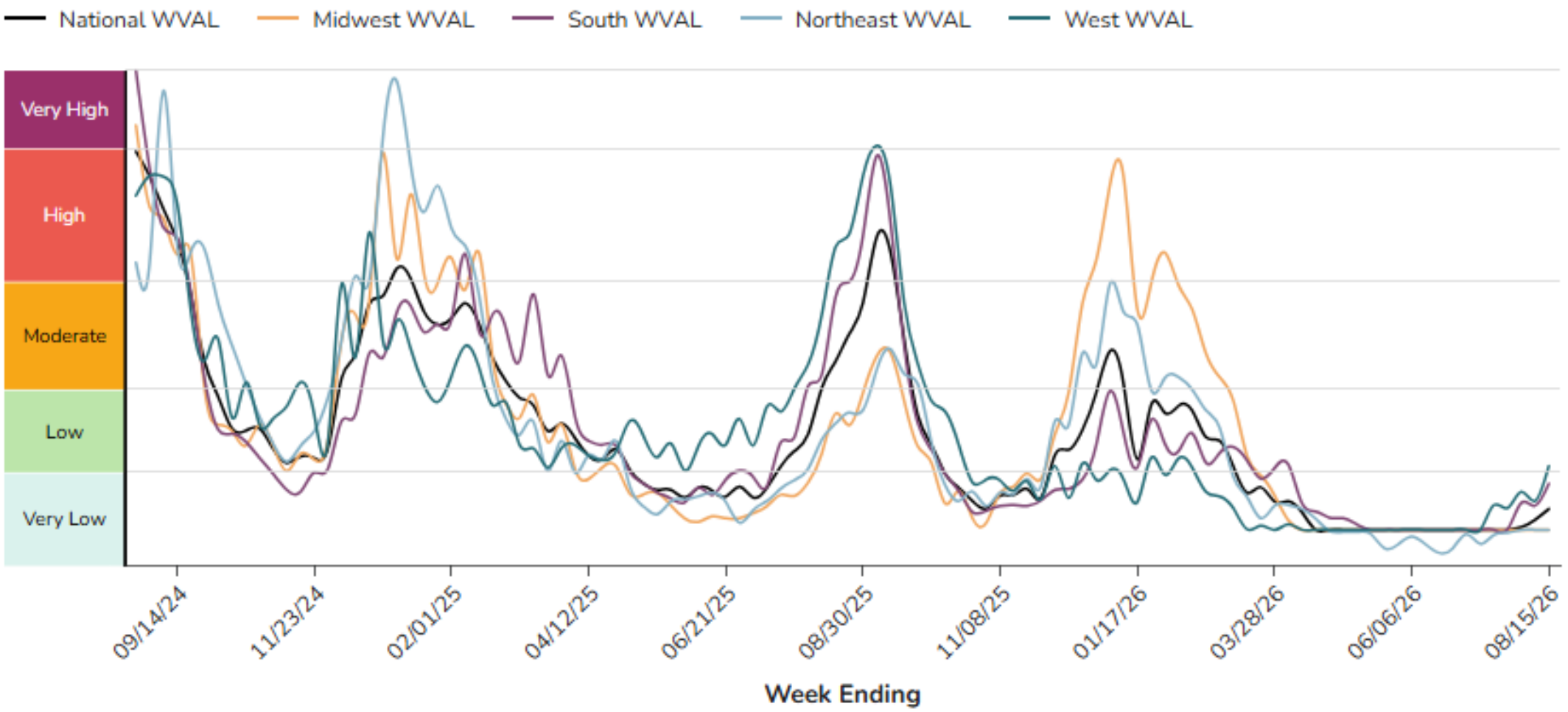
RSV

Wastewater viral activity levels for RSV are **very low**.



CDC's Wastewater Monitoring Program

EXPLORE THIS TOPIC



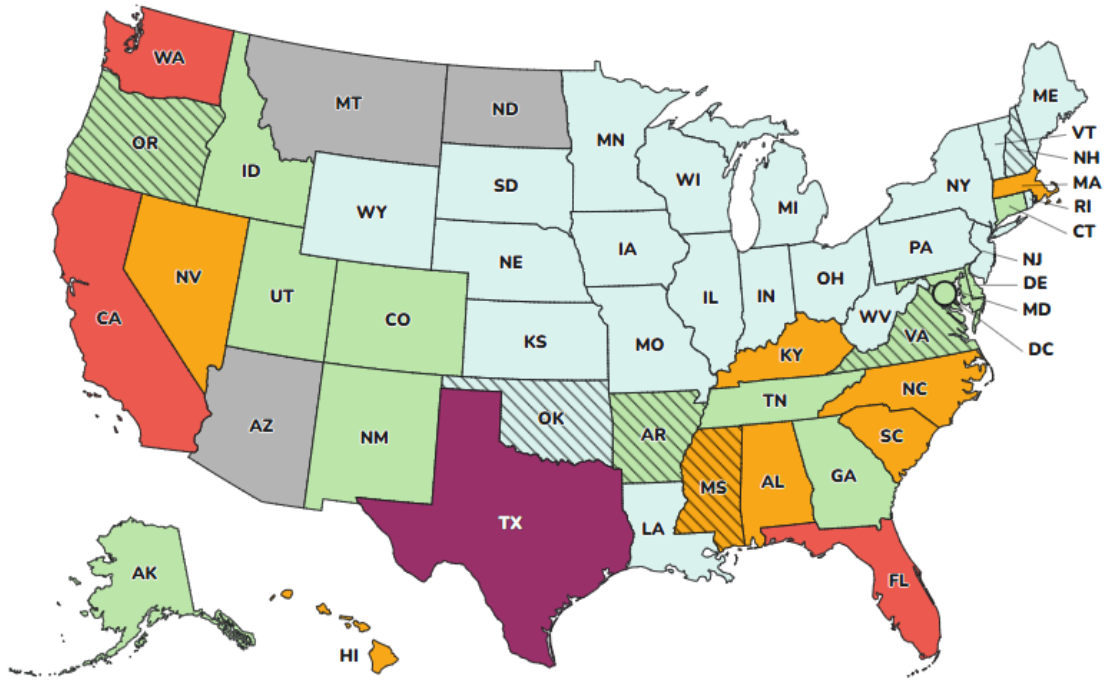
CDC's Wastewater Monitoring Program

EXPLORE THIS TOPIC

COVID-19 Wastewater Viral Activity Levels

Very Low | Low | Moderate | High | Very High | Limited/No Data

Limited Coverage



U.S. territories

GU VI

OREGON HEALTH AUTHORITY

Updated weekly. Data current as of 1/14/2026.

Oregon Respiratory Viral Pathogen Wastewater Monitoring Dashboard

OHA is working with Oregon State University to collect and test samples of wastewater (sewage) for three respiratory viral pathogens: SARS-CoV-2, influenza, and respiratory syncytial virus (RSV). Samples are collected 1-2 times weekly from community wastewater treatment centers around the state. Samples are tested year-round for SARS-CoV-2 and influenza and during the respiratory season (October 1–April 30) for RSV. Viral levels are shown with statewide test percent positivity for their respective diseases. Wastewater monitoring can be used to detect trends in community spread as well as SARS-CoV-2 variants and influenza subtypes at the community-level.

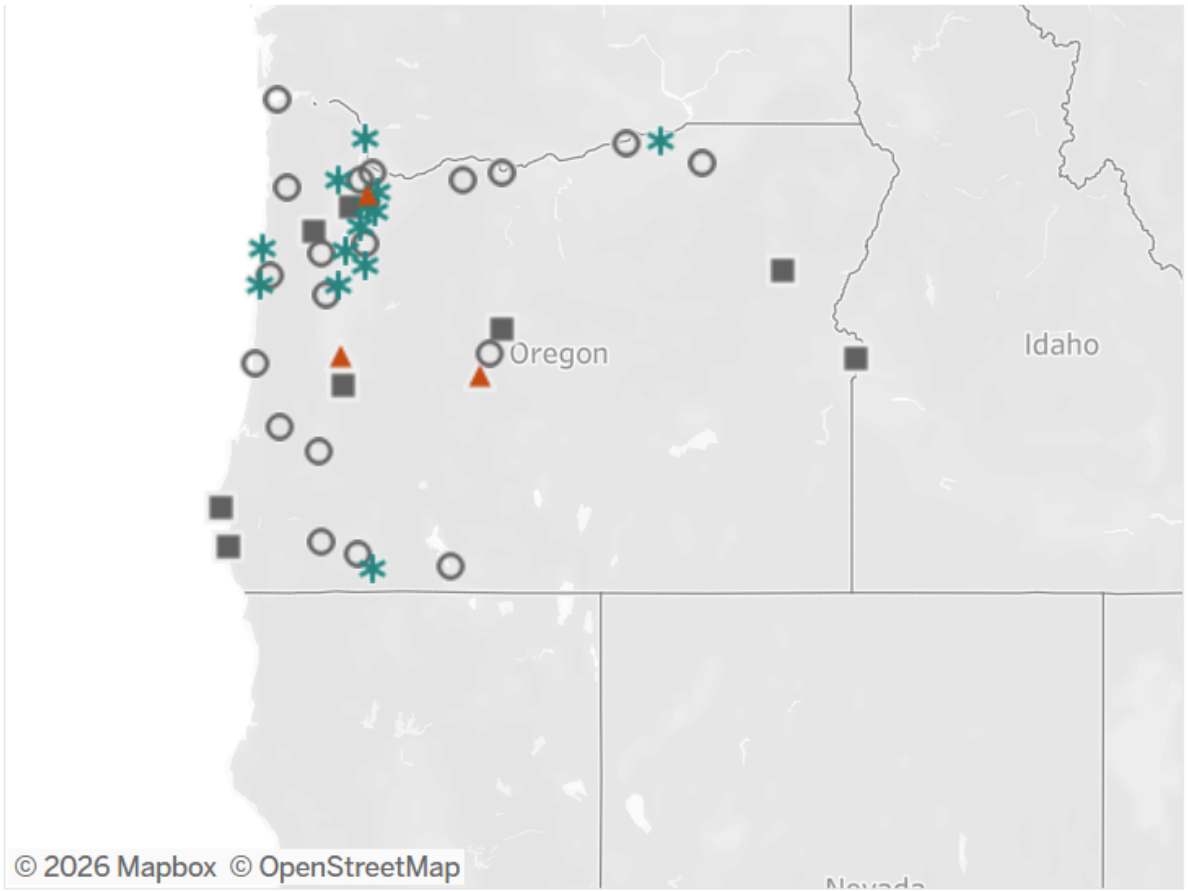
Select a pathogen below or go to the **methods** page for more on how we collect our data.

SARS-CoV-2 | Influenza | RSV | Methods

Proportion of reporting community wastewater treatment centers by most recent **influenza trend category**

Sustained increase: **8%** | Increase: **3%** | Plateau: **35%** | Decrease: **3%** | Sustained decrease: **0%** | Sporadic detections: **51%** | Discontinued

Map of community wastewater treatment centers in Oregon by most recent **influenza trend**



Select one or more influenza trend categories to filter the map. The list of community wastewater treatment center locations will update based on the trend category selection.

Influenza trend categories

- ☐ (All)
- ☑ Sustained Increase
- ☐ Increase
- ☑ Plateau
- ☐ Decrease
- ☑ Sporadic Detections
- ☑ Discontinued

Locations

- ☑ (All)
- ☑ Albany
- ☑ Ashland
- ☑ Astoria
- ☑ Baker City
- ☑ Bend
- ☑ Boardman
- ☑ Canby
- ☑ Corvallis
- ☑ Cottage Grove
- ☑ Dallas
- ☑ Durham
- ☑ Eugene

Would you like to see trends over time for individual wastewater treatment centers, or statewide?

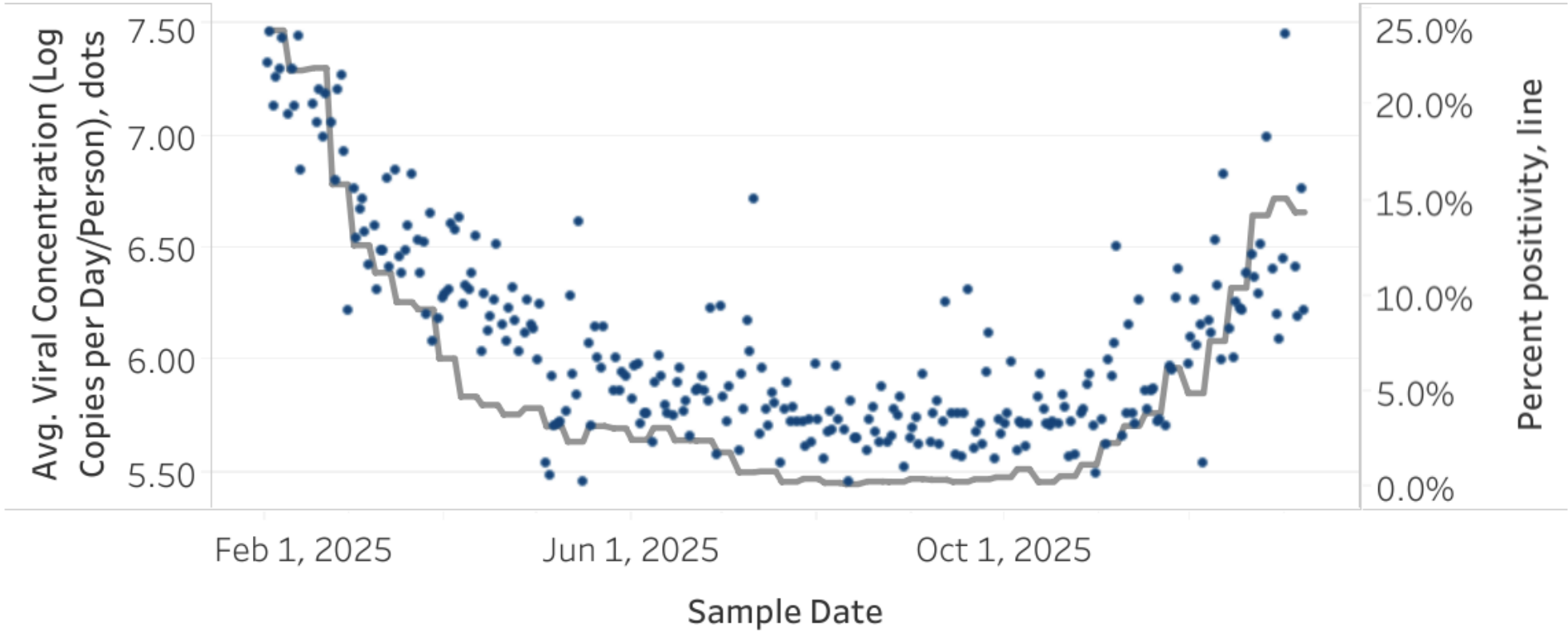
- (•) Statewide
- ( ) Individual wastewater treatment centers

Select a date range to filter the statewide trend over time.

Select a date range

Last 12 months

Statewide average influenza wastewater viral concentrations (dots), statewide percent positivity data (line) **over time**



Would you like to see trends over time for individual wastewater treatment centers, or statewide?

- ○ Statewide
- ◉ Individual wastewater treatment centers

Select a date range and a single location to filter the scatter chart.

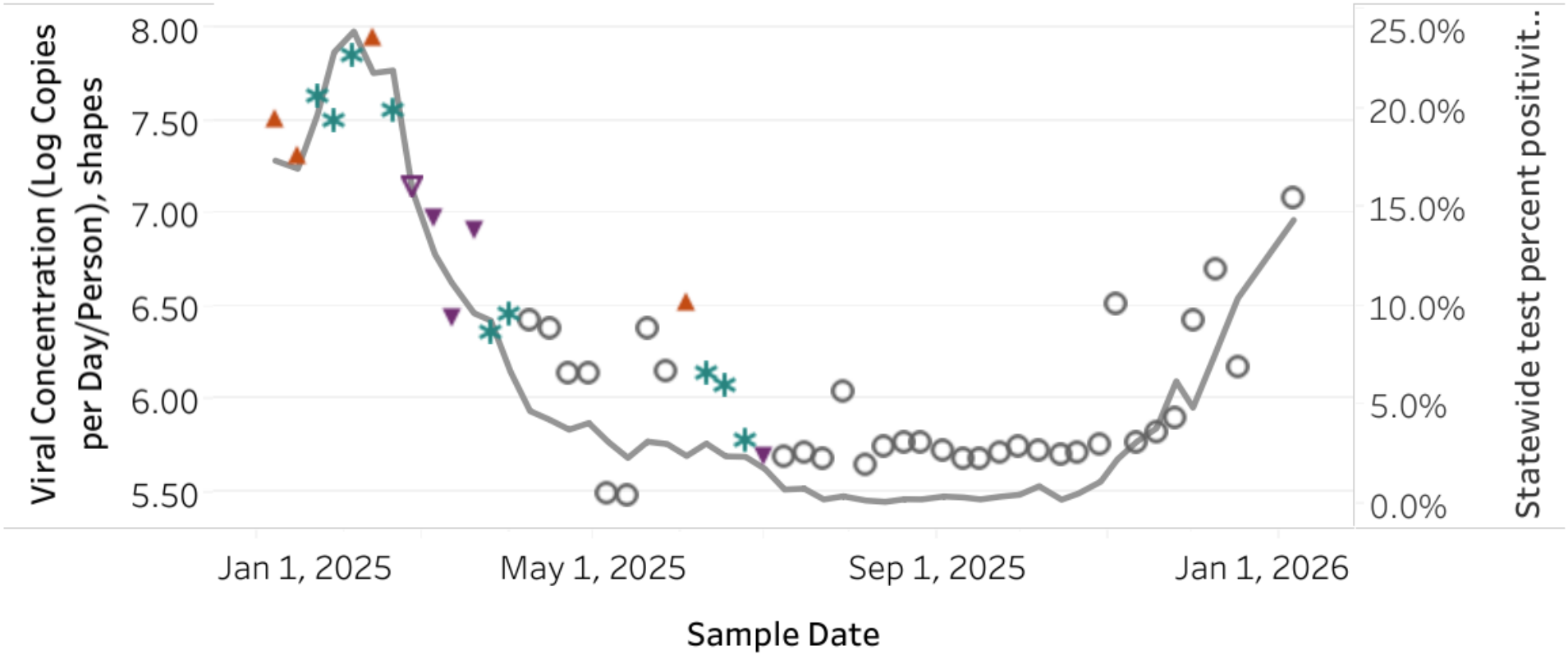
Select a date range

Last 1 year

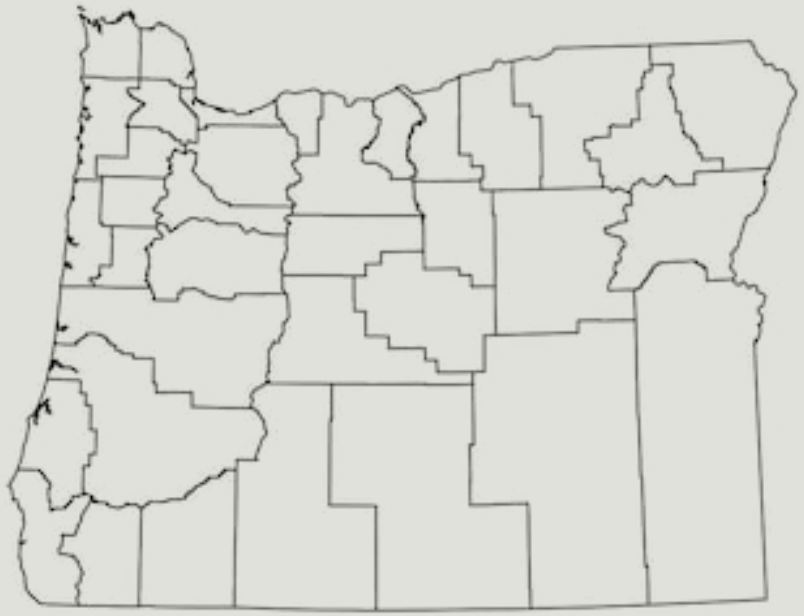
Select a location

- ○ Albany
- ○ Ashland
- ○ Astoria
- ○ Baker City
- ○ Bend
- ○ Boardman
- ○ Canby
- ◉ Corvallis
- ○ Cottage Grove

Corvallis influenza wastewater viral concentrations and trend categories (shapes), statewide percent positivity data (line) over time



How can wastewater surveillance serve rural populations?



Current Coverage

~75–80% US served by municipal sewers

People on septic may still participate in wastewater surveillance

- Healthcare
- Shopping
- Work or school

13-19 % of scoping review sampling sites were classified as rural

Oregon: 9/47 (20%) → 6/40 (15%)

Epidemiological model can forecast COVID-19 outbreaks from wastewater-based surveillance in rural communities

Tyler Meadows, Erik R Coats, Solana Narum, Eva Top, Benjamin J Ridenhour, Thibault Stalder

PMID: 38352372 PMCID: PMC10862977 DOI: 10.1101/2024.02.01.24302131

Sci Total Environ. 2023 Oct 10:894:165013. doi: 10.1016/j.scitotenv.2023.165013. Epub 2023 Jun 22.

SARS-CoV-2 wastewater monitoring in rural and small metropolitan communities in Central Michigan

Michael J Conway [1], Stephanie Kado [2], Breanna K Kooienga [2], Jacklyn S Sarette [2], Michael H Kirby [2], Andrew D Marten [2], Avery S Ward [2], Jackson D Abel [2], Steve King [3], Jacqueline Billette [3], Maggie R Williams [4], Rebecca L Uzarski [5], Elizabeth W Alm [6]

Affiliations + expand

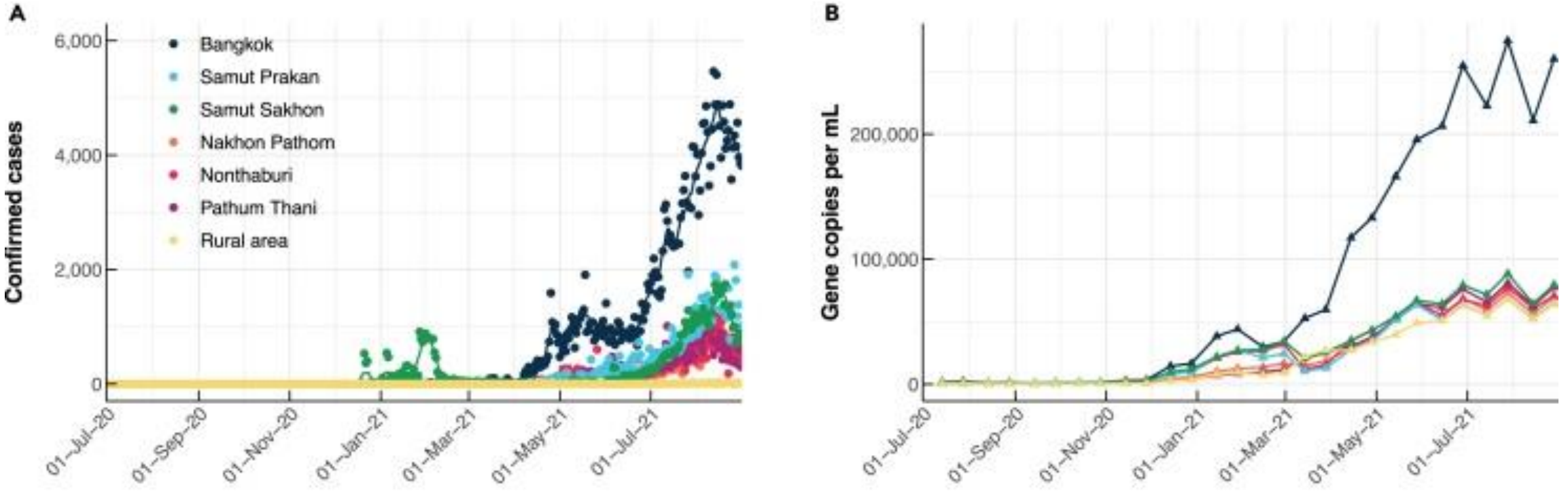
PMID: 37353028 DOI: 10.1016/j.scitotenv.2023.165013

COVID-19 monitoring with sparse sampling of sewered and non-sewered wastewater in urban and rural communities

Dhammika Leshan Wannigama [1,2,3,4,5,6,45,*], Mohan Amarasiri [7,44], Parichart Hongsing [8,9,44], Cameron Hurst [10,11,44], Charin Modchang [12,13,14,**], Sudarat Chadsuthi [15,44], Suparinthon Anupong [12,44], Phatthranit Phattharapornjaroen [16,17,44], Ali Hosseini Rad S M [18,19,44], Stefan Fernandez [20], Angkana T Huang [20], Porames Vatanaprasan [16], Dylan John Jay [6], Thammakorn Saethang [21], Sirirat Luk-in [22], Robin James Storer [23], Puey Ounjai [24], Naveen Kumar Devanga Ragupathi [4,25,26], Phitsanuruk Kanthawee [27], Daisuke Sano [28,29], Takashi Furukawa [7], Kazunari Sei [7], Asada Leelahavanichkul [1,30], Talerngsak Kanjanabuch [31,32,33,34], Nattiya Hirankarn [2,19], Paul G Higgins [35,36], Anthony Kicic [37,38,39,40], Andrew C Singer [41], Tanittha Chatsuwan [2,3,***], Sam Trowsdale [42], Shuichi Abe [1,44], Alexander D McLellan [18,****], Hitoshi Ishikawa [43]

▸ Author information ▸ Article notes ▸ Copyright and License information

PMCID: PMC10250052 PMID: 37351501


A
Confirmed cases
6,000
4,000
2,000
0
Bangkok
Samut Prakan
Samut Sakhon
Nakhon Pathom
Nonthaburi
Pathum Thani
Rural area
01–Jul–20
01–Sep–20
01–Nov–20
01–Jan–21
01–Mar–21
01–May–21
01–Jul–21
B
Gene copies per mL
200,000
100,000
0
01–Jul–20
01–Sep–20
01–Nov–20
01–Jan–21
01–Mar–21
01–May–21
01–Jul–21

Measles in Oregon

Archived 24-hr wastewater composite samples collected 1-2x a week

March 19—September 26, 2024

Wild type specific MeV target (Wu, 2024)

Digital PCR (dPCR) platform

Locations: The 4 communities involved in the outbreak that participate in Oregon's wastewater surveillance program

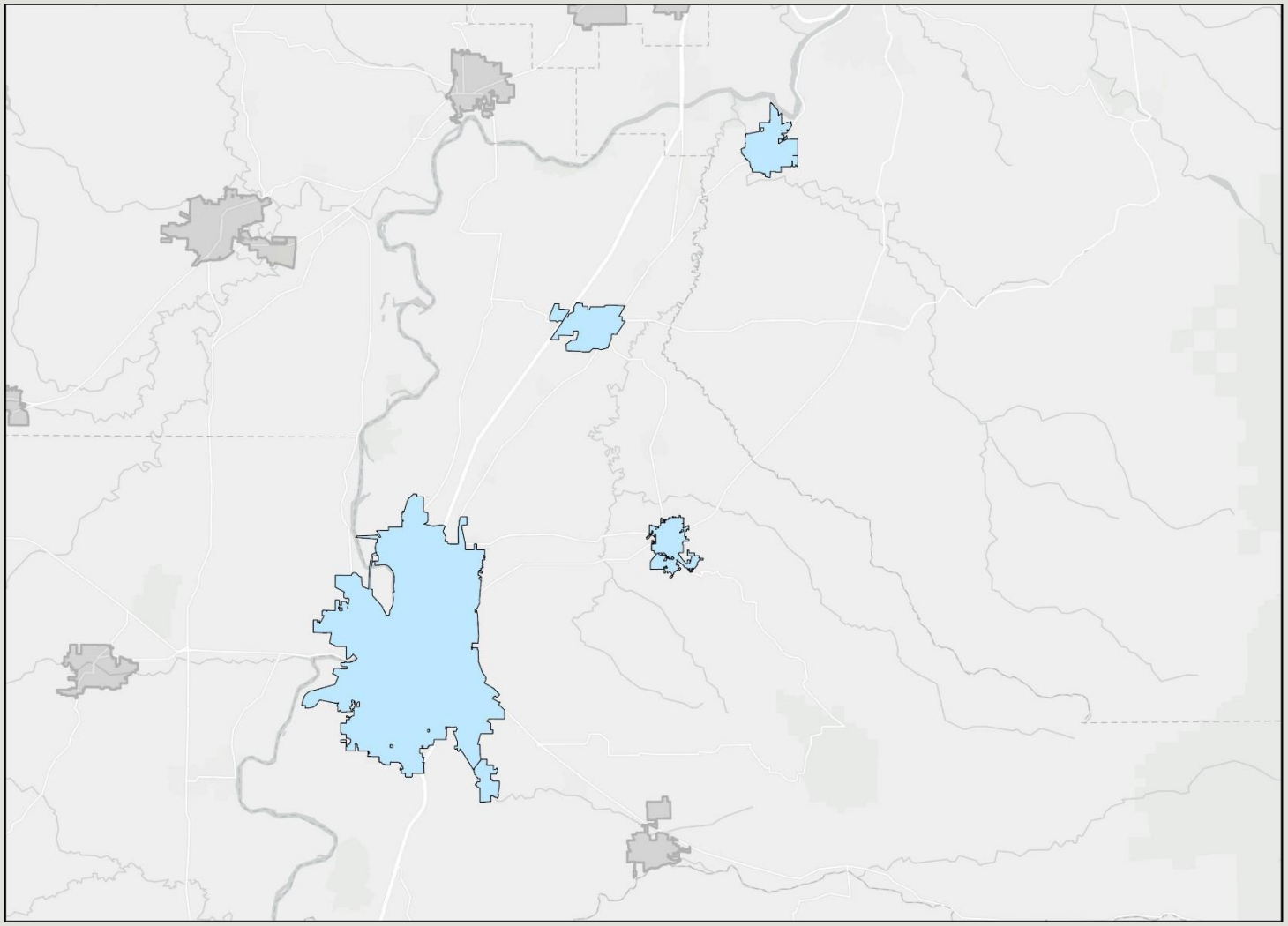


Figure. Sewershed boundaries of the four communities selected for retrospective wild-type MeV testing of wastewater during the 2024 Oregon Measles outbreak.

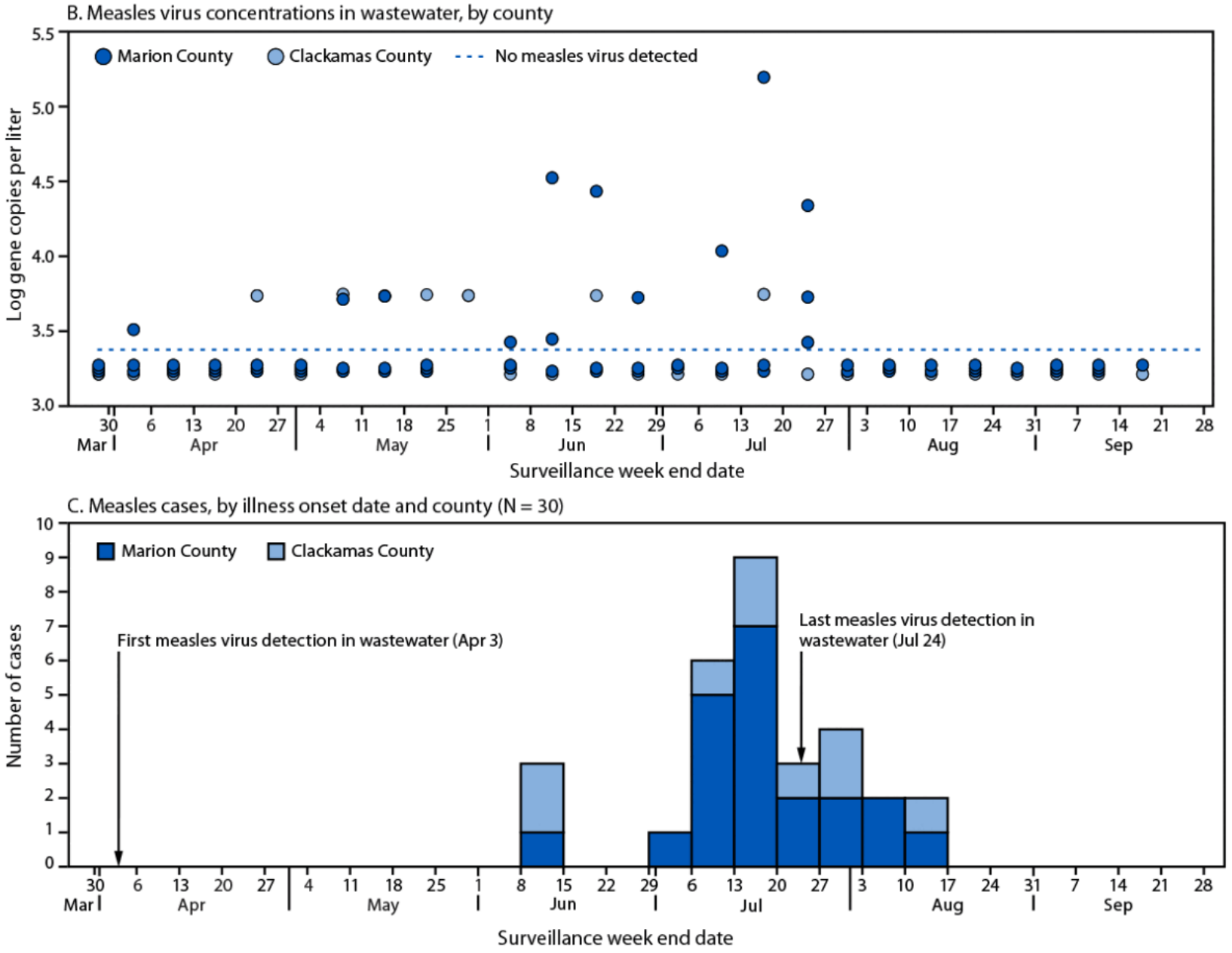


Figure. Concentration (A) of wild type measles virus in wastewater and presumptive and confirmed measles cases (B) by county and MMWR week end — Oregon, March—September 2024.

Specific Challenges in Rural Communities

Shipping times
- Slow or inconsistent
- Courier $$$

Utility collaboration

Prioritizing emerging pathogens and population coverage over geographic coverage

Older sewer systems (volatile data)

Thank you

QUESTIONS?