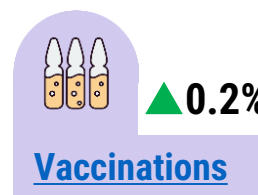
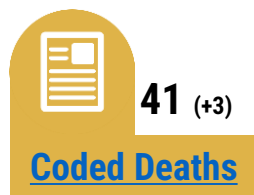
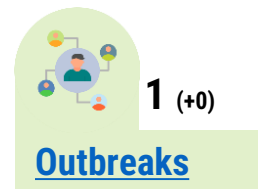
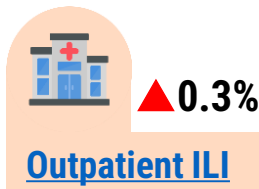
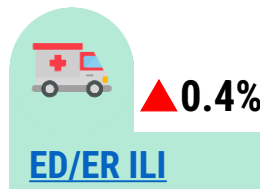


County of Riverside Weekly Influenza Surveillance Report

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Indicators at-a-glance



Key messages

- Influenza activity in Riverside County is Low. Influenza A is the predominant virus during this season.
- Public Health Advisory for Influenza and Other Common Transmissible Respiratory Illnesses is available [here](#).
- Riverside County Respiratory Illness (COVID-19, influenza, and RSV) Dashboard is available [here](#).
- Lower vaccination coverage has been observed.
- 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. Based on the Centers for Disease Control and Prevention (CDC) Weekly Influenza Surveillance Report, the California Department of Public Health (CDPH) Influenza, RSV and Other Respiratory Viruses Weekly Report (Figures 1-2) and local positivity rate data (Figure 14), the current influenza-like illness (ILI) activity level in Riverside County is Low^{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 7

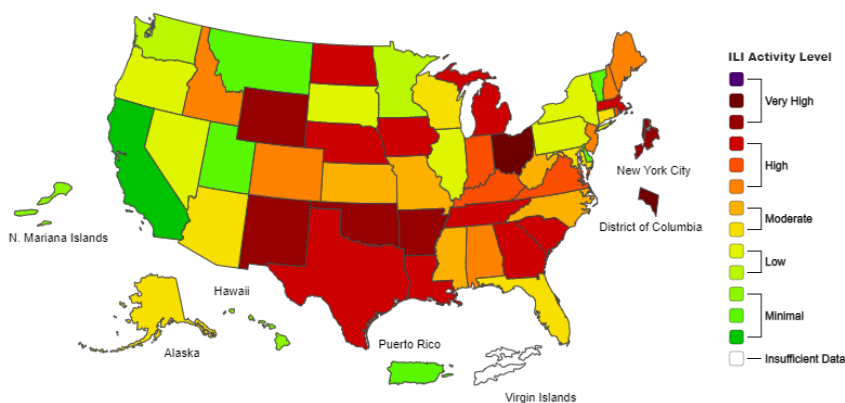
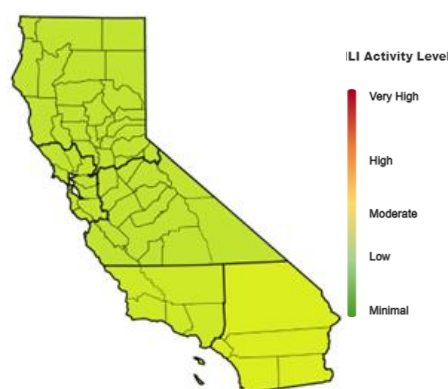


Figure 2. State ILI Activity Level Map from CDPH, Week 7



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Emergency Department Syndromic Surveillance

Emergency department (ED) data are retrieved from ESSENCE, in which sixteen out of the seventeen acute care hospitals in Riverside County are currently participating. ILI records were captured based on chief complaints and discharge diagnosis. During week 7, ILI accounted for 3.3% (N=560) of all ED visits in Riverside County (Figures 3-4). Comparing to the previous week, ILI-related ED visits increased by 0.4%. ILI-related ED visits occurred across all age groups (Figure 5). However, after adjustment for age³, children aged 0-4 accounted for 58.3% of all ILI-related ED visits during this influenza season (Figure 6).

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

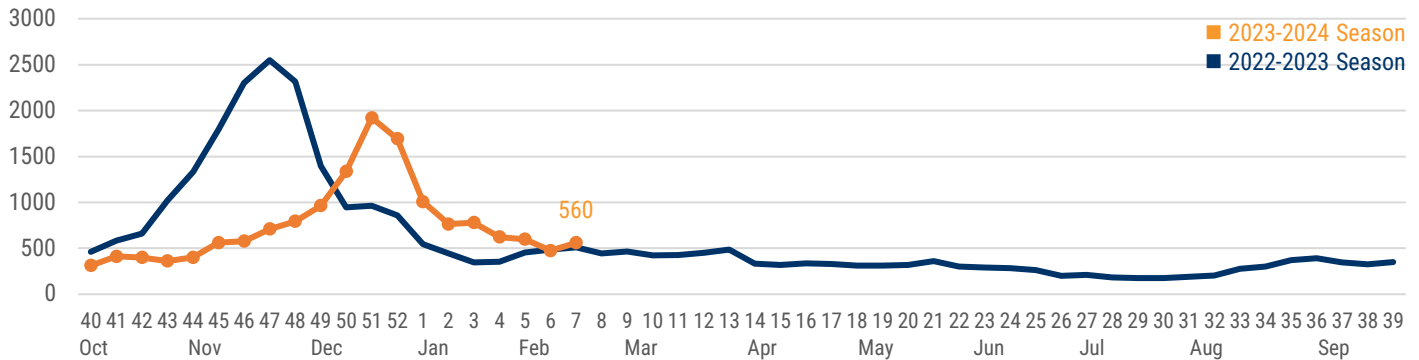


Figure 4. Percentage of ILI-related ED Visits by Week

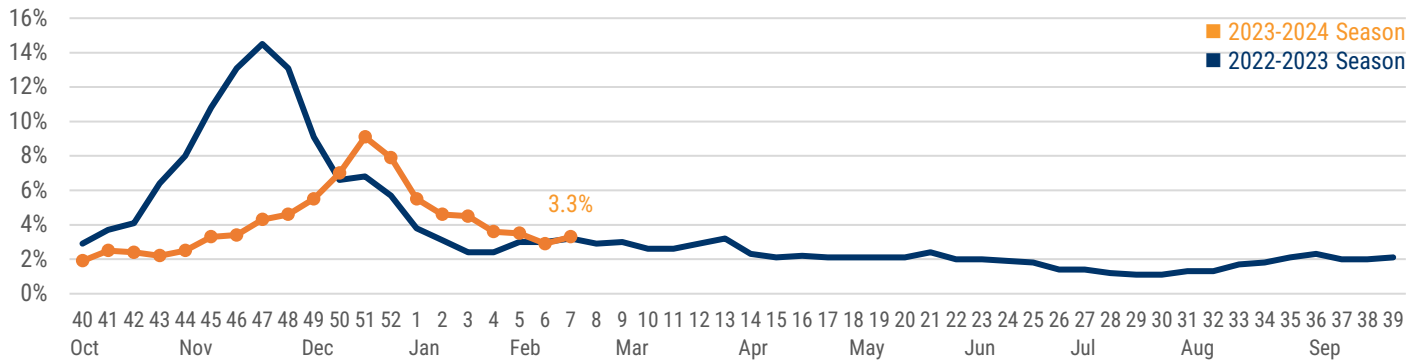


Figure 5. Percentage of ILI-related ED Visits by Age Group and Week

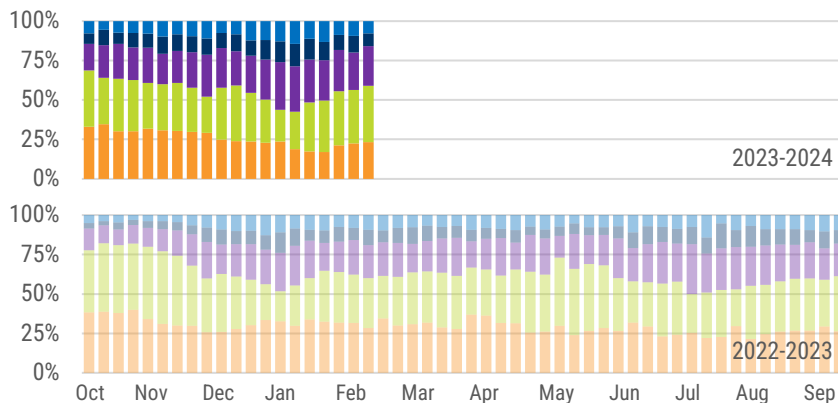
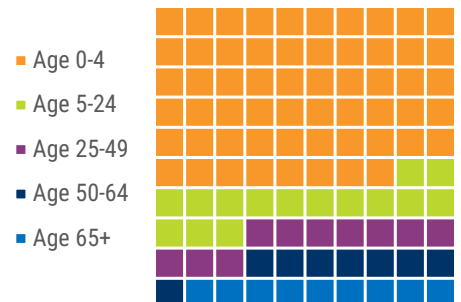


Figure 6. Cumulative Age-adjusted Proportion of ILI-related ED Visits by Age Group, 2023-2024



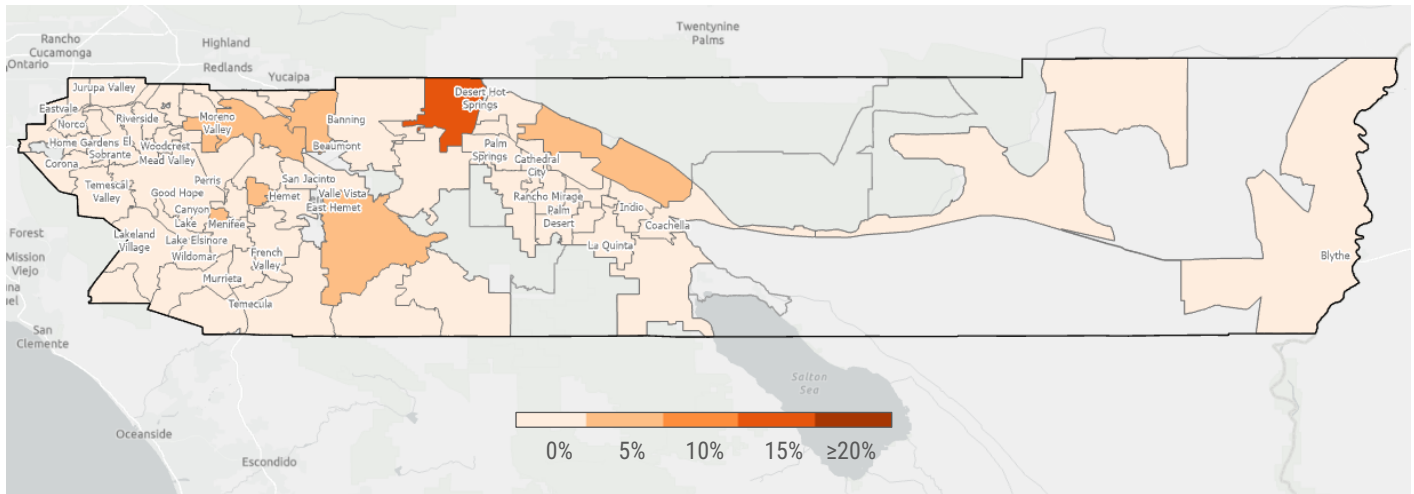
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Emergency Department Syndromic Surveillance

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 7



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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 7, the percentage of outpatient visits attributed to ILI was 3.5% (N=254) with an increase of 0.3% than the previous week (Figures 8-9). Similarly, ILI-related outpatient visits occurred across all age groups (Figure 10). After adjustment for age³, children aged 0-4 accounted for 53.2% of all ILI-related outpatient visits during this influenza season (Figure 11).

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

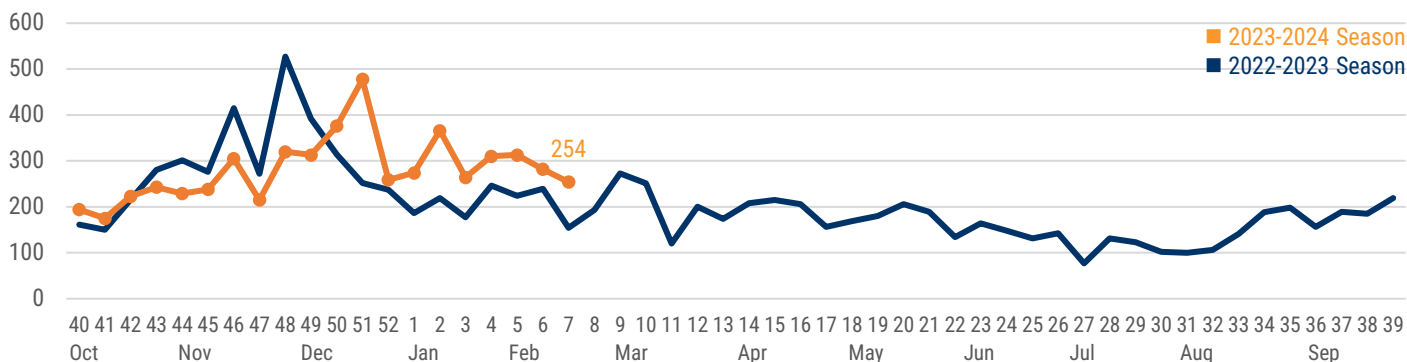


Figure 9. Percentage of ILI-related Outpatient Visits by Week

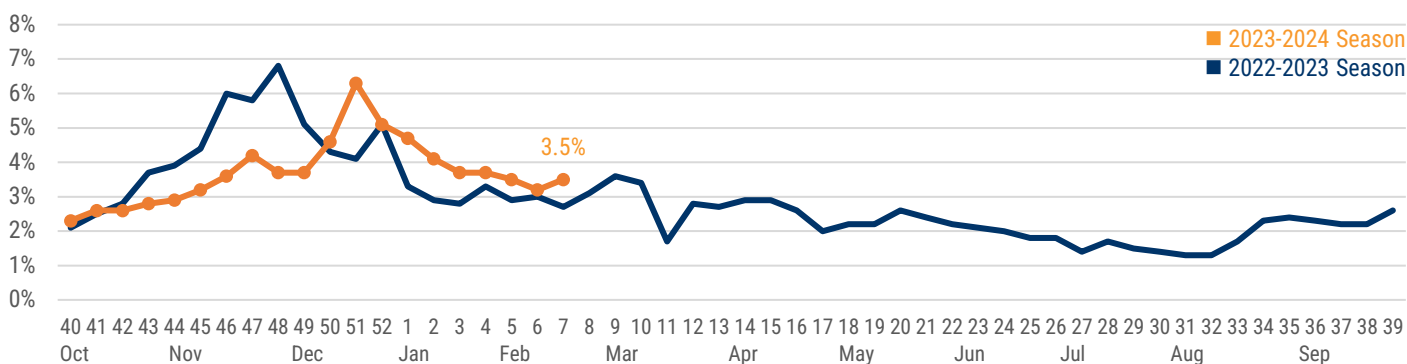


Figure 10. Percentage of ILI-related Outpatient Visits by Age Group and Week

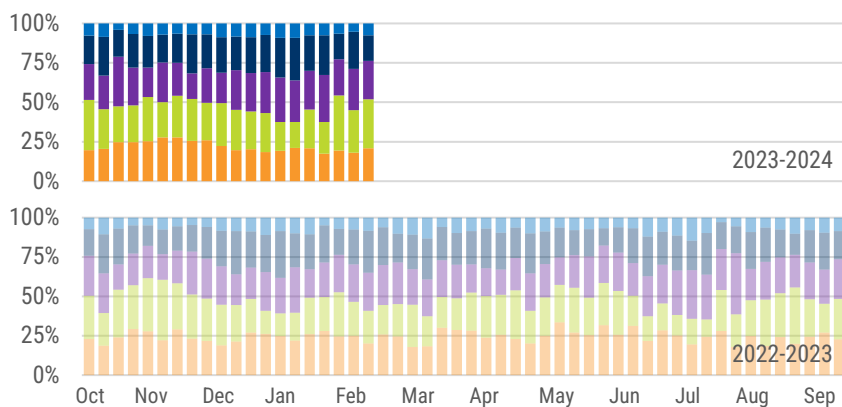
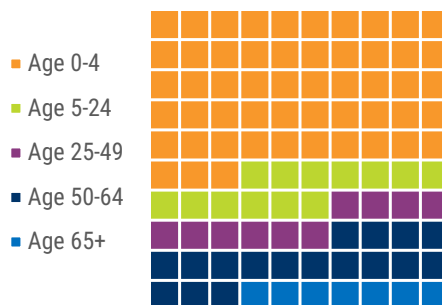


Figure 11. Cumulative Age-adjusted Proportion of ILI-related ED Visits by Age Group, 2023-2024



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. Methods used to identify influenza-associated deaths or ICU hospitalizations differ from those used to identify influenza-coded deaths presented in the Mortality Surveillance. Influenza-associated cases require laboratory confirmation of influenza while influenza-coded deaths on death certificates do not necessarily consider laboratory testing. Therefore, influenza-associated deaths reported here might not include the same individuals in influenza-coded deaths.

To date, four influenza-associated fatal cases (0-64 years old) and four influenza-associated ICU hospitalizations (0-64 years old) have been reported during this season (Table 1).

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 (>37.8°C or 100°F) and either cough or sore throat in the absence of a known cause other than influenza.

To date, one influenza-associated outbreak has been reported during this influenza season (Table 1).

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

	Fatal Cases 0-64 Years	ICU Cases 0-64 Years	Outbreaks
Week 7	2	0	0
Season To Date	4	4	1

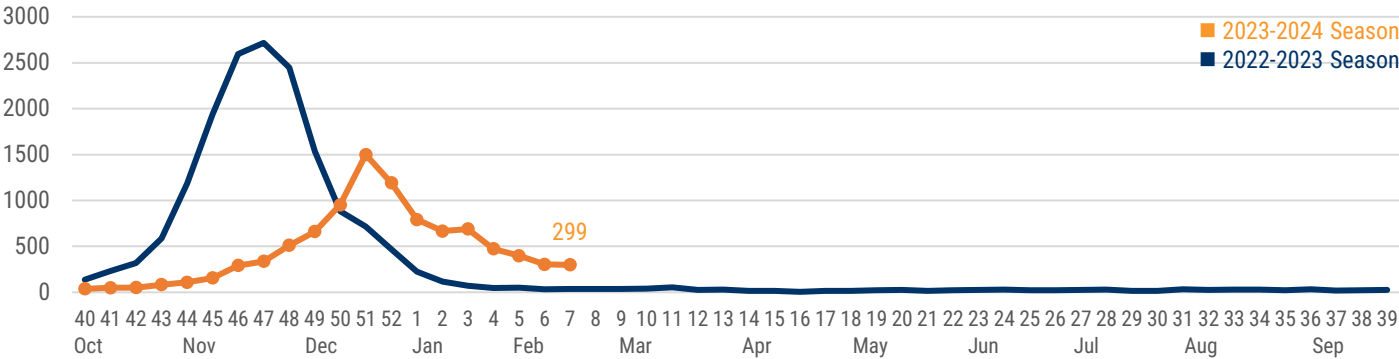
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Electronic Laboratory Reporting Summary

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 7, 299 positive influenza laboratory results were reported with a decrease of 1.3% 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 7, 336 specimens were tested and 21 of them (6.3%) were positive for influenza virus (Figures 13-14). Please note, few individuals might be tested multiple times. A specimen positive for both influenza A and influenza B will be counted separately. Influenza A was the dominant strain, accounting for 66.7% of positive specimens. Between weeks 40 and 7, the cumulative positivity rate for influenza was 10.1%, lower than the California average of 10.7% and the national average of 10.9%^{2,5} (Table 2).

Figure 13. Number of Positive Influenza Specimens by Week

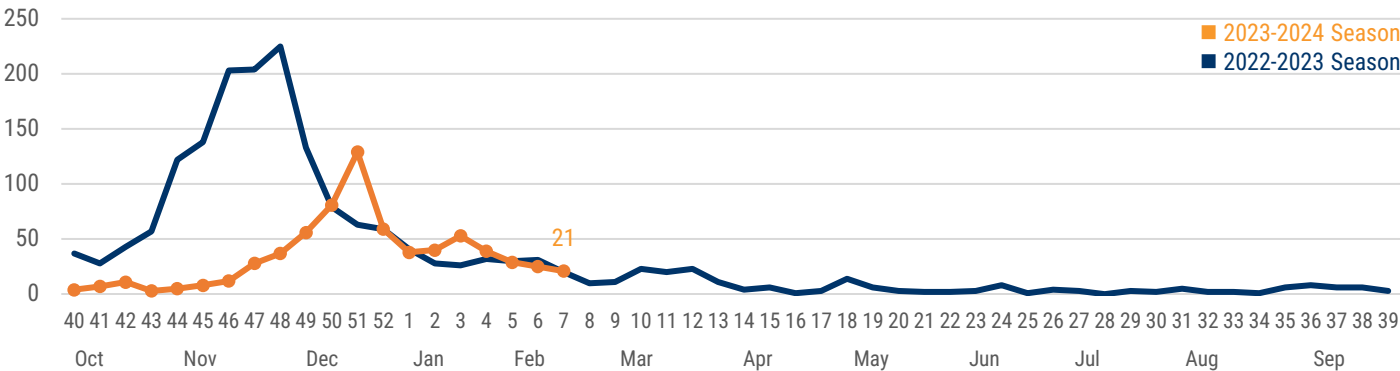


Figure 14. Positivity Rate by Week

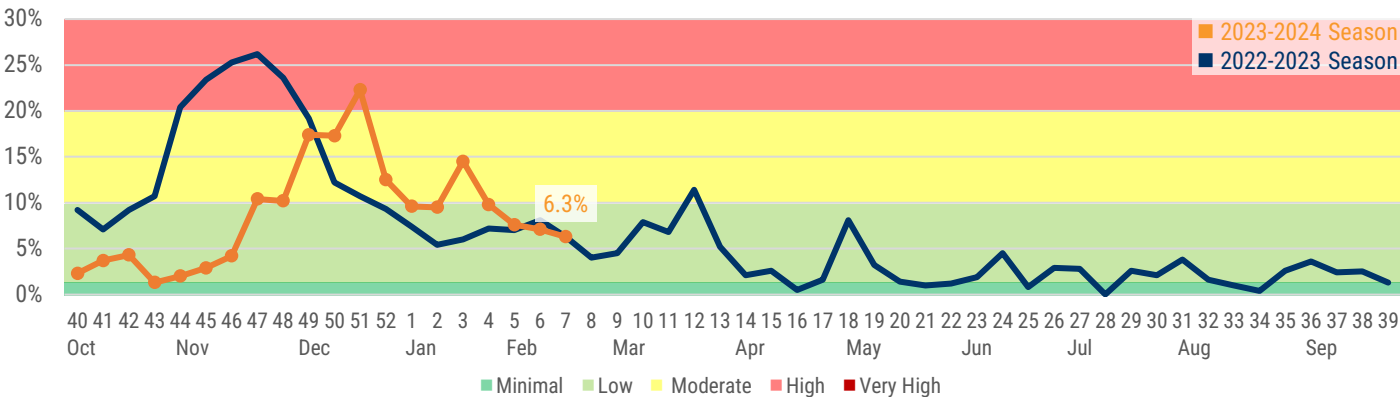


Table 2. Specimens Tested for Influenza by Type, This Week and Season to Date

	Riverside County		California ²		Nationwide ⁵	
	Week 7	Data Cumulative Since Week 40	Week 7	Data Cumulative Since Week 40	Week 7	Data Cumulative Since Week 40
Specimens Tested	336	6,783	19,927	388,173	89,939	2,118,431
Positive Specimens	21 (6.3%)	685 (10.1%)	1,359 (6.8%)	41,461 (10.7%)	13,304 (14.8%)	231,053 (10.9%)
Positive Specimens by Type						
Influenza A	14 (66.7%)	581 (84.8%)	922 (67.8%)	37,376 (90.1%)	8,072 (60.7%)	174,793 (75.7%)
Influenza B	7 (33.3%)	104 (15.2%)	437 (32.2%)	4,085 (9.9%)	5,232 (39.3%)	56,250 (24.3%)

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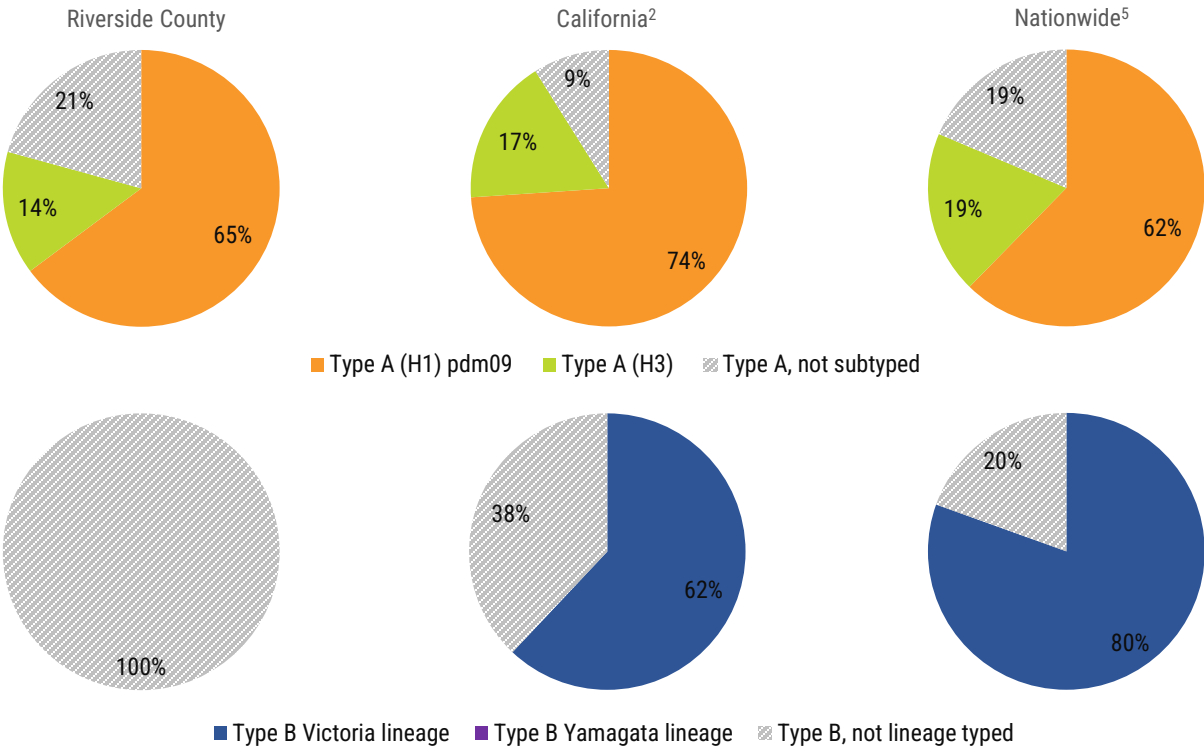
Public Health Laboratory Surveillance

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 7, 49 positive specimens had been subtyped in Riverside County Public Health Laboratory (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 7	Data Cumulative Since Week 40	Week 7	Data Cumulative Since Week 40	Week 7	Data Cumulative Since Week 40
A positive specimens	0	270 (90.6%)	29	1,681 (91.4%)	479	19,549 (81.4%)
A (H1) pdm09	0	175	12	1,243	153	12,186
A (H3)	0	39	10	288	145	3,721
A, not subtyped	0	56	7	150	3,642	3,454
B positive specimens	0	28 (9.4%)	14	158 (8.6%)	189	4,459 (18.6%)
B Victoria	0	0	4	98	118	3,589
B Yamagata	0	0	0	0	0	0
B, not lineage typed	0	28	10	60	71	870

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



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Mortality Surveillance

Pneumonia and influenza are among the leading causes of death in the United States, accounting for over 1.2% of all deaths in 2021⁶. Riverside County analyzes death certificate data from California Integrated Vital Records System (Cal-IVRS) for all pneumonia and/or influenza deaths occurring in the Riverside County. Deaths in the recent weeks may be undercounted because of the lengthy death certificate processing time. Newly identified deaths will be added to the according week. Pneumonia and/or influenza-coded (P&I) deaths are defined as deaths who had pneumonia and/or influenza (text or coded) noted in any cause of death field on the death certificate, including immediate cause, underlying cause and other significant conditions. The International Classification of Diseases (ICD-10) codes used for P&I are J09-J18.

During week 7, 13.3% (N=17) of deaths were P&I deaths in Riverside County (Figures 16-17). Between weeks 40 and 7, the cumulative proportion of P&I deaths was 9.3%. Overall, people aged 65+ accounted for the majority of P&I deaths in Riverside County and very few P&I deaths occurred among young people aged 0-24 (Table 4).

Figure 16. Number of Pneumonia and/or Influenza-Coded Deaths by Week

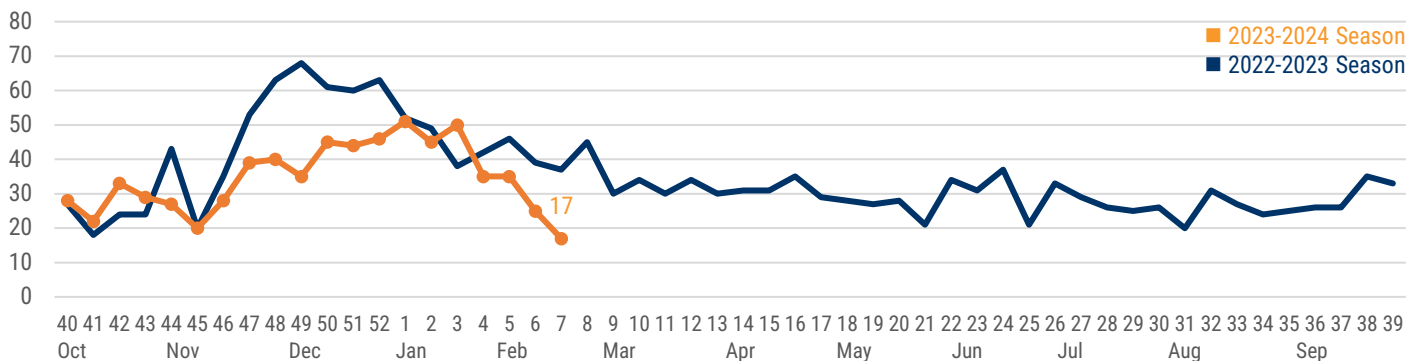


Figure 17. Percentage of Pneumonia and/or Influenza-Coded Deaths by Week

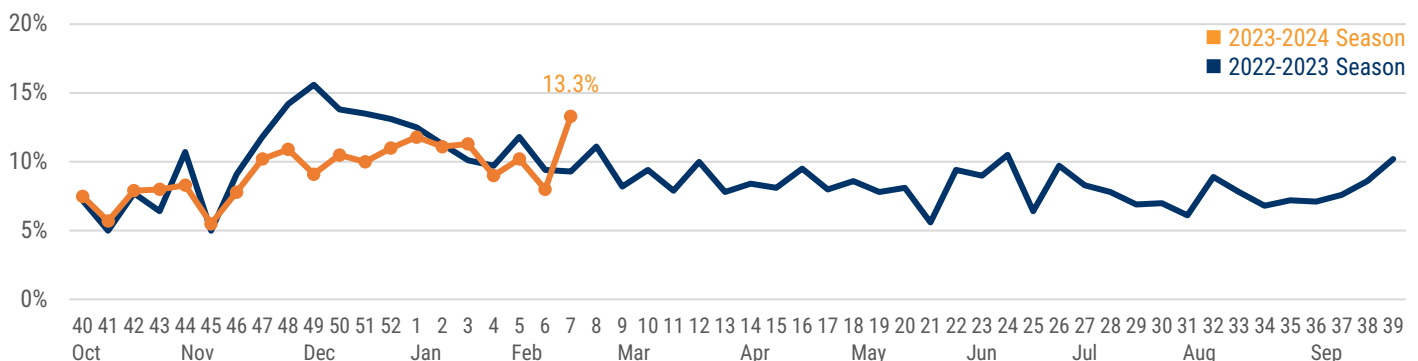


Table 4. Percentage of Pneumonia and/or Influenza-Coded Deaths by Age Group, Season to Date

	Age 0-4	Age 5-24	Age 25-49	Age 50-64	Age 65+	Total
P&I Death & Percent	2 (0.3%)	8 (1.2%)	35 (5.0%)	107 (15.4%)	542 (78.1%)	694

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Mortality Surveillance

Pneumonia, rather than influenza, contributed to the vast majority of P&I deaths, which were largely affected by other pneumonia causing diseases such as COVID-19. P&I death no longer measures the impact of influenza in the same way it had prior to the COVID-19 pandemic, making it difficult to monitor the impact of influenza on mortality. Although monitoring influenza-only coded deaths will underestimate the full impact of influenza mortality, this measure allows for tracking trends in the impact of influenza on mortality and is not as influenced by COVID-19 as P&I deaths. Influenza-coded deaths are defined as deaths who had influenza (text or coded) noted in any cause of death field on the death certificate, including immediate cause, underlying cause and other significant conditions. The International Classification of Diseases (ICD-10) codes used for influenza are J09-J11. Please note, we are not able to verify influenza-associated death (severe influenza case) as influenza-coded death until their death certificate becomes available.

During week 7, 3 new influenza-coded deaths were identified. To date, 41 influenza-coded deaths have been identified during this influenza season (Figure 18 & Table 5).

Figure 18. Number of Influenza-Coded Deaths by Week

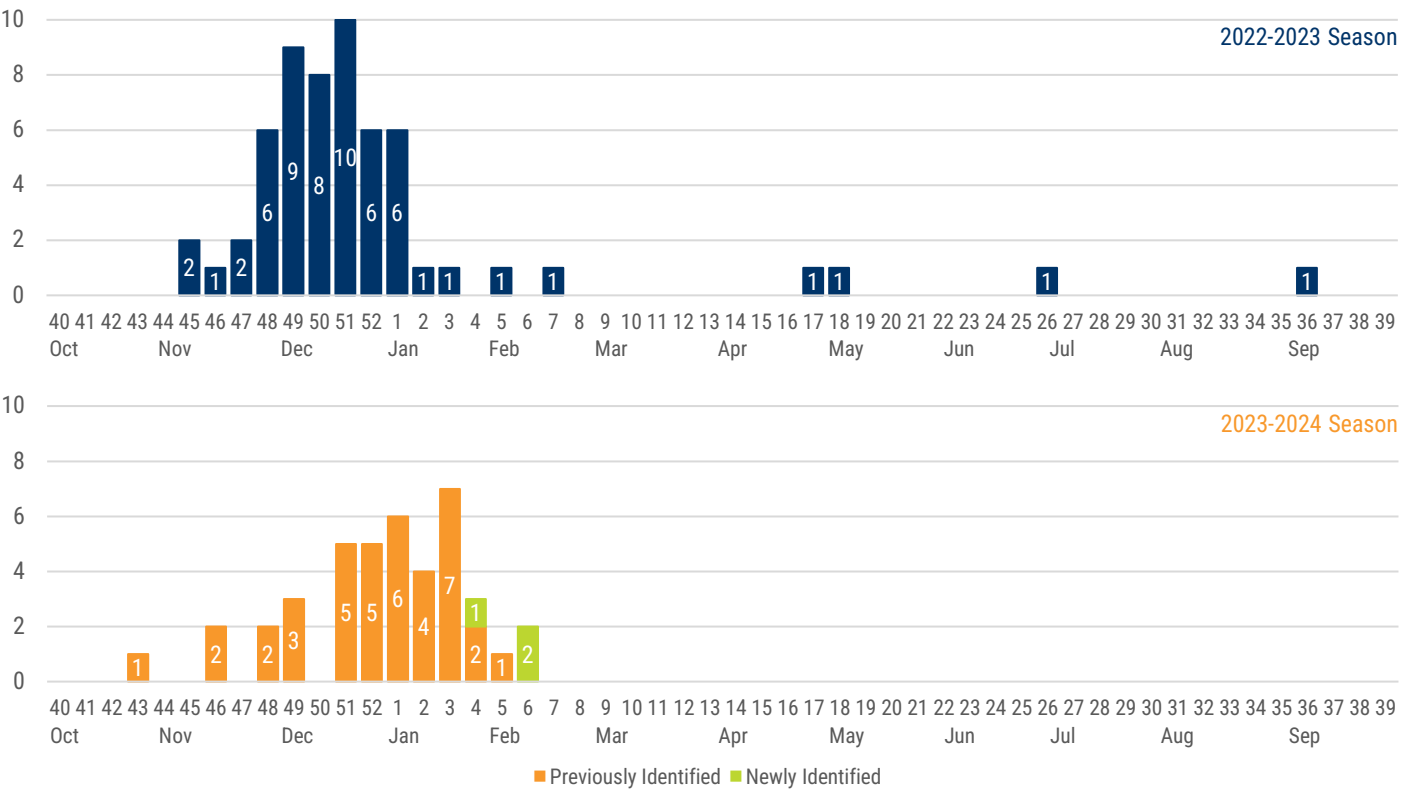


Table 5. Number of Influenza-Coded Deaths by Age Group, Season to Date

	Age 0-4	Age 5-24	Age 25-49	Age 50-64	Age 65+	Total
Influenza-Coded Death	0	2	7	7	25	41

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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. Some children need two doses of flu vaccine. The date of first dose was used for those who received two doses. By the end of week 7, 22.5% of residents in Riverside County (N=551,810) had received a flu vaccine, 2.0% lower than the corresponding cumulative coverage rate during the 2022-2023 influenza season (Figures 19-20). Vaccination coverage was highest among people aged 65+ and lowest among people aged 5-24 (Table 6). Only 80.7% of the records had valid race and ethnicity information. Latinx were largely underrepresented than their counterparts (Table 7).

With the passage of AB 1797 (effective January 1, 2023), California healthcare providers are required to enter immunizations into the California Immunization Registry (CAIR) or RIDE/Healthy Futures. However, not all immunizations are in the state's database (e.g. vaccines administered in federal facilities or institutions). Therefore, the vaccinated population may be underestimated.

Figure 19. Number of Riverside County Residents Vaccinated for Influenza, August 2023-Present

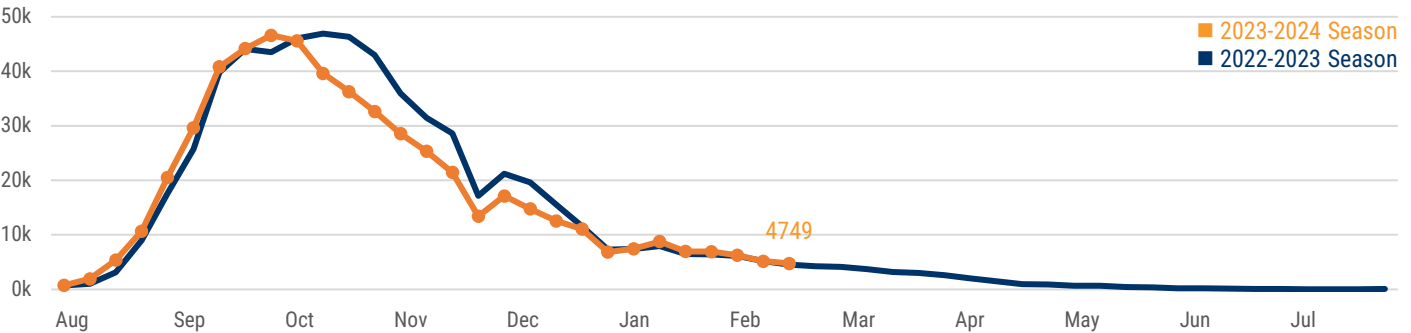


Figure 20. Influenza Vaccination Coverage among Riverside County Residents, August 2023-Present

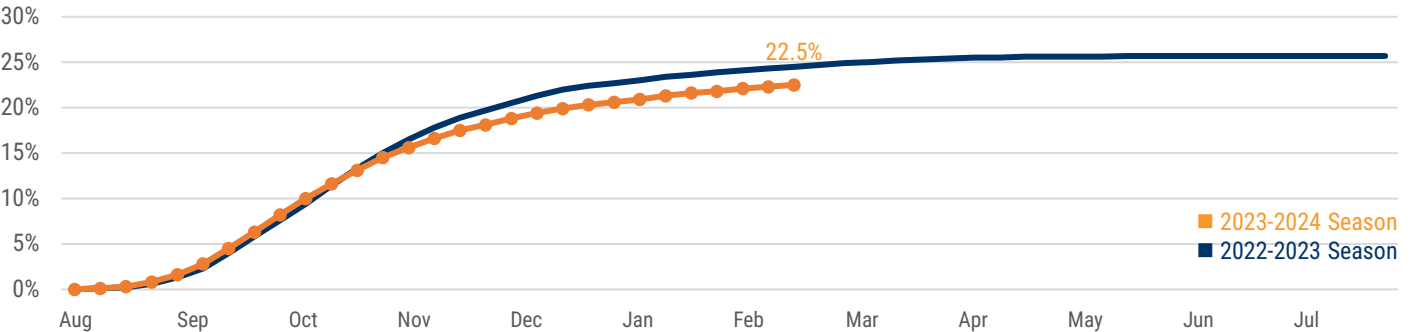


Table 6. Riverside County Residents Vaccinated for Influenza by Age Group, August 2023-Present

	Age 0-4	Age 5-24	Age 25-49	Age 50-64	Age 65+	Total
Influenza Vaccination & Percent	31,369 (22.1%)	96,456 (14.2%)	112,954 (13.9%)	119,946 (27.7%)	191,085 (49.0%)	551,810 (22.5%)

Influenza Vaccinations

Table 7. 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	2,181 (0.5%)	45,233 (10.2%)	2,658 (0.6%)	28,646 (6.4%)	187,592 (42.2%)	169,262 (38.1%)	9,188 (2.1%)
Proportion Based on Standard Population ³	0.5%	6.9%	0.3%	6.3%	32.2%	51.4%	2.5%
Representation	Equal	Over by 3.3%	Over by 0.3%	Over by 0.1%	Over by 10.0%	Under by 13.3%	Under by 0.4%

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>