County of Riverside Weekly Influenza Surveillance Report

2023 CDC Disease Week 41 (10/8/2023-10/14/2023), Issue 2

Indicators at-a-glance

- ▲0.6% ED/ER ILI
- ▲0.3% Outpatient ILI
- ▶0 Severe Cases
- ▶0 Outbreaks
- ▲12 Positive ELR
- ▲1.4% Positivity
- ▲21 P&I Deaths
- ▲1.5% Vaccinations

Key messages

- Influenza activity in Riverside County is minimal.
- Influenza A is the predominant virus during this season.
- Annual influenza vaccination is recommended for all persons aged ≥6 months who do not have contraindications.

Influenza (flu) is a contagious respiratory illness caused by influenza viruses that infect the nose, throat, and lungs. Some people, such as older people, young children, and people with certain health conditions, are at higher risk for serious flu complications. According to the Centers for Disease Control and Prevention (CDC) Weekly Influenza Surveillance Report and California Department of Public Health (CDPH) Influenza, RSV and Other Respiratory Viruses Weekly Report (Figures 1-2), the current influenza-like illness (ILI) activity level in Riverside County is minimal[1, 2]. Riverside County collects influenza data through a variety of sources, including CDC's Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE), California Reportable Disease Information Exchange (CalREDIE), California Integrated Vital Records System (Cal-IVRS), California Immunization Registry (CAIR), Riverside County Public Health Laboratory, Riverside University Health System-Medical Center (RUHS-MC) and sentinel providers. This report summarizes the current influenza surveillance data in the county.

Figure 1. National ILI Activity Level Map from CDC, Week 41

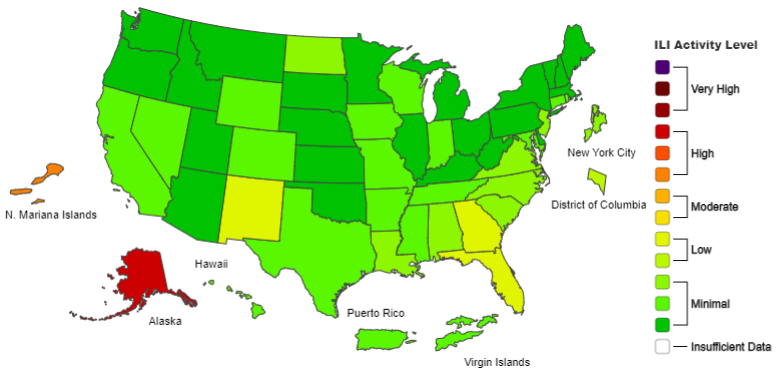
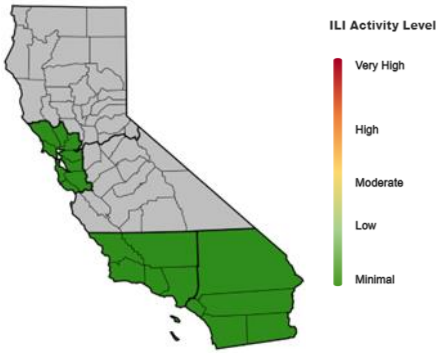


Figure 2. State ILI Activity Level Map from CDPH, Week 41



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Emergency Department Syndromic Surveillance

Emergency department (ED) data are retrieved from ESSENCE. ILI records were captured based on chief complaints and discharge diagnosis. During week 41, ILI accounted for 2.5% (N=411) of all ED visits in Riverside County (Figures 3-4). Comparing to the previous week, ILI-related ED visits increased by 0.6%. ILI-related ED visits occurred across all age groups (Figure 5). However, after adjustment for age[3], children aged 0-4 accounted for 69.0% of all ILI-related ED visits during this influenza season (Figure 6).

Figure 3. Number of ILI-related ED Visits by Week

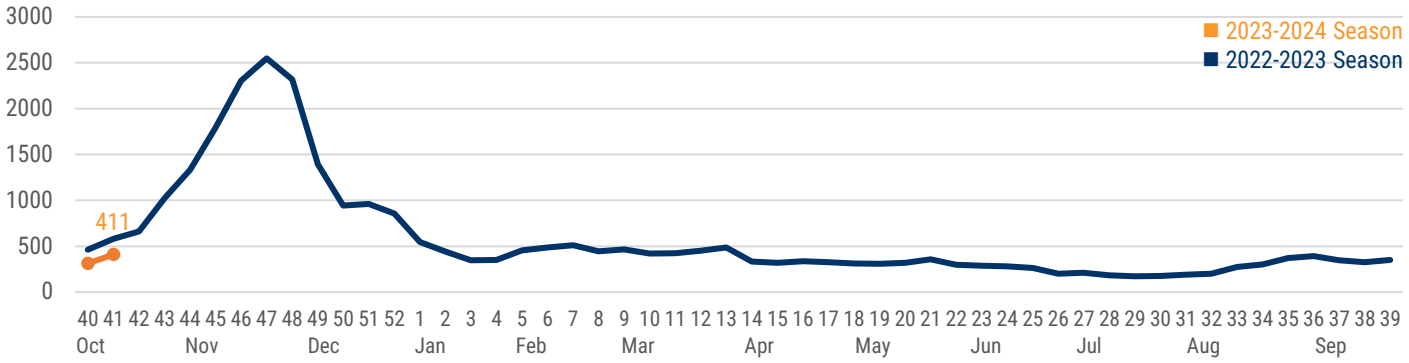


Figure 4. Percentage of ILI-related ED Visits by Week

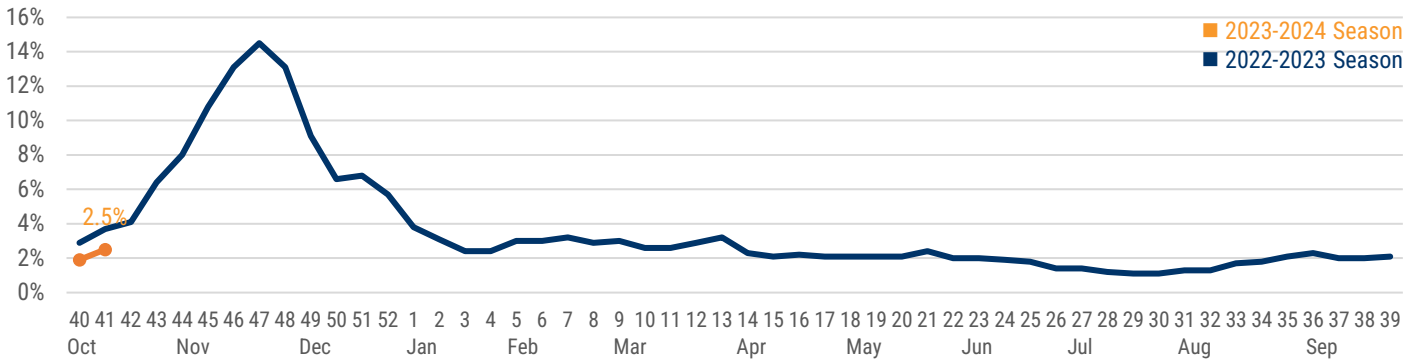


Figure 5. Percentage of ILI-related ED Visits by Age Group and Week

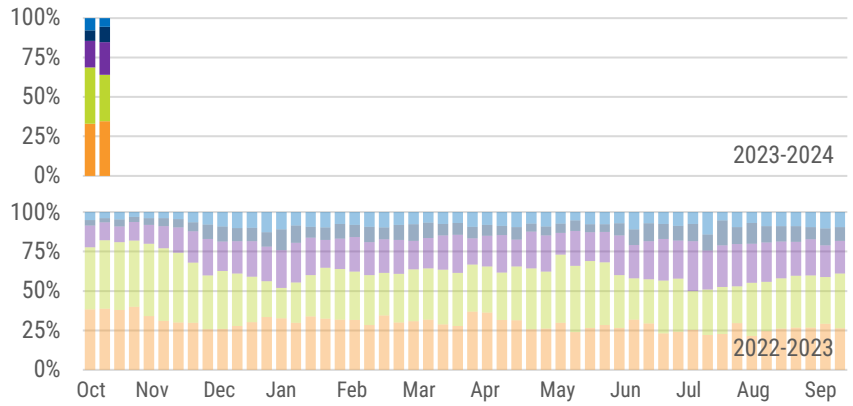
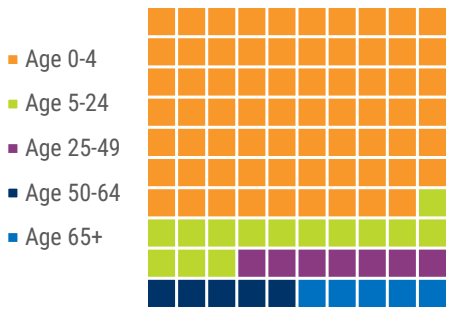


Figure 6. Cumulative Age-adjusted Proportion of ILI-related ED Visits by Age Group, 2023-2024



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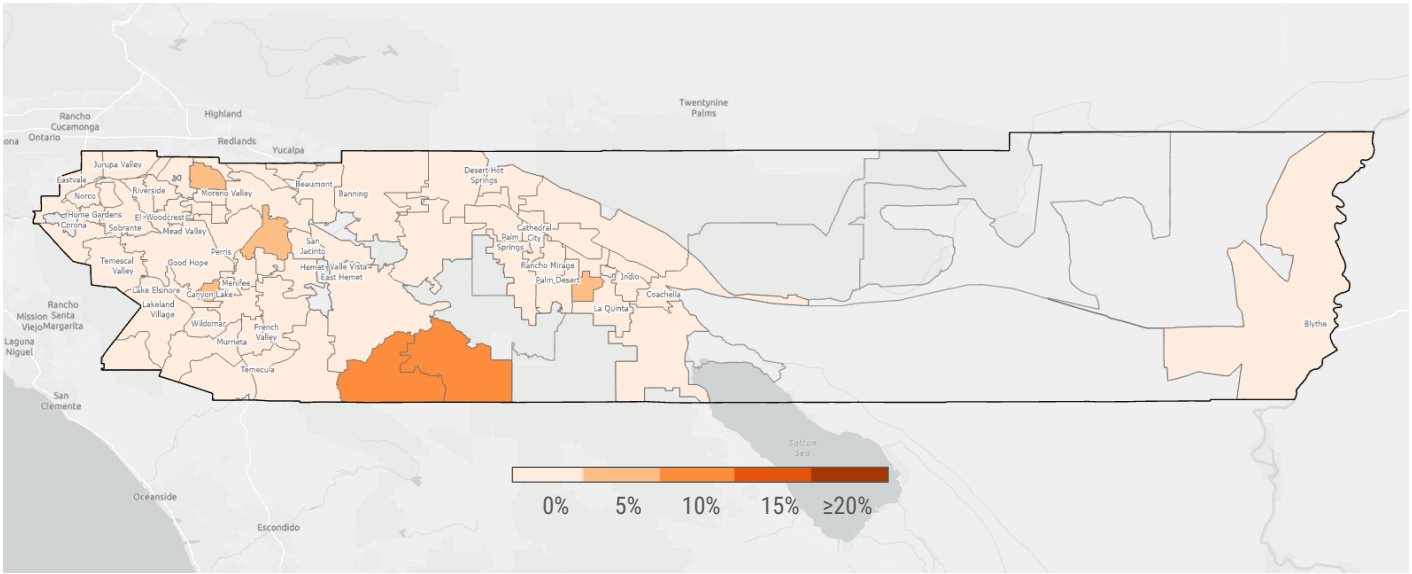
Emergency Department Syndromic Surveillance

In order to better understand the potential geographic differences in ILI activity level, a heat map was produced based on the percentage of ILI-related ED visits over the total ED visits by patient's zip code (Figure 7). Areas with higher ILI levels could be considered for additional outreach regarding prevention and mitigation of respiratory illnesses.

Figure 7. Percentage of ILI-related ED Visits by Patient's Zip Code, Week 41



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Outpatient Service Syndromic Surveillance

RUHS-MC reports ILI-related outpatient visits weekly, including any face-to-face, phone and video visits. ILI records were retrieved based on visit diagnosis, which was not laboratory-confirmed. During week 41, the percentage of outpatient visits attributed to ILI was 2.6% (N=175) with an increase of 0.3% than the previous week (Figures 8-9). Similarly, ILI-related outpatients visits occurred across all age groups (Figure 10). After adjustment for age[3], children aged 0-4 accounted for 50.4% of all ILI-related outpatient visits during this influenza season (Figure 11).

Figure 8. Number of ILI-related Outpatient Visits by Week

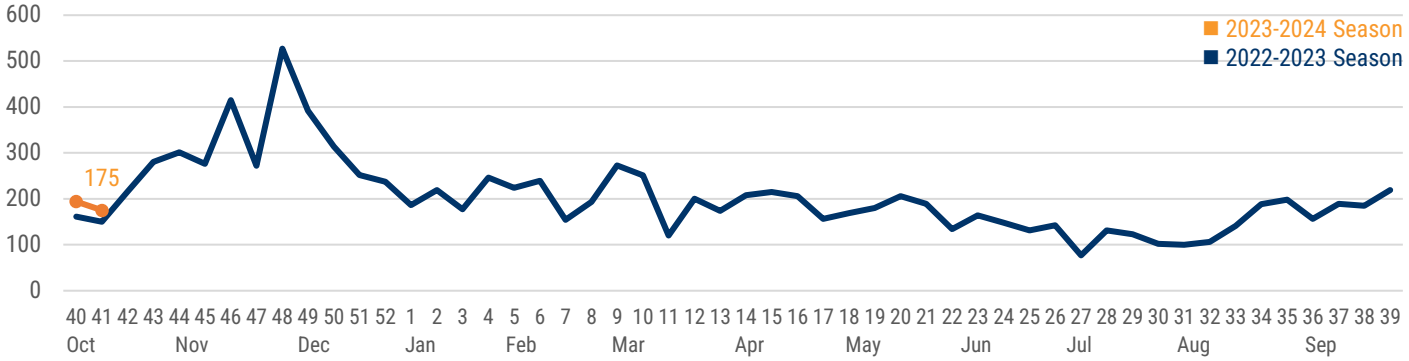


Figure 9. Percentage of ILI-related Outpatient Visits by Week

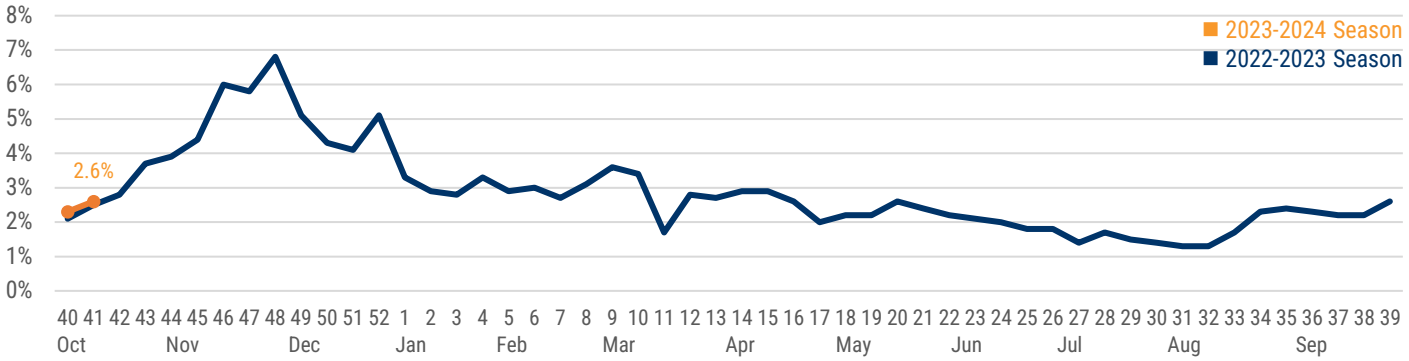


Figure 10. Percentage of ILI-related Outpatient Visits by Age Group and Week

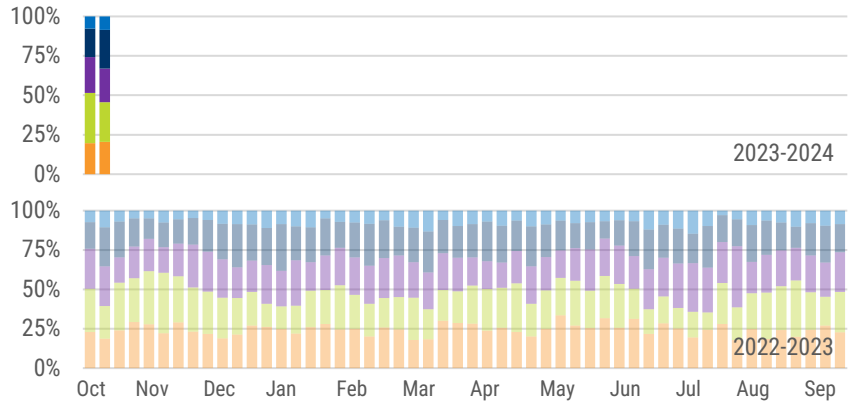
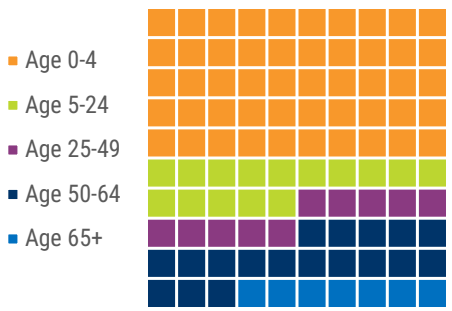


Figure 11. Cumulative Age-adjusted Proportion of ILI-related ED Visits by Age Group, 2023-2024



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Severe Influenza Cases and Influenza-Associated Outbreaks

CDPH requires mandatory reporting of laboratory-confirmed influenza-associated fatal pediatric cases <18 years of age. In addition, Riverside County Public Health requires mandatory reporting of influenza ICU and associated deaths in laboratory-confirmed cases for ages 0-64 years. Severe influenza case data were retrieved from CalREDIE. To date, no influenza-associated fatal cases or ICU cases have been reported during this season (Table 1).

Table 1. Severe Influenza Cases, This Week and Season to Date

	Fatal Cases 0-17 Years	Fatal Cases 18-64 Years	ICU Cases 0-64 Years
Week 41	0	0	0
Season To Date	0	0	0

CDPH requires mandatory reporting of any respiratory disease outbreak, including influenza. Outbreak is defined as two or more cases of ILI (from separate households) in a setting within a 72-hour period with at least one case of laboratory-confirmed influenza. ILI is defined as fever (>37.8ºC or 100ºF) and either cough or sore throat in the absence of a known cause other than influenza. During week 40, no influenza-associated outbreaks were reported. To date, no influenza-associated outbreaks have been reported during this influenza season.

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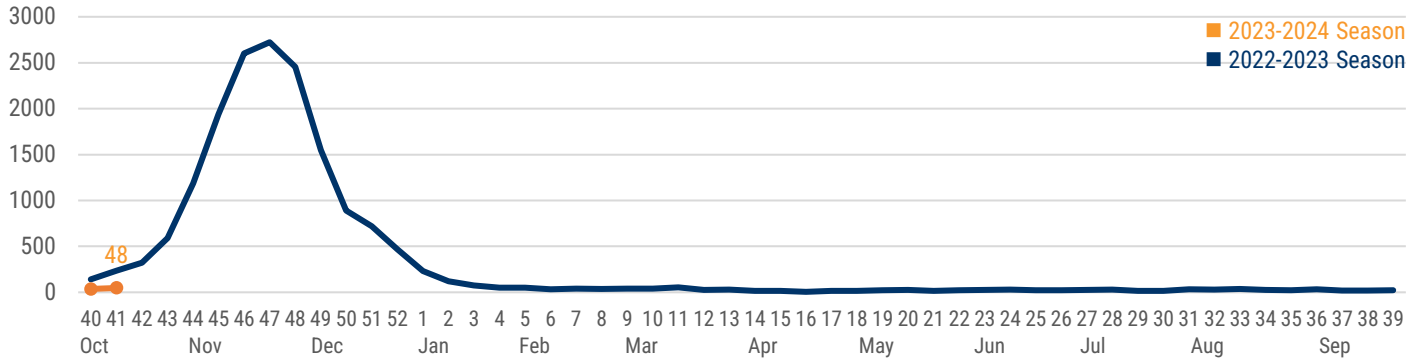
Electronic Laboratory Reporting Summary

Per Title 17, California Code of Regulations section 2505, laboratory results for influenza are required to be reported, including all positive and non-positive (negative, indeterminate, etc.) test results from both nucleic acid amplification tests (NAAT) and non-NAAT diagnostic tests (e.g., high throughput antigen tests) are reportable within one day from facilities certified under CLIA to perform non-waived (moderate- or high-complexity) testing. However, non-positive test results are not consistently reported by laboratories. Hence, positivity rates cannot be calculated based on the data from Electronic Laboratory Reporting (ELR). During week 41, 48 positive influenza laboratory results were reported with 12 more compared with the previous week (Figure 12).

Figure 12. Number of Positive Influenza Laboratory Results by Week



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Clinical Laboratory Surveillance

For a better estimate of positivity rate, influenza laboratory data from RUHS-MC are analyzed, which include all positive and non-positive test results. During week 41, 190 specimens were tested and 7 of them (3.7%) were positive for influenza virus (Figures 13-14). Influenza A was the dominant strain, accounting for 85.7% of positive specimens. Between weeks 40 and 41, the cumulative positivity rate for influenza was 3.0%, higher than the California average of 1.3% and the national average of 1.2%[2, 5] (Table 2).

Figure 13. Number of Positive Influenza Specimens by Week

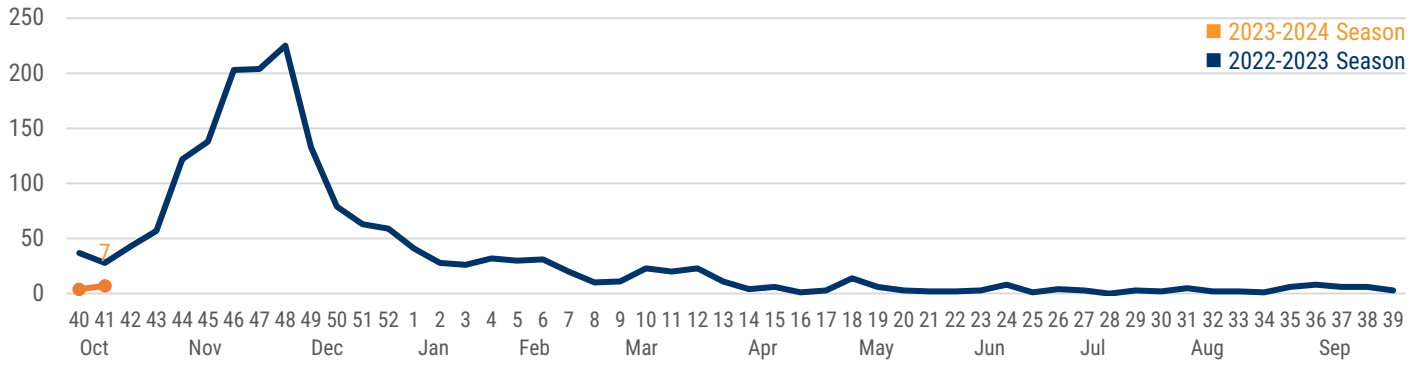

Figure 14. Positivity Rate by Week

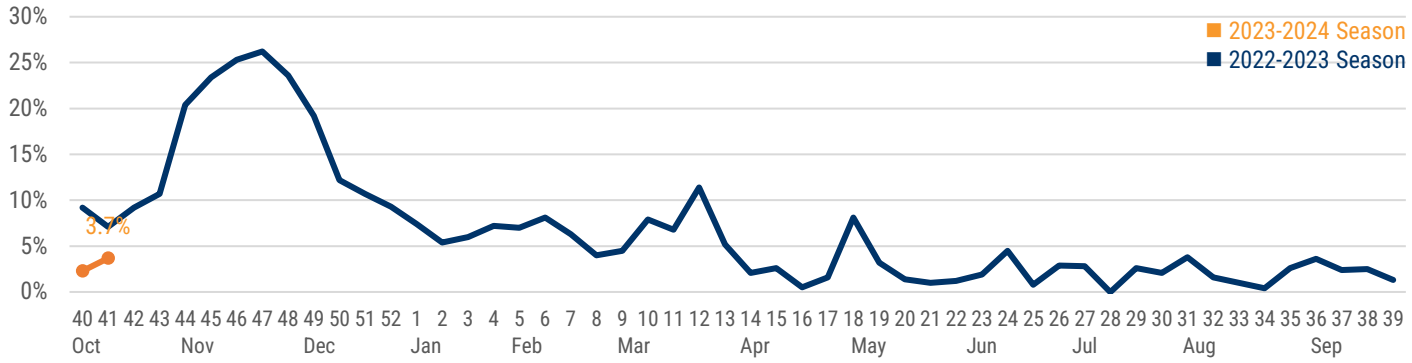

Table 2. Specimens Tested for Influenza by Type, This Week and Season to Date

	Riverside County		California[2]		Nationwide[5]	
	Week 41	Data Cumulative Since Week 40	Week 41	Data Cumulative Since Week 40	Week 41	Data Cumulative Since Week 40
Specimens Tested	190	363	4,650	9,155	49,312	108,688
Positive Specimens	7 (3.7%)	11 (3.0%)	63 (1.4%)	121 (1.3%)	661 (1.3%)	1,294 (1.2%)
Positive Specimens by Type						
Influenza A	6 (85.7%)	9 (81.8%)	55 (87.3%)	104 (86.0%)	457 (69.1%)	853 (65.9%)
Influenza B	1 (14.3%)	2 (18.2%)	8 (12.7%)	17 (14.0%)	204 (30.9%)	441 (34.1%)

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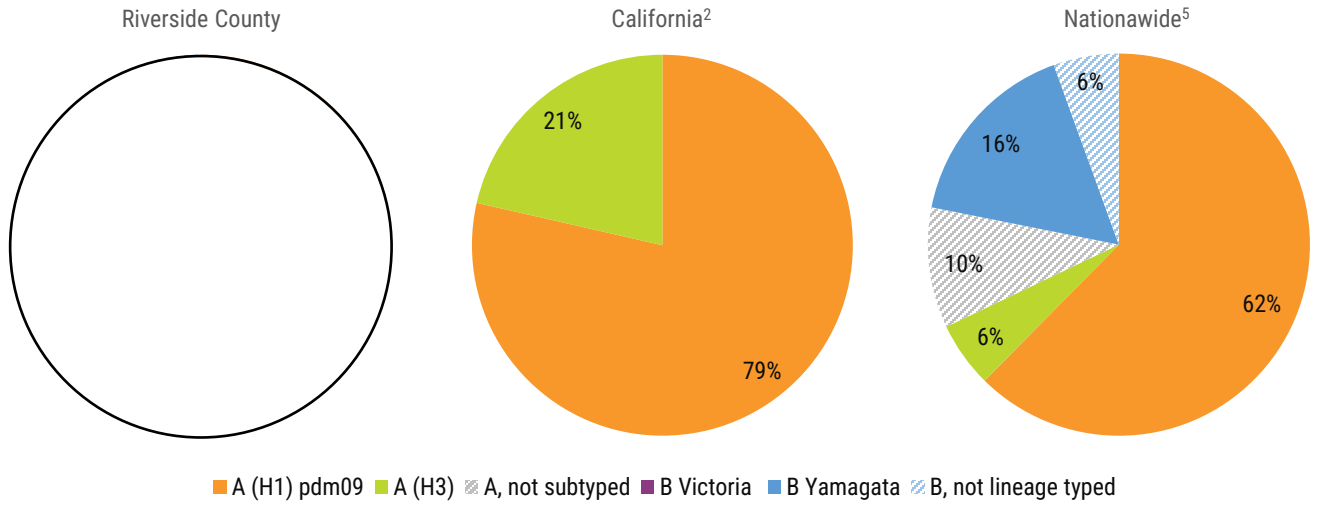
Public Health Laboratory Surveillance

Public Health Laboratory Surveillance is important for influenza virus characterization and early detection of novel viruses. Riverside County Public Health Laboratory actively requests positive specimens from clinical laboratories in Riverside County and monitors the proportion of circulating viruses that belong to each influenza subtype or lineage. During week 41, 0 positive specimen had been subtyped (Table 3 and Figure 15).

Table 3. Influenza Specimens by Subtype or Lineage, This Week and Season to Date

	Riverside County		California[2]		Nationwide[5]	
	Week 41	Data Cumulative Since Week 40	Week 41	Data Cumulative Since Week 40	Week 41	Data Cumulative Since Week 40
A positive specimens tested	0	0	8	14	124	268
A (H1) pdm09	0	0	5	11	93	214
A (H3)	0	0	3	3	6	19
A, not subtyped	0	0	0	0	25	35
B positive specimens tested	0	0	0	0	35	75
B Victoria	0	0	0	0	0	0
B Yamagata	0	0	0	0	26	56
B, not lineage typed	0	0	0	0	9	19

Figure 15. Percentage of Influenza Strains by Subtype/Lineage, This Week and Season to Date



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Deaths Registered with Either or Both of Pneumonia and Influenza

Pneumonia and influenza (P&I) are among the leading causes of death in the United States, accounting for over 1.2% of all deaths in 2021[6]. During week 41, 3.2% (N=5) of deaths were due, in part, to P&I in Riverside County (Figures 15-16). Between weeks 40 and 41, the cumulative proportion of P&I death was 6.7%. P&I deaths in the recent weeks may be undercounted because of the lengthy death certificate processing time. Newly identified P&I deaths will be added to the according week. Overall, people aged 65+ accounted for the majority of P&I deaths in Riverside County and very few P&I deaths happened among young people aged 0-24 (Table 4). Pneumonia, rather than influenza, contributed to the vast majority of P&I deaths, which were largely affected by other pneumonia causing diseases such as SARS-CoV-2.

Figure 16. Number of P&I Deaths by Week

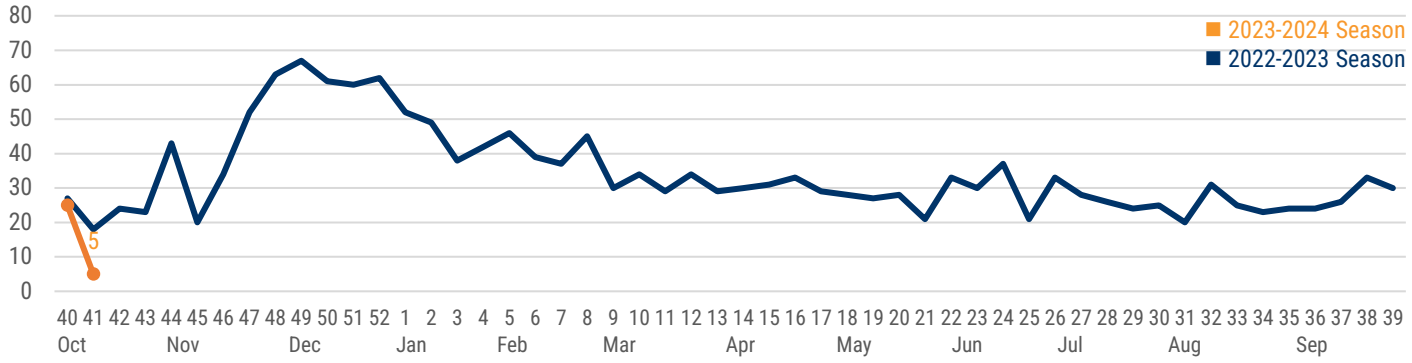

Figure 17. Percentage of P&I Deaths by Week

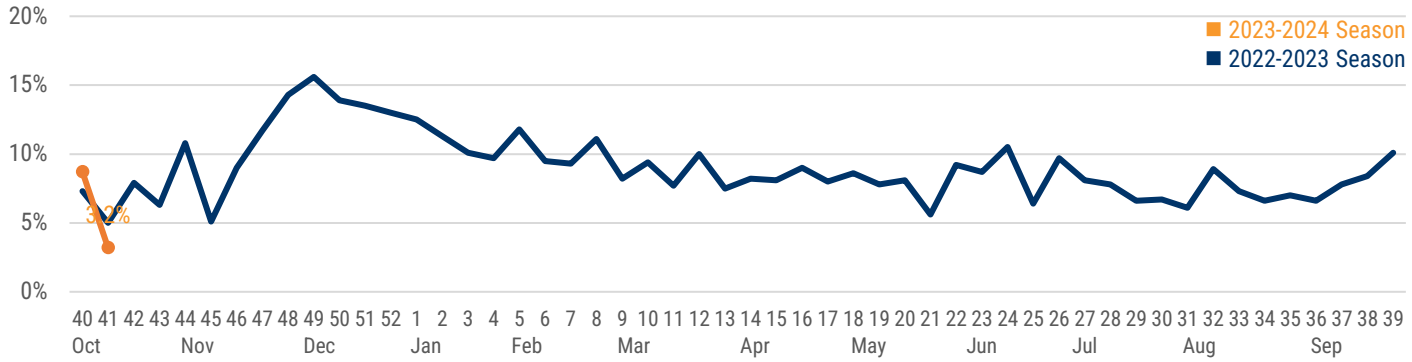

Table 4. Percentage of P&I Deaths by Age Group, Season to Date

	Age 0-4	Age 5-24	Age 25-49	Age 50-64	Age 65+	Total
P&I Death & Percent	0 (0.%)	0 (0%)	2 (6.7%)	3 (10.0%)	25 (83.3%)	30

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Influenza Vaccinations

Influenza causes millions of illnesses, hundreds of thousands of hospitalizations and tens of thousands of deaths in the United States, but less than half of Americans get an annual flu vaccine. Flu vaccine distribution generally begins in August and continues until all of the vaccines are distributed. The date of first dose was used for those who received two doses of flu vaccine. By the end of week 41, 11.4% of residents in Riverside County (N=280,392) had received a flu vaccine, 0.1% higher than the corresponding cumulative coverage rate during the 2022-2023 influenza season (Figures 18-19). Vaccination coverage was highest among people aged 65+ and lowest among people aged 5-24 (Table 5). Only 86.9% of the records had valid race and ethnicity information. Latinx were largely underrepresented than their counterparts (Table 6). Please note currently providers are not required to submit flu vaccine data to CAIR. Therefore, the vaccinated population may be underestimated.

Figure 18. Number of Riverside County Residents Vaccinated for Influenza, August 2023-Present

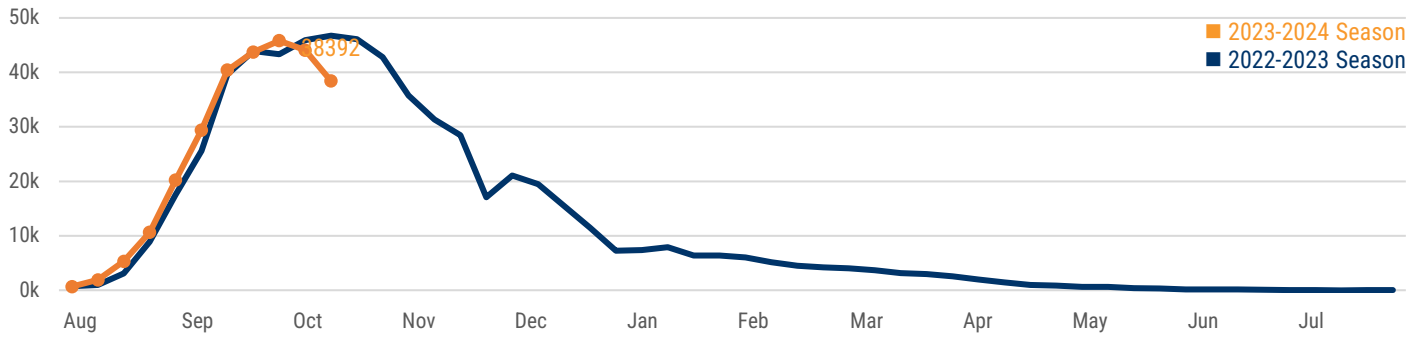

Figure 19. Influenza Vaccination Coverage among Riverside County Residents, August 2023-Present

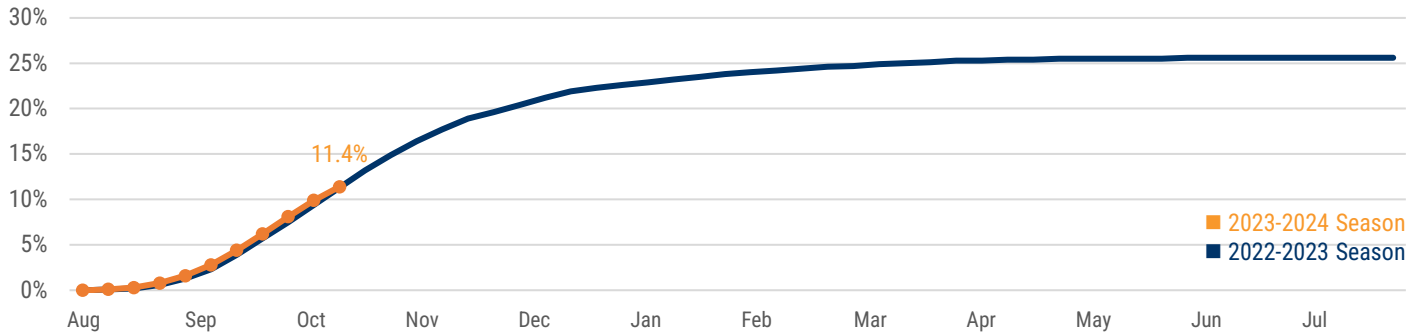

Table 5. Riverside County Residents Vaccinated for Influenza by Age Group, August 2023-Present

	Age 0-4	Age 5-24	Age 25-49	Age 50-64	Age 65+	Total
Influenza Vaccination & Percent	11,180 (7.9%)	37,592 (5.6%)	52,704 (6.5%)	63,279 (14.6%)	115,637 (29.6%)	280,392 (11.4%)

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Influenza Vaccinations

Table 6. Influenza Vaccinations by Racial/Ethnic Group in Riverside County, August 2023-Present

	American Indian or Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Black or African American	White	Latinx	Multiracial
Influenza Vaccination & Proportion	977 (0.4%)	24,938 (10.2%)	1,219 (0.5%)	15,296 (6.3%)	114,060 (46.8%)	77,798 (31.9%)	9,390 (3.9%)
Proportion Based on Standard Population[3]	0.5%	6.9%	0.3%	6.3%	32.2%	51.4%	2.5%
Representation	Under by 0.1%	Over by 3.3%	Over by 0.2%	Equal	Over by 14.6%	Under by 19.5%	Over by 1.4%

Public Health Recommendations

The best way to reduce risk from seasonal flu infection and its potentially serious complications is to get vaccinated annually. Flu vaccines are designed to protect against the four viruses that will be most common this influenza season and are recommended for individuals 6 months and older. Flu vaccines for the 2023-2024 influenza season are available now. COVID-19 preventive measures, such as social distancing, hand washing, and mask wearing, can also effectively prevent influenza.

References

1. Weekly US Map: Influenza Summary Update: https://www.cdc.gov/flu/weekly/usmap.htm
2. Influenza, RSV and Other Respiratory Viruses Weekly Report: https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/Influenza.aspx
3. Riverside population estimates were retrieved from California Department of Finance: https://dof.ca.gov/forecasting/demographics/projections/
4. National and regional baseline information for outpatient illness surveillance: https://www.cdc.gov/flu/weekly/overview.htm
5. U.S. Virologic Surveillance: https://www.cdc.gov/flu/weekly/index.htm#ClinicalLaboratories
6. Mortality in the United States, 2021: https://www.cdc.gov/nchs/data/databriefs/db456.pdf

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