



Sent on behalf of William Isenberg, M.D., Ph.D, Chief Medical & Quality Officer, Sutter Health, and Jeffrey Silvers, M.D., Medical Director of Pharmacy and Infection Control, Sutter Health

Emerging Infections Newsletter for Clinicians

Sept. 21, 2023

Written by Dr. Silvers with contributions from Dr. Joan Etzell (Lab), Lisa Rieg (Pharmacy), and Gordon Sproul (Pharmacy). Please use Google Chrome for the best experience.

Topics

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 - c. International genomic surveillance
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Antibiotic Stewardship During the Respiratory Season

- Seasonal variation and increases in antibiotic prescribing have been associated with increased inappropriate prescriptions (i.e., viral etiology) and subsequent increased resistance, especially to beta-lactam and macrolide antibiotics that are associated with the large prescription increases during the winter months as [reported](#) by Harvard School of Public Health.
- Another [study](#) published this month documents seasonal uptick in antimicrobial prescribing associated with increased respiratory tract infection (RTI) diagnoses.
 - Out of all RTI visits, 32,286 (36.0%) were associated with an antibiotic prescription.
 - Of the visits associated with an antibiotic prescription, 36.3% occurred in the summer months and 63.7% occurred in the winter months.
 - There was no difference in antibiotic class prescribed for RTI season to season.
- In 2023, the Office of Antibiotic Stewardship at the Centers for Disease Control and Prevention (CDC) issued new and updated guidance and resources to support the implementation of antimicrobial and diagnostic stewardship across the spectrum of healthcare.
 - At least 28% of antibiotic courses prescribed each year are unnecessary, which makes improving antibiotic prescribing and use a national priority.
 - Resources for inpatient, outpatient, and long-term care for improving antibiotic use can be found on the [CDC Antibiotic prescribing site](#).

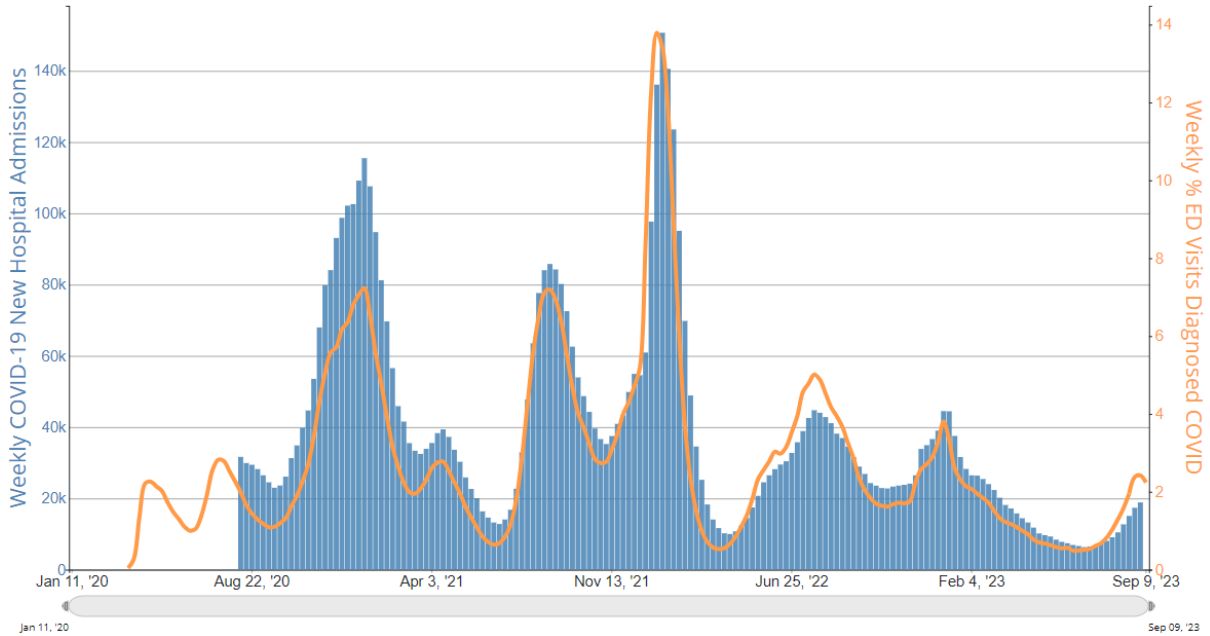
Respiratory Season Stewardship Take-Home

- Be antibiotic aware.
- Use targeted, narrow spectrum antibiotics whenever possible.
- During winter months, consider common circulating virus and avoid ordering antibiotics “just in case.”
- Rapid testing for RSV, COVID-19 and flu is widely available at many sites.

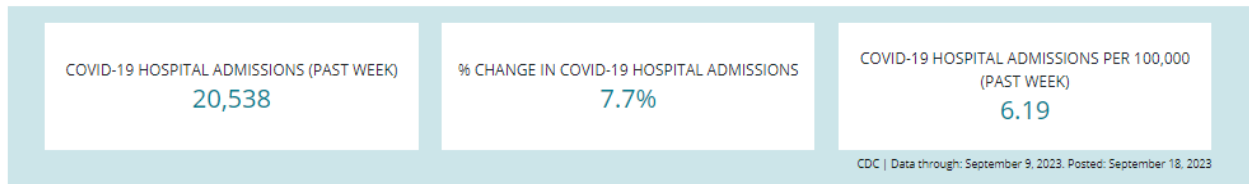
COVID-19

- Hospitalizations in the United States is a surrogate for the virulence of the circulating strains. The graph below and the subsequent table continue to show increasing [hospitalizations](#). Emergency department visits appear to have peaked and may be decreasing.

COVID-19 New Hospital Admissions and Percentage of Emergency Department (ED) Visits Diagnosed as COVID-19, by Week, in The United States, Reported to CDC

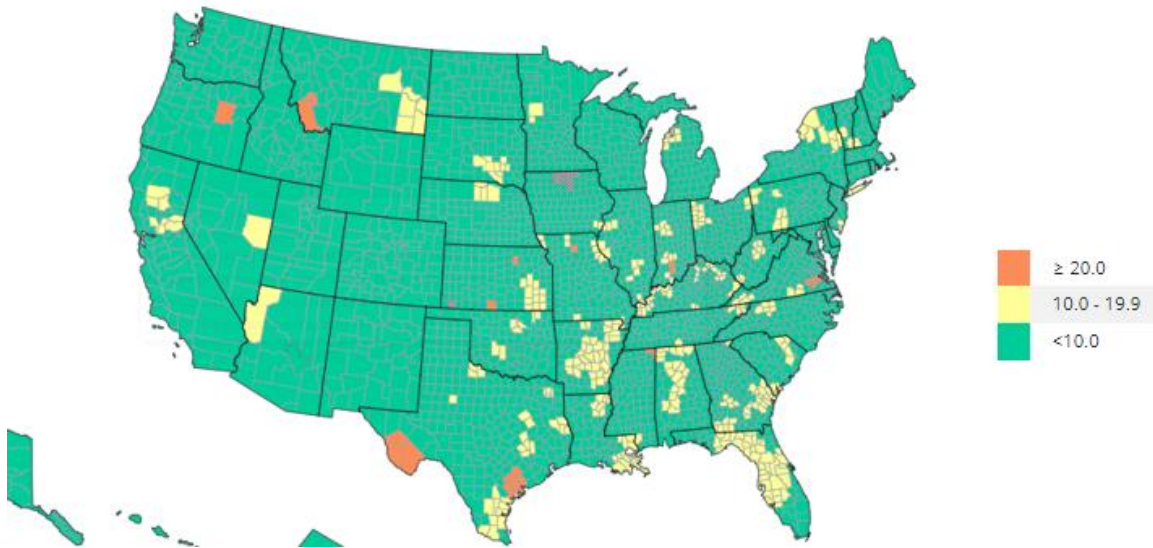


- The CDC track hospital admissions per 100,000 county population. Less than 10/100,000 is considered a low number of new hospital admissions. The table below shows that nationally we continue to increase and are up to 6.19/100,000. Fortunately, the weekly percentage change is continuing to decrease, now down to 7.7%



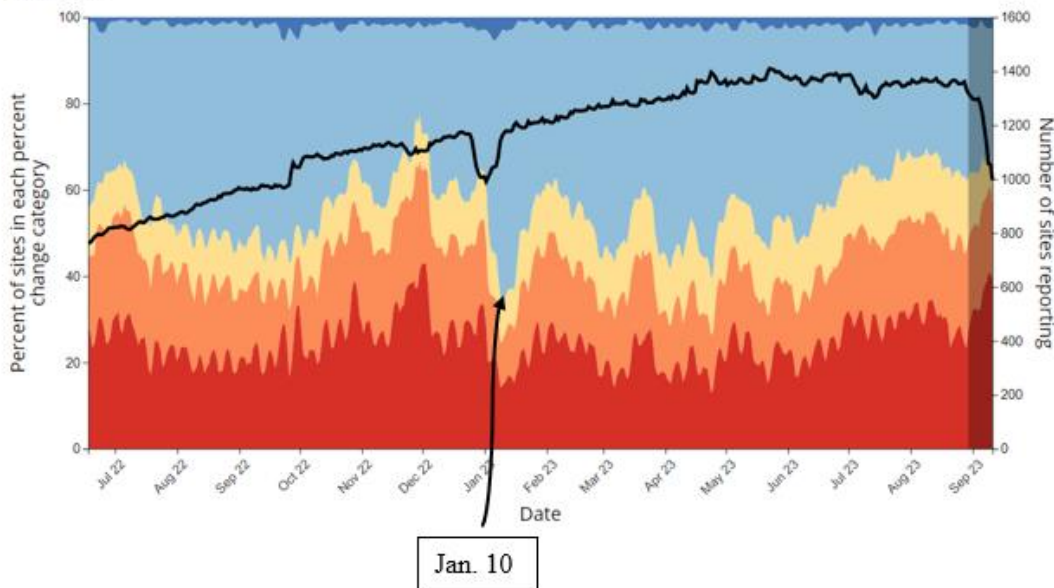
- The map below illustrates that a number of locations in the country have breached the 10/100,000 rate and are either yellow or red, respectively designating either medium or high numbers of admissions.
- Although most counties still have low hospitalization rates (<10.0 per 100,000 population), the [updated map](#) below shows more locations with moderate or high rates.
- Multiple counties in Northern California now have moderate rates of new hospital admissions for COVID (yellow).

Reported COVID-19 New Hospital Admissions Rate per 100,000 Population in the Past Week, by County – United States



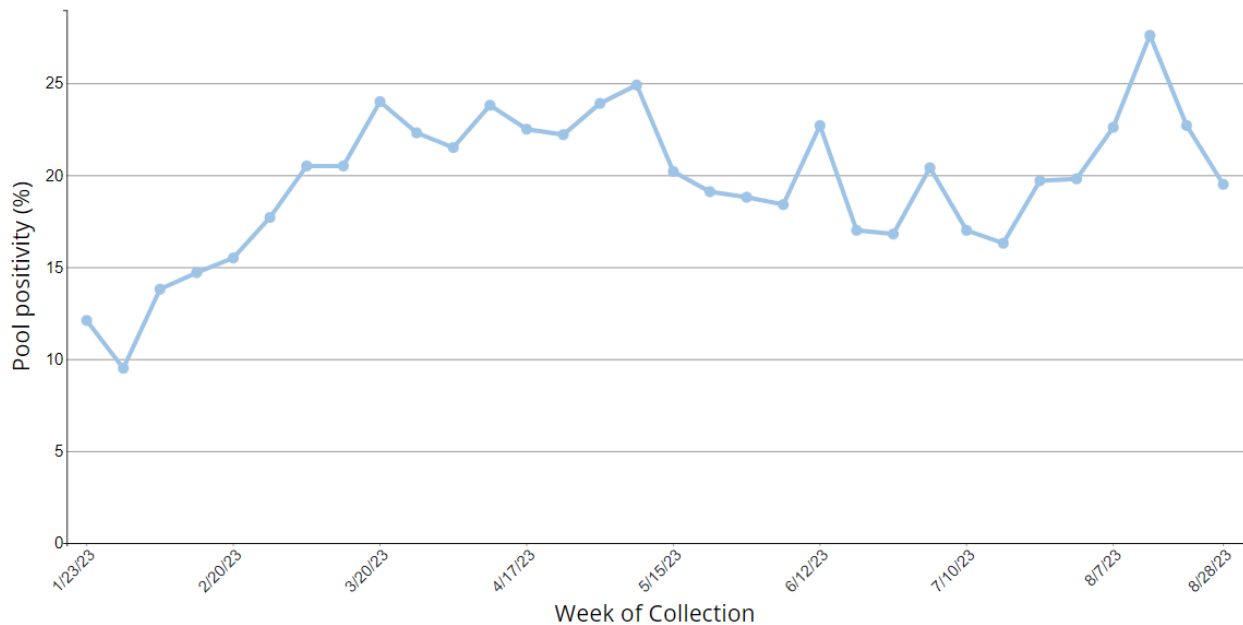
- [Wastewater surveillance](#) data shows changes in virus levels over time.
 - Each point in time represents the calculated percentage change over the prior 15 days.
 - The graph below can provide rough insight by looking at the color changes in the last 15 months. Shades of blue represent decreasing amounts of virus, yellow is unchanged and orange/red signify increasing amounts of SARS-2 virus.
 - On the 15 days ending Sept. 12, 2023, the orange/red represented 61%, yellow 7% and blue shades 36%. Contrast this with Jan.10, 2023, where the orange/red only represented 25% of the change recorded.
 - A major limitation to interpretation of this data is that this graph does not measure levels of virus. Although a trend does seem apparent, interpretation of this data must be combined with other information such as the weekly trends in hospitalizations discussed above.

Percent of sites in each percent change category over time, United States*

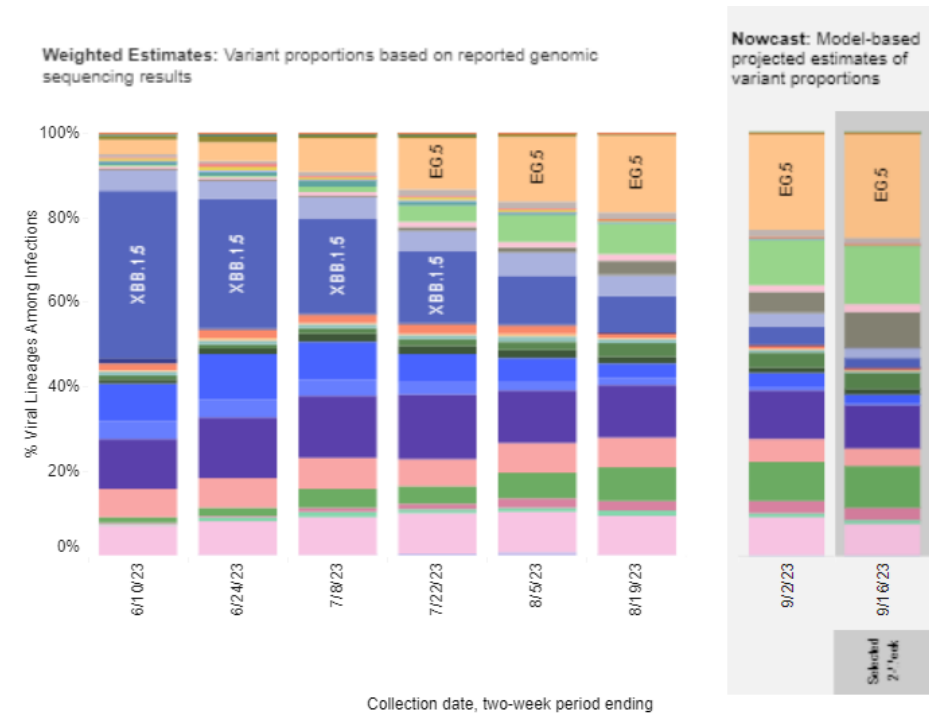


- [International genomic surveillance](#) is performed by sampling international air travelers from more than 25 countries at several major U.S. airports.
 - All positive isolates are sequenced.
 - EG.5 comprised 34% of the most recent week's international isolates.
 - The graph below shows the positivity rate of pooled samples by collection week. The week of Aug. 28, the positivity rate was 19.5%. This appears to be stable for the last six months. It is well below the peak of 42.4% the week of June 27, 2022 (not on the graph), but still an absolute 10% higher than the nadir that was measured this last Jan. 30 at 9.5%.

Positivity Rate for Pooled Samples, by Collection Week



- [National genomic sequencing](#) was updated on Sept. 17 (graph below). EG.5 and FL.1.5.1 remain the most commonly sequenced isolates. Combined they constitute 38.2% of isolates, compared to 36% in the prior 2 weeks. Eleven different strains comprise more than 2% of all sequenced isolates. Still no evidence of single-strain domination and BA.2.86 remains off of the graph as it comprises less than 1% of isolates.
- EG.5 comprises 31% of recent isolates in region 9, which includes California. This is similar to what is being identified in international air travelers entering the United States.

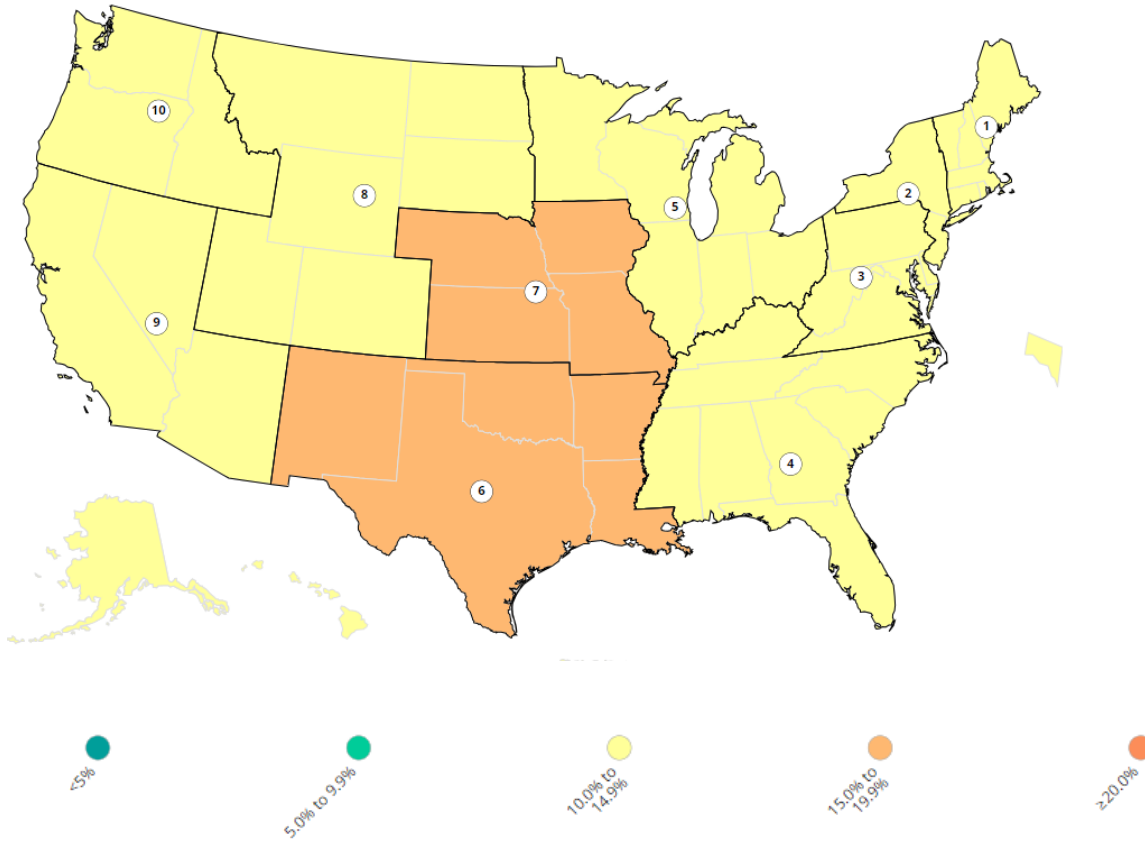


USA

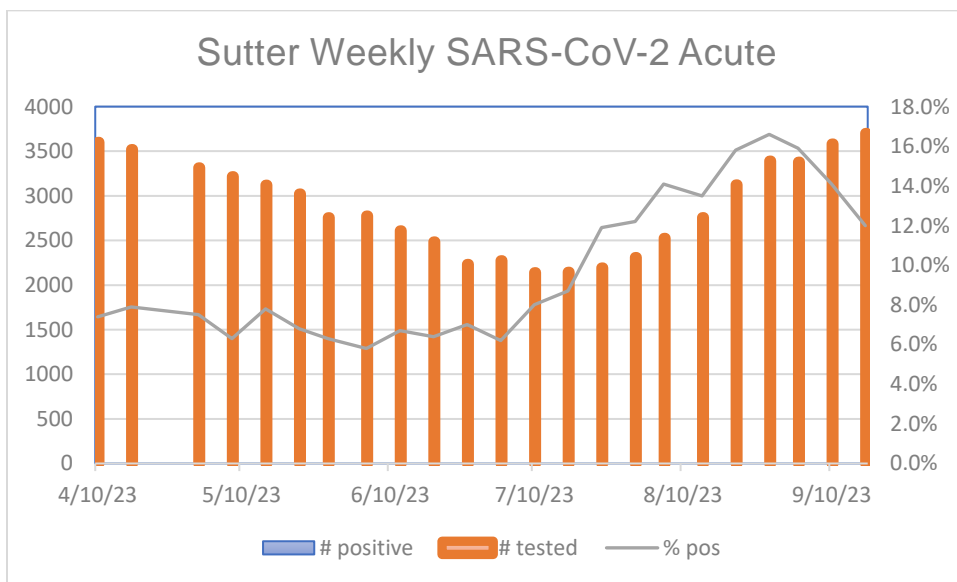
WHO label	Lineage #	%Total	95%PI
Omicron	EG.5	24.5%	22.5-26.6%
	FL.1.5.1	13.7%	9.8-18.7%
	XBB.1.16	10.2%	8.6-11.9%
	XBB.1.16.6	9.9%	8.4-11.7%
	HV.1	8.4%	6.6-10.5%
	XBB.2.3	7.2%	6.2-8.5%
	XBB.1.16.1	4.1%	3.4-4.9%
	XBB.1.5.70	3.8%	2.9-4.9%
	XBB.1.16.11	3.0%	2.3-3.8%
	XBB	2.5%	2.1-2.9%
XBB.1.5	2.2%	1.9-2.6%	

- [National](#) molecular test positivity rates by region are shown on the map below. All of the United States is experiencing NAAT (Nucleic Acid Amplification Test) COVID test results above 10%. Nine states (regions six and seven) have positivity rates between 15% and 20% now.

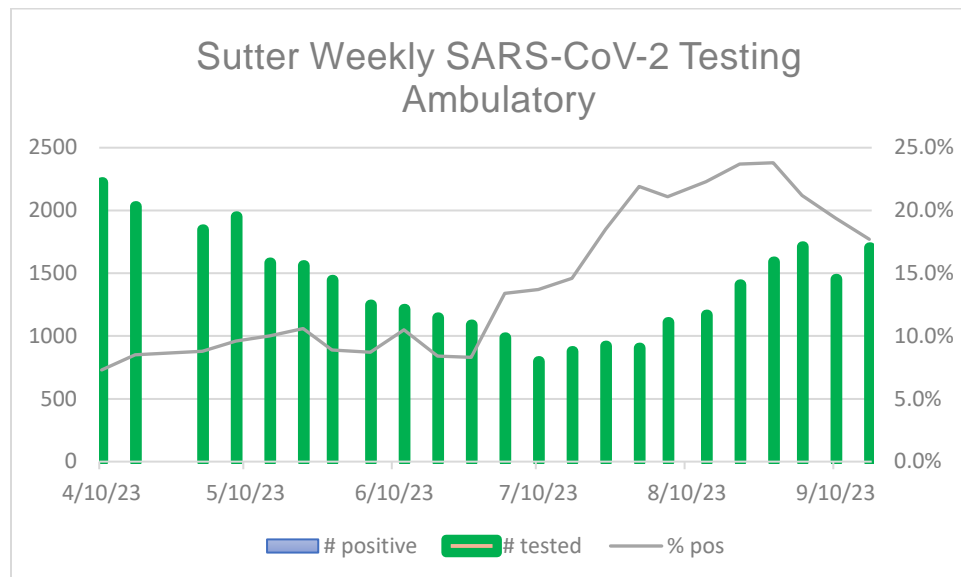
Percent Positivity of COVID-19 Nucleic Acid Amplification Tests (NAATs) in the Past Week by HHS Region – United States



- Updated Sutter emergency department testing (data below) shows decreasing positivity rates with significant levels of testing. This is similar to the decreasing trend in ED visits demonstrated on the first graph in this section. COVID is actively circulating. With rising national testing positivity rates and increasing COVID in wastewater, it is difficult to determine the trend.



- The Sutter Health graph below shows that ambulatory positivity rates have also continued to decline. Testing totals are pretty stable, validating that this decline is likely not related to increased testing of lower-risk persons.



- Testing for COVID on different platforms is well known to cause discrepancies when comparing the molecular test versus the antigen test. What is not discussed very often are discrepancies between the BioFire multiplex respiratory panel and pcr tests e.g., Cepheid.
 - BioFire and Cepheid both have low, similar limits of detection (LoD).
 - They do measure different targets. Cepheid measures the envelope (E), nucleoprotein (N), and RNA dependent RNA polymerase (RdRp), whereas the BioFire panel measures the conserved membrane (M) and the spike (S) proteins. Both products have chosen good targets with some advantages and disadvantages to each.
 - [Journal of Clinical Lab Analysis](#) published a study April 2022, which demonstrated that the Cepheid platform has increased sensitivity in detecting SARS-CoV-2 compared to the BioFire for nasal and nasopharyngeal specimens.
 - Although cases have been observed where the BioFire was positive and Cepheid was negative, the opposite is likely more common.
 - The most important question is what does this mean clinically? The Cepheid uses a high-cycle threshold to maximize sensitivity of their test. The goal at the onset of the pandemic was to never miss the diagnosis. That results in some Cepheid positive tests in persons with low viral loads, very likely not contagious, and a negative BioFire test.
 - This assumes that the specimens were collected and processed properly, and near each other in time.
 - Antigen test would be anticipated to also be negative in that situation.
- **COVID-19 Vaccine:**
 - We expect COVID-19 vaccine to be available to order within Sutter sometime next week, once the distributor is able to send product.
- **COVID-19 Take-Home:**
 - Co-circulation of multiple strains of SARS-CoV-2 continues.
 - BA.2.86 remains less than 1%.
 - Hospitalization rates and wastewater levels continue to trend up, and test positivity rates remain elevated; however, these are much lower than we experienced in previous

surges. This may reflect some increase in virulence; however, emergency department and ambulatory visits secondary to COVID appear to possibly have peaked.

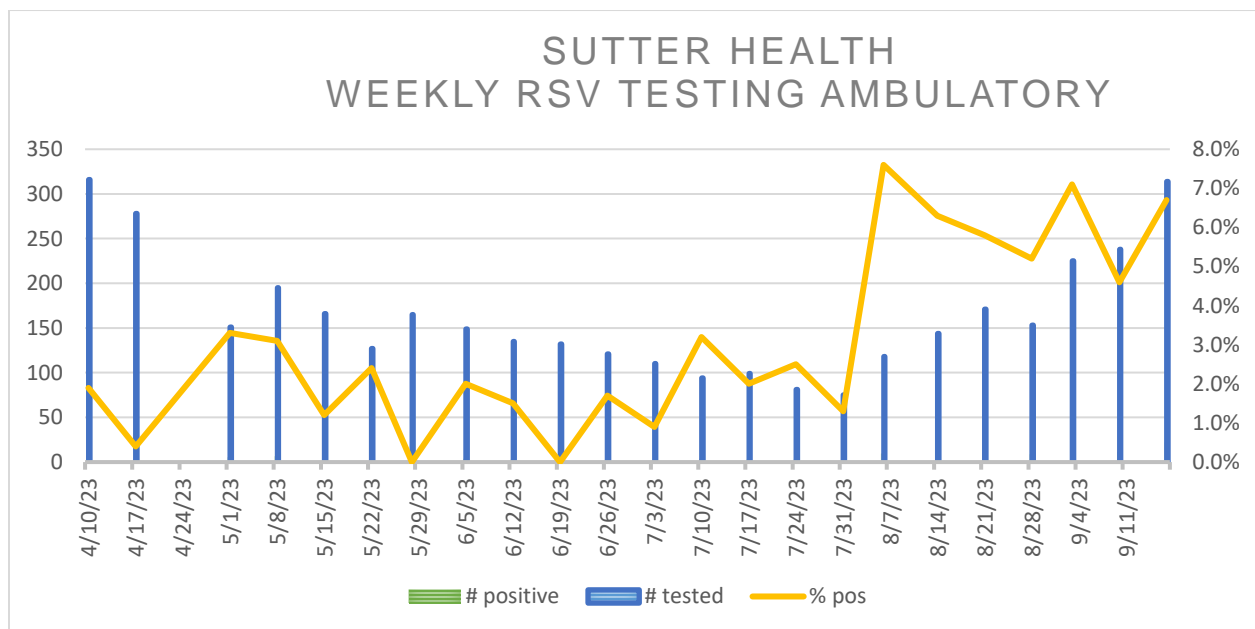
- Sutter ambulatory and emergency department positivity rates are 18% and 12%, respectively.
- COVID testing results between multiplex respiratory panels and pcr tests may not always agree. Presuming equivalency in collection technique, processing and timing between the two specimens, discrepancies likely represent very low viral load and non-contagion.
- Distribution of the long awaited, monovalent, XBB-based, 2023-24 COVID vaccine has begun in some chain stores and is anticipated to reach health care systems sometime next week.
 - This is a new vaccine formulation and not just a booster.

• **Related Links**

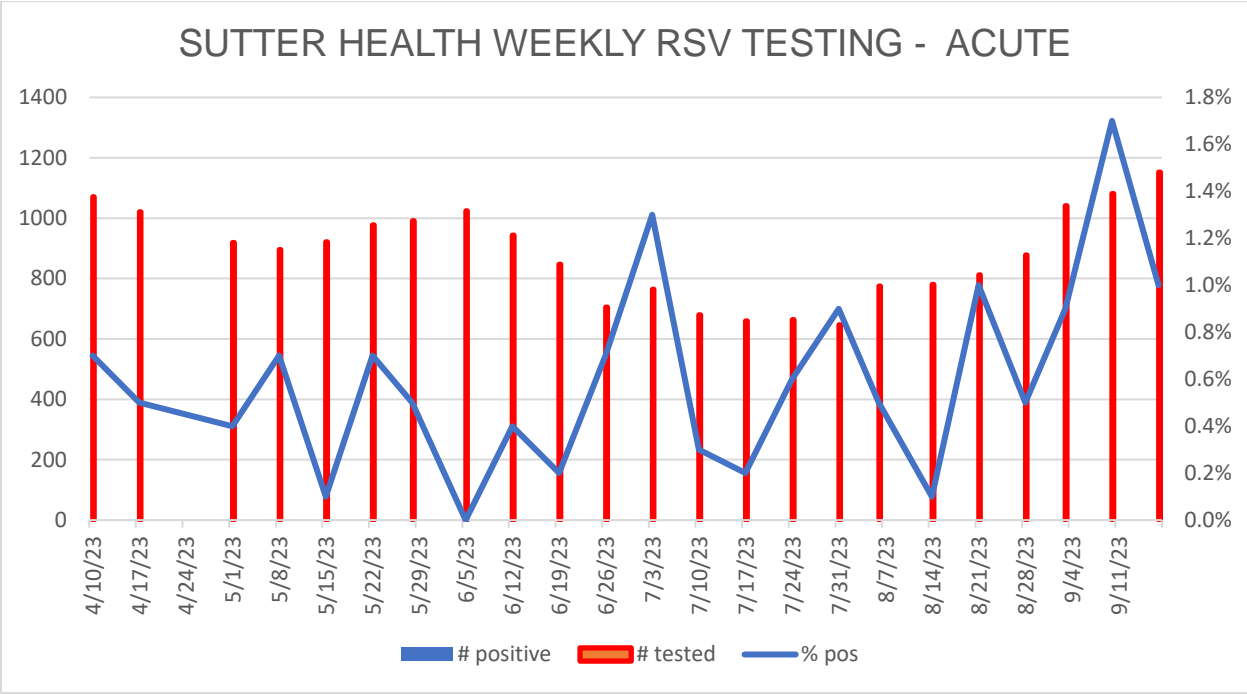
- [CDC Caring for Patients](#)
- [CDC Data Tracker](#)
- [CDC Latest Updates](#)
- [CDC Vaccine Information](#)
- [CDPH Tracking and Vaccination Updates](#)
- [Sutter Health for Clinicians](#)
- [Sutter Health for Patients](#)
- [WHO Table of Contents](#)

RSV

- RSV is still being identified in the ambulatory setting. The amount of testing in ambulatory is gradually increasing and positivity rates are well above the 3% threshold for 7 weeks now. The week ending Sept.17 had 314 tests ordered. This reflects a 32% increase in testing compared to the prior week with a sustained increased positivity rate. See graph below.



- ED positivity rates remain below 3%. The number of tests being performed has also continued to increase.



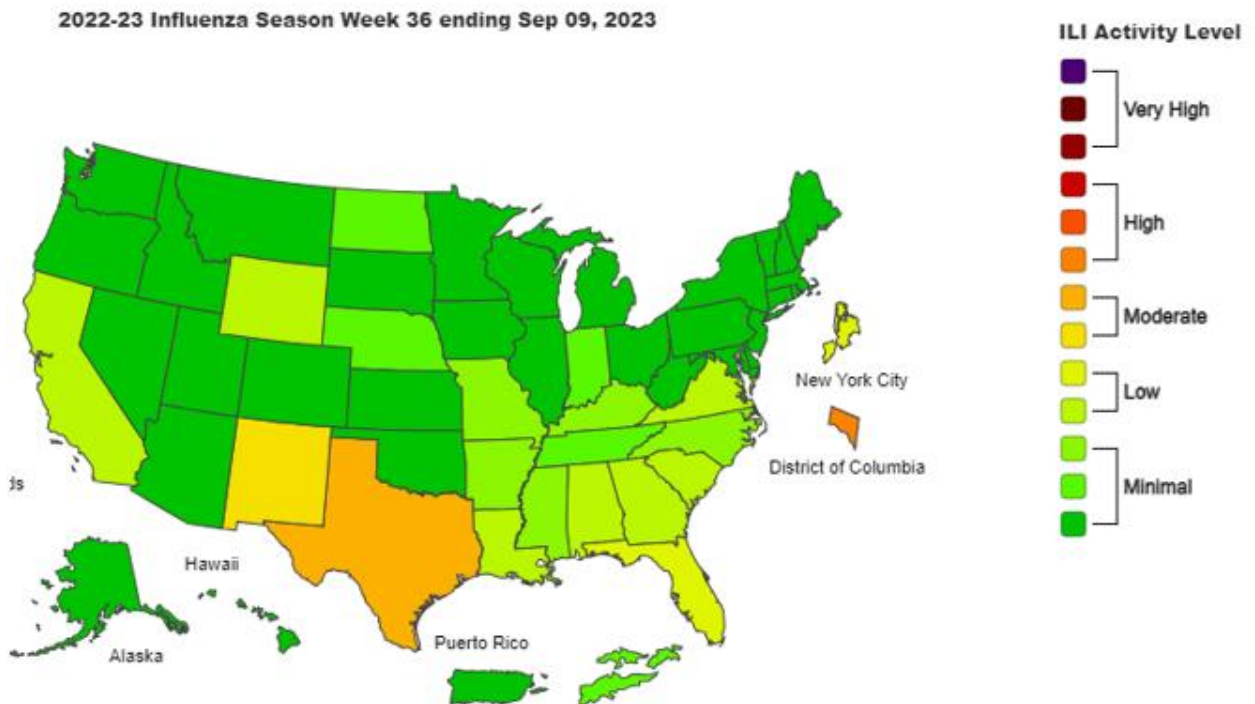
- The following table breaks down the RSV testing results by age in the week ending Sept. 17. Testing numbers are increasing. In the last week, positivity rates in children less than 6 years old has increased from 6.2% to 11.5% in the ambulatory environment.

Location	<6 years old		Less than 18 years old		18 years old and older	
	Number Tested	% Positive	Number Tested	% Positive	Number Tested	% Positive
Ambulatory	156	11.5%	207	9.2%	107	1.9%
Acute (ED)	340	2.6%	464	1.9%	688	0.4%

- Most of the increased RSV activity continues to be identified in children less than 6 years old, in the ambulatory environment, and probably reflects mild disease.
- RSV Vaccine:**
 - Sutter Health began offering RSV vaccines to adults 60 years of age and older in most primary and urgent care settings last week. The CDC ACIP Committee meets to discuss recommendations for Abrysvo™ in the maternal population this Friday.
- RSV Take-Home:**
 - RSV is being identified in Northern California in increasing numbers, mostly in outpatient children less than 6 years old.
 - Rates in that population continue to exceed 3%.

Influenza

- The [CDC](#)-generated map below shows influenza-like activity (ILI) in different states. This is defined as fever plus a cough or sore throat. Compared to the prior week, Texas and the District of Columbia have increased to high (orange). Three states are now moderate. A few other states, including California have increased from minimal to low.



- Nationally, influenza positivity rates remain low, at 0.7%. Influenza A is identified twice as often as Influenza B

	Week 36
No. of specimens tested	36,600
No. of positive specimens (%)	253 (0.7%)
<i>Positive specimens by type</i>	
Influenza A	167 (66.0%)
Influenza B	86 (34.0%)

- Influenza Take-Home:**

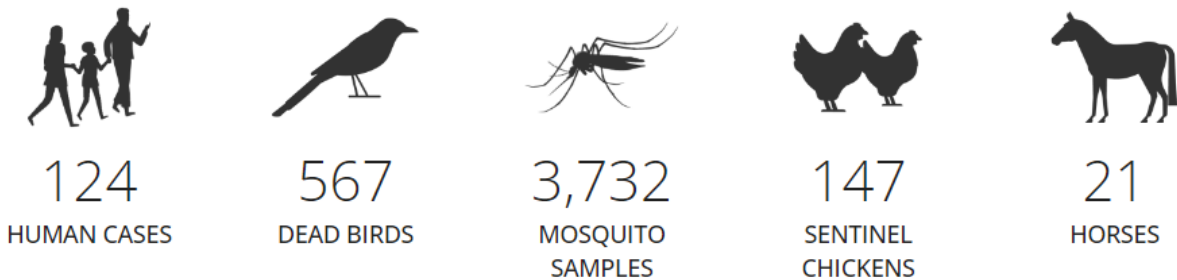
- ILLI, used as a surrogate for influenza activity, is increasing in some parts of the United States.
- Influenza test positivity rates of about 1% suggest that this map surrogate may be representing viruses other than influenza at this time.

West Nile Virus (WNV)

- California has the second-highest number of reported cases of [WNV in the United States](#) [this](#) year. Colorado leads with 243 cases.
- In the last week, year-to-date totals for reported cases in humans in [California](#) increased 26 from 98 to 124 (pictograph below). This is twice the five-year state average looking at calendar week 1- week 37 (graph below pictograph).

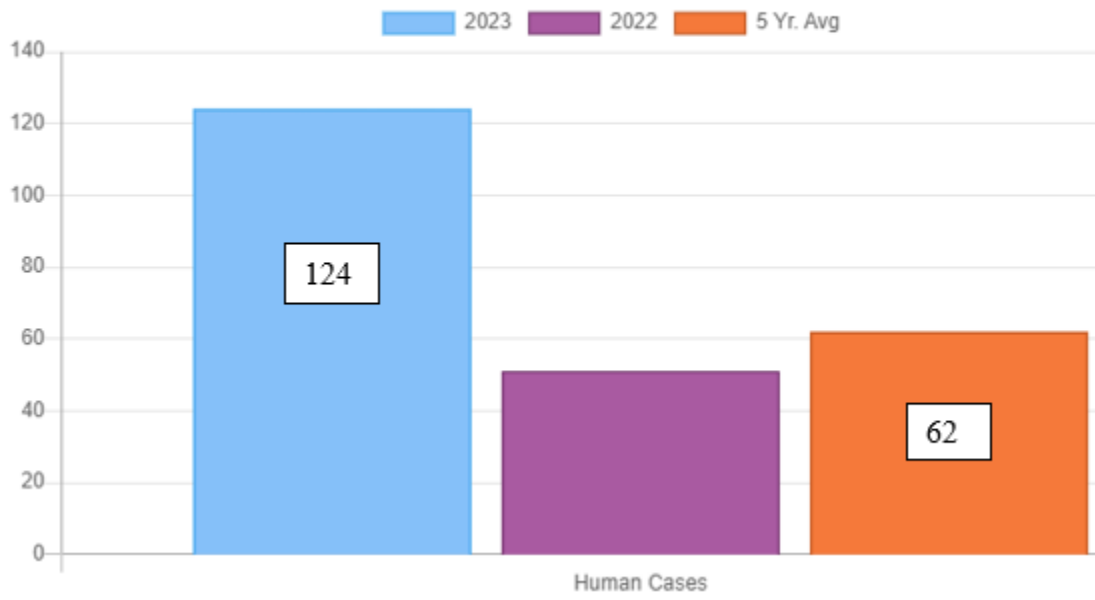
2023 WEST NILE VIRUS ACTIVITY IN CALIFORNIA

LAST UPDATED: SEP 15, 2023 4:59PM PST

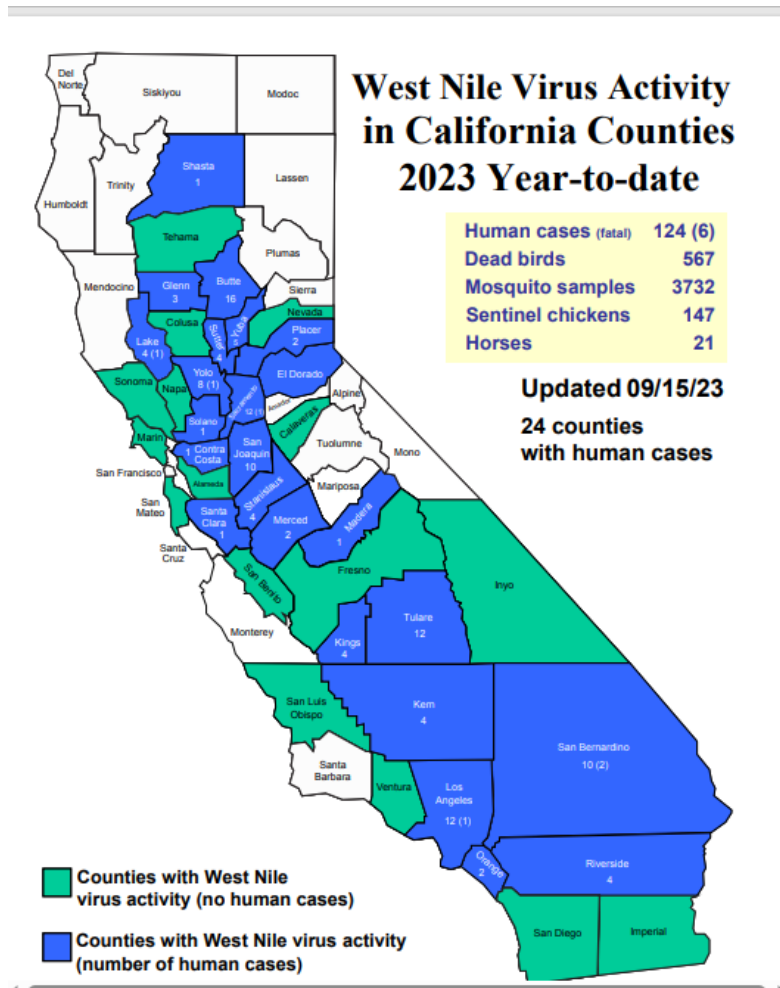


WEEK 1 - WEEK 37 AS OF SEP 15, 2023

Tip: Hover over or click on graph bars for details



- The latest CDPH map below demonstrates the widespread distribution of WNV activity. The main difference from the prior map is the significant increase in identification of WNV in all five animal categories.



- **West Nile Virus in California Take-Home Message**
 - Reported cases of WNV in humans, mosquitoes, dead birds, sentinel chickens and horses have continued to increase.
 - California has the second-highest number of reported cases in people, now up to 124.
 - Numbers are anticipated to continue to increase through September. [Historically](#), newly identified cases drop by 80% in October.

Share the Newsletter

Anyone who would like to be added to the Emerging Infections newsletter should send a request to bryan.gardner@sutterhealth.org

This communication is intended for clinicians caring for Sutter patients. If you have questions, please reach out to us at clinicians@sutterhealth.org.

