# Influenza Surveillance Report
# 2023 MMWR Week 21 (ending May 27, 2023)

HOUSTON HEALTH
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# Contents

# Summary

**Objective**: To monitor trends in influenza and influenza-like visits to facilities reporting to the Southeast Texas Syndromic Surveillance System (HHD-ESSENCE) in the Houston/Harris County region for public health intervention.

**Time Frame:** January 2, 2022 (start of 2022 MMWR Week 1) to May 27, 2023 (end of 2023 MMWR Week 21).

**Summary:**

- Flu levels have reached an initial peak for the Houston/Harris County region, which is consistent to trends seen at both the state and national levels. Compared to the 2021-2022 season, where flu appeared to hit the area later in the season (February/March 2022), the current season has hit earlier, beginning in as early as late August/early September 2022.
- Since January, the 5-week average counts of ILI for both children under 18 and adults 18 and over are each showing a slight upward trend, after a second smaller wave from January to February.
- The 5-week average counts of ILI with an RSV or COVID diagnosis have been a downward trend since August, however, recent numbers indicate a slight upward to level trend. The ILI without and an RSV or COVID diagnosis count is on a slight upward, while the discharge diagnosed influenza count continues a downward trend.
- In the past 5 weeks, the percentage of visits with ILI and the percentage of visits with discharge diagnosed influenza are on a flat trend.
- No update. For 2023 Week 20, no schools tested positive for influenza A.

| | 5-week Trend | Change from Previous Week | Current Week (2023 MMWR Week 21) | Previous Week (2023 MMWR Week 20) | Change from Previous Week in Texas | Change from Previous Week in U.S. |
|---|---|---|---|---|---|---|
| **Percentage of Visits with ILI** | Flat | +0.08% | 0.91% | 0.83% | No update | No Change |
| **Percentage of Visits with Discharge Diagnosed Influenza** | Flat | -0.01% | 0.12% | 0.13% | N/A | N/A |
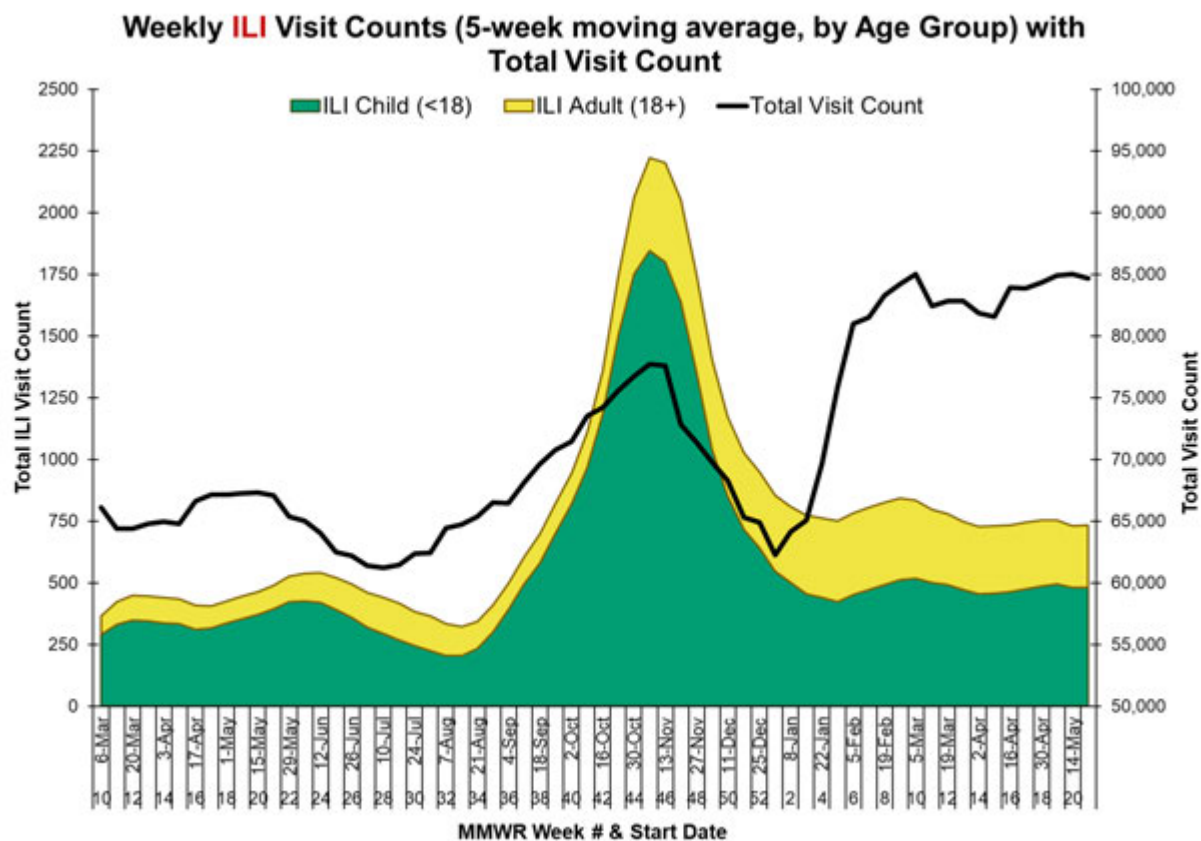
**Figure 1. The ILI Counts by Age Group with the Total Visit Count (5-week Moving Averages).**

As seen in Figure 1, the 5-week average counts of ILI for both age groups were trending upward from August to November 2022. Recent numbers have been on a slight upward trend.
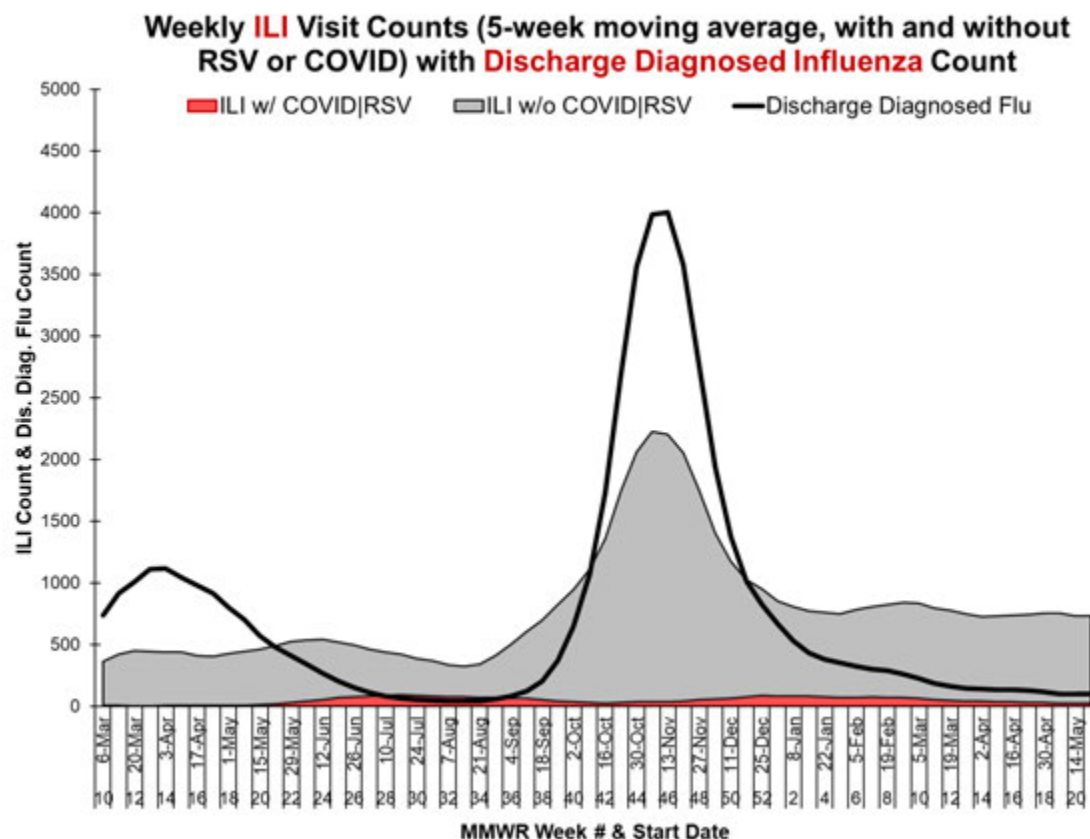
**Figure 2. The Weekly ILI Visit Counts, with and without an RSV or COVID Diagnosis, with the Discharge Diagnosed Influenza Count (5-week Moving Averages).**

As seen in Figure 2, the 5-week average count of ILI with an RSV or COVID diagnosis is starting to trend downward again. The 5-week average count of ILI without an RSV or COVID diagnosis has recently began to tick upward again, while the 5-week average count of discharge diagnosed influenza is continuing to trend downward.
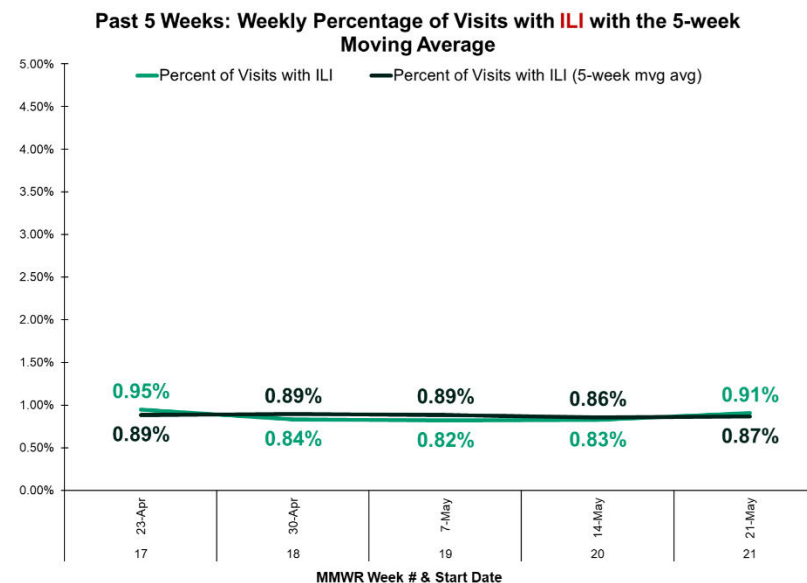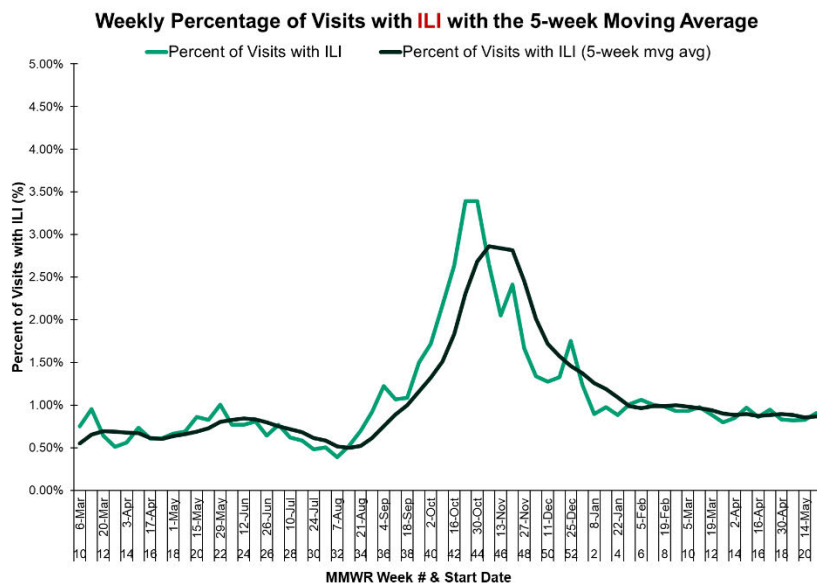
**Figure 3. The Percentage of Visits with ILI with 5-week Moving Average.**

As seen in Figure 3, the percentage of visits with ILI is on a flat trend for the past 5 weeks.
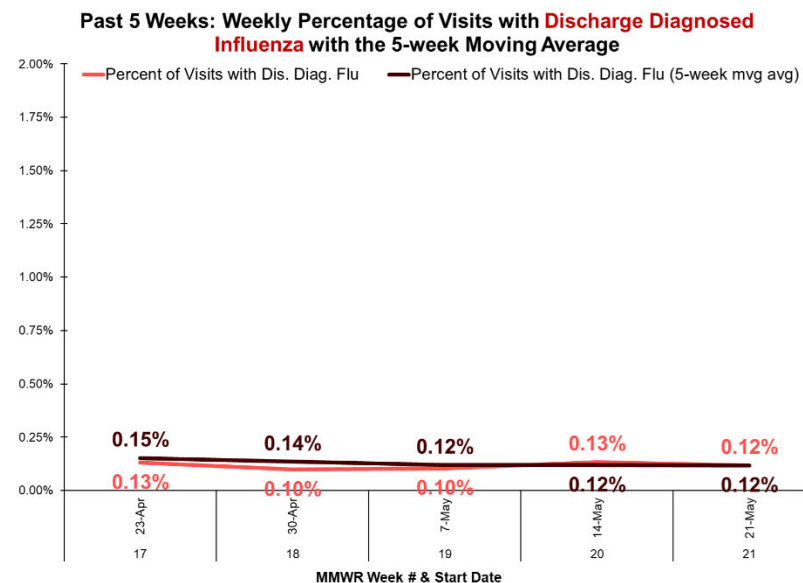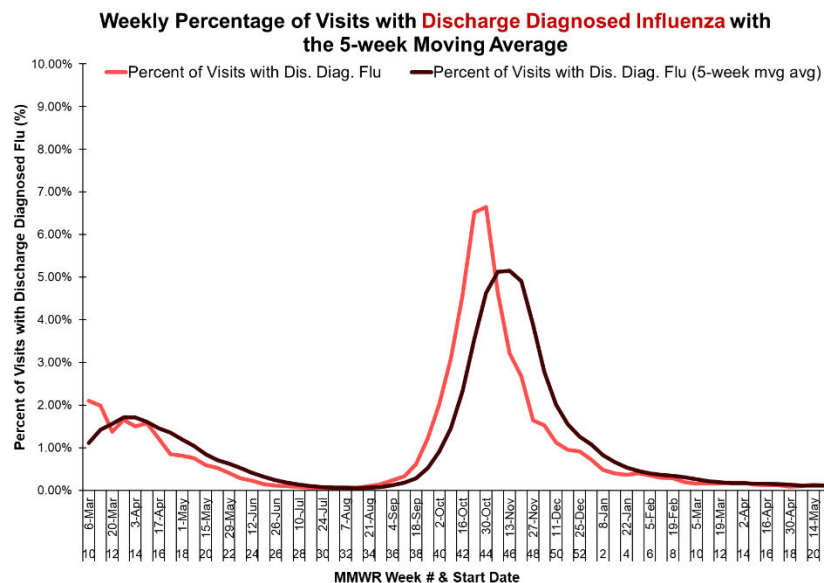
**Figure 4. The Percentage of Visits with Discharge Diagnosed Influenza with 5-week Moving Average.**

As seen in Figure 4, the percentage of visits with discharge diagnosed influenza is on a flat trend for the past 5 weeks.
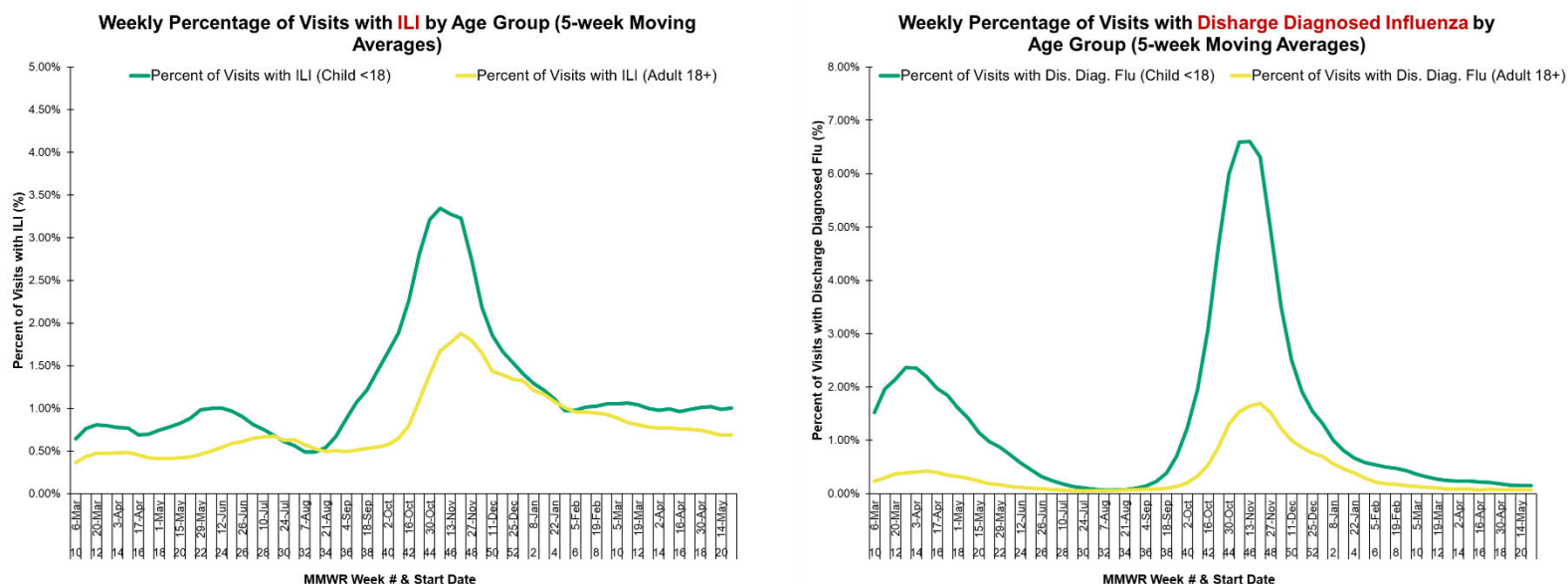
**Figure 5. The Percentage of Visits with ILI by Age Group (left, 5-week moving averages) and the Percentage of Visits with Discharge Diagnosed Influenza (right, 5-week moving averages).**

As seen in Figure 5, from August to December 2022, there were waves for both the percentage of visits with ILI and the percentage of visits with discharge diagnosed influenza for both age groups. Recent ILI values for children under 18 indicate a slight uptick in values, while the discharge diagnosed influenza value continues to trend downward for children and adults.

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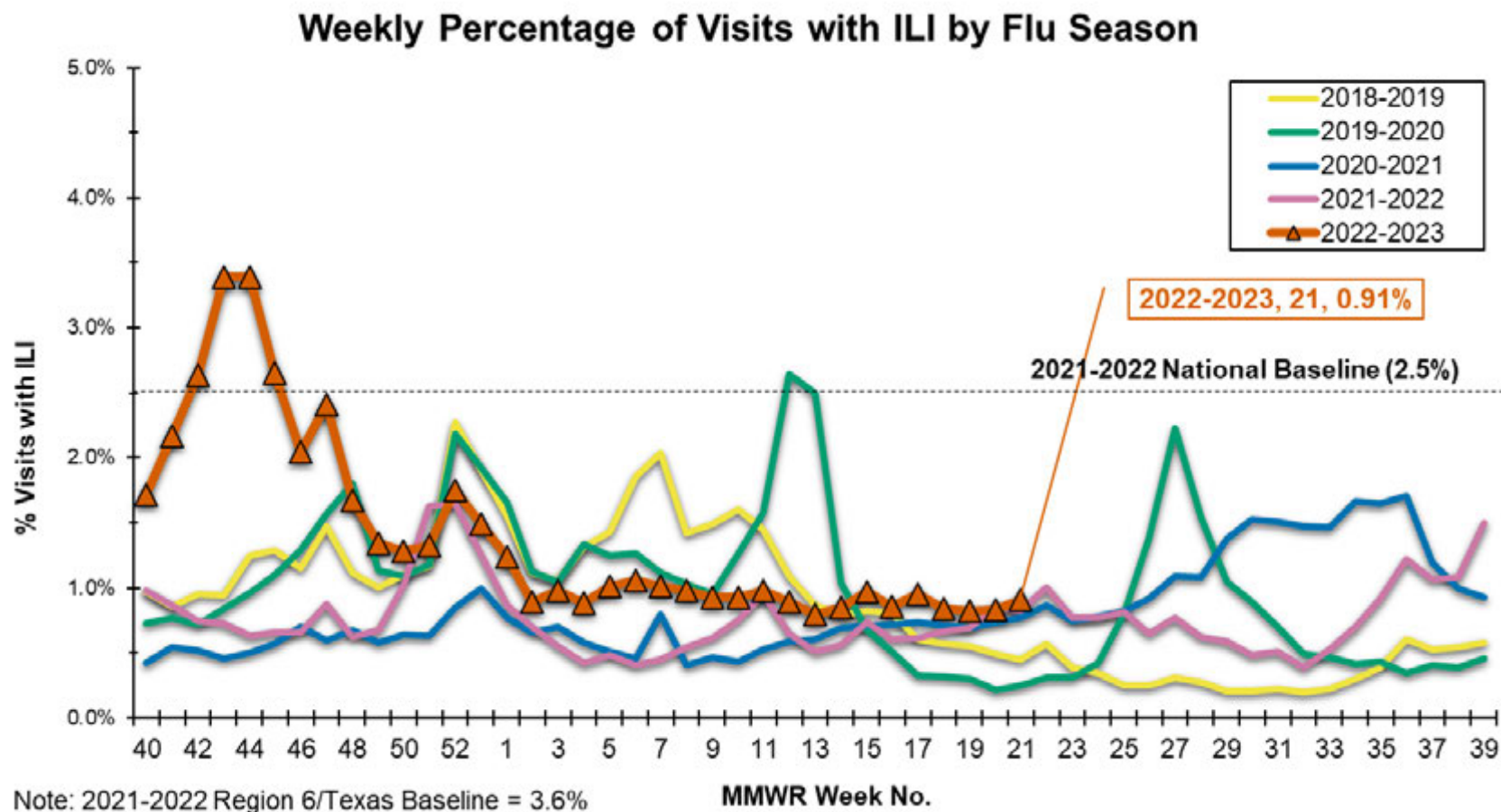


**Figure 6. The Weekly Percentage of Visits with ILI for Current (2022-2023) and Previous Seasons.**

Note: 2020 has 53 weeks. Week 53 for 2019 and 2021 are the averages of Week 52 of the given year with Week 1 of the next year.

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**Weekly Percentage of Visits with Discharge Diagnosed Influenza by Flu Season**

Legend:
- 2018-2019
- 2019-2020
- 2020-2021
- 2021-2022
- 2022-2023

2022-2023, 21, 0.12%
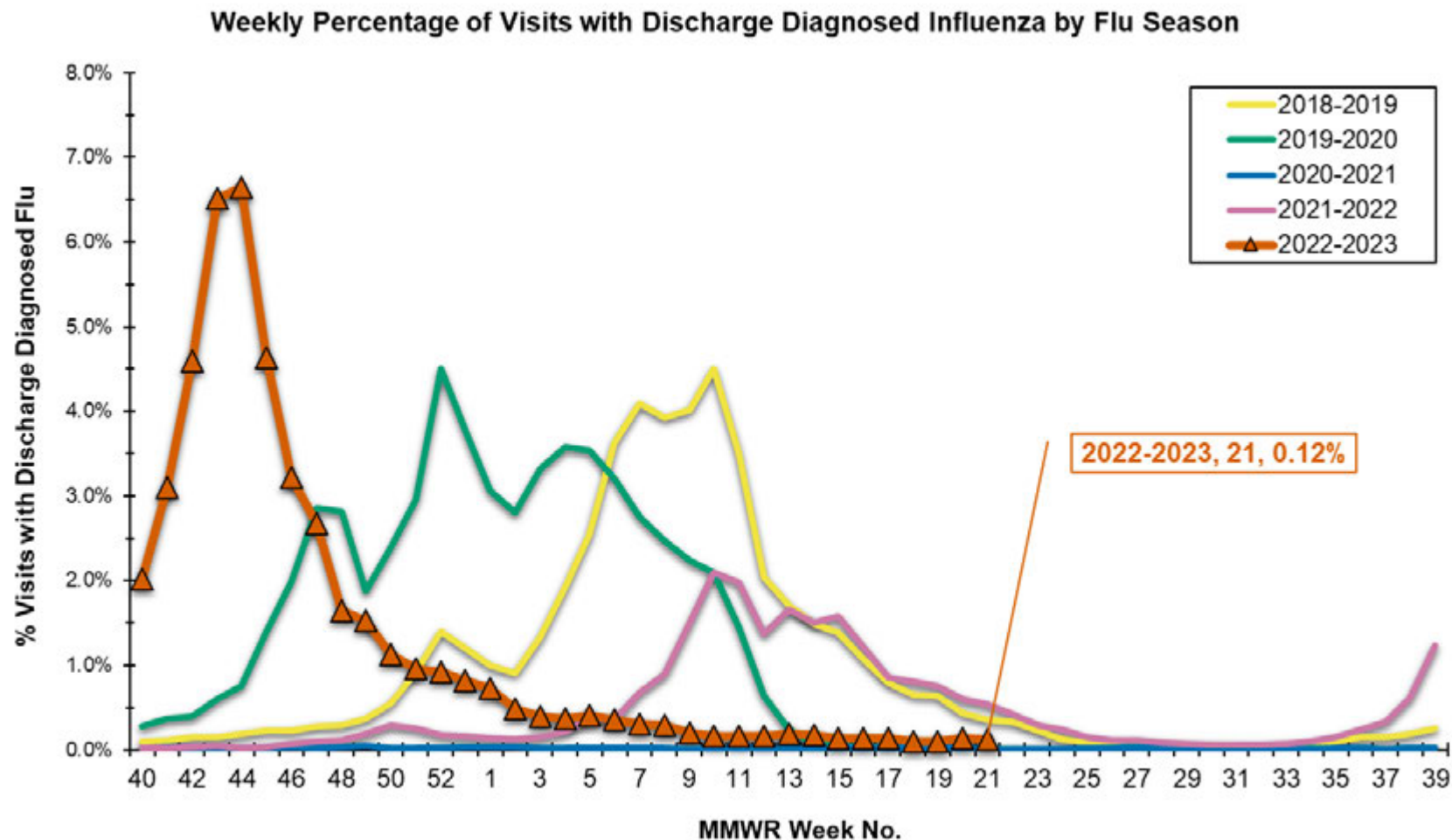
**Figure 7. The Weekly Percentage of Visits with Discharge Diagnosed Influenza for Current (2022-2023) and Previous Seasons.**

Note: 2020 has 53 weeks. Week 53 for 2019 and 2021 are the averages of Week 52 of the given year with Week 1 of the next year.

|  | Total Visits | | ILI Visits | | Discharge Diagnosed Influenza Visits | |
|---|---|---|---|---|---|---|
|  | # | % | # | % | # | % |
| Under 5 | 693,834 | 26% | 7,294 | 30% | 9,958 | 30% |
| 5 to 17 | 914,033 | 35% | 14,252 | 59% | 19,258 | 58% |
| 18 to 39 | 538,047 | 20% | 1,636 | 7% | 2,597 | 8% |
| 40 to 59 | 249,343 | 9% | 543 | 2% | 870 | 3% |
| 60 to 79 | 181,919 | 7% | 380 | 2% | 597 | 2% |
| 80 plus | 55,227 | 2% | 121 | 0% | 191 | 1% |
| Total | 2,632,403 |  | 24,226 |  | 33,471 |  |

**Figure 8. For the 2022 to 2023 Flu Season starting MMWR 2022 Week 40 to 2023 Week 21 (October 2nd, 2022 to May 27, 2023), the Count Breakdown for Total Visits, ILI Visits, and Discharge Diagnosed Influenza Visits by Age Group.**
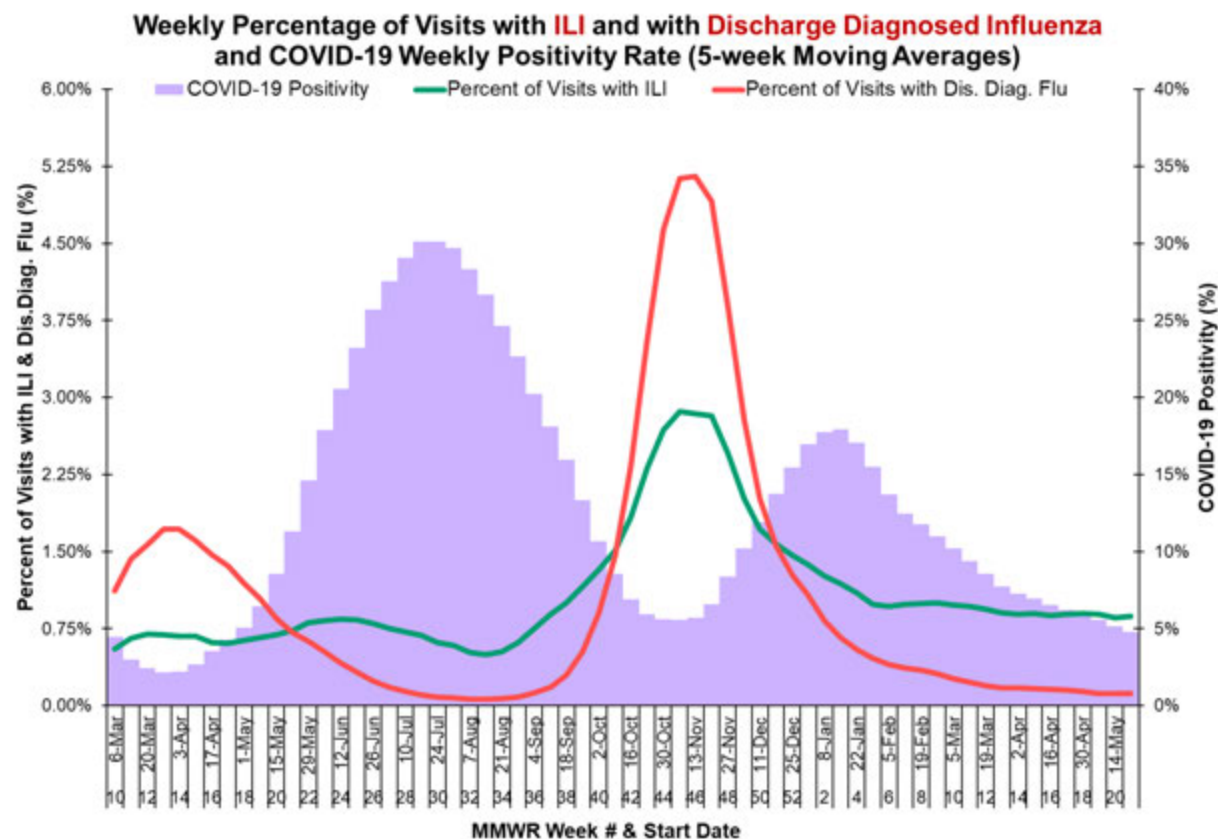
**Figure 9. The Weekly Percentage of Visits with ILI and the Weekly Percentage of Visits with Discharge Diagnosed Influenza with the Weekly COVID-19 Positivity Rate.**

As seen in Figure 9 and previous figures, the percentage of visits with ILI and the percentage of visits with discharge diagnosed influenza have been trending downwards. Recent COVID-19 positivity rate is trending downward.

*NOTE: COVID-19 positivity rate as of 05/30/2023.*

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**The Statewide Positive Influenza Tests for Texas**



Statewide Positive Influenza Tests for Texas
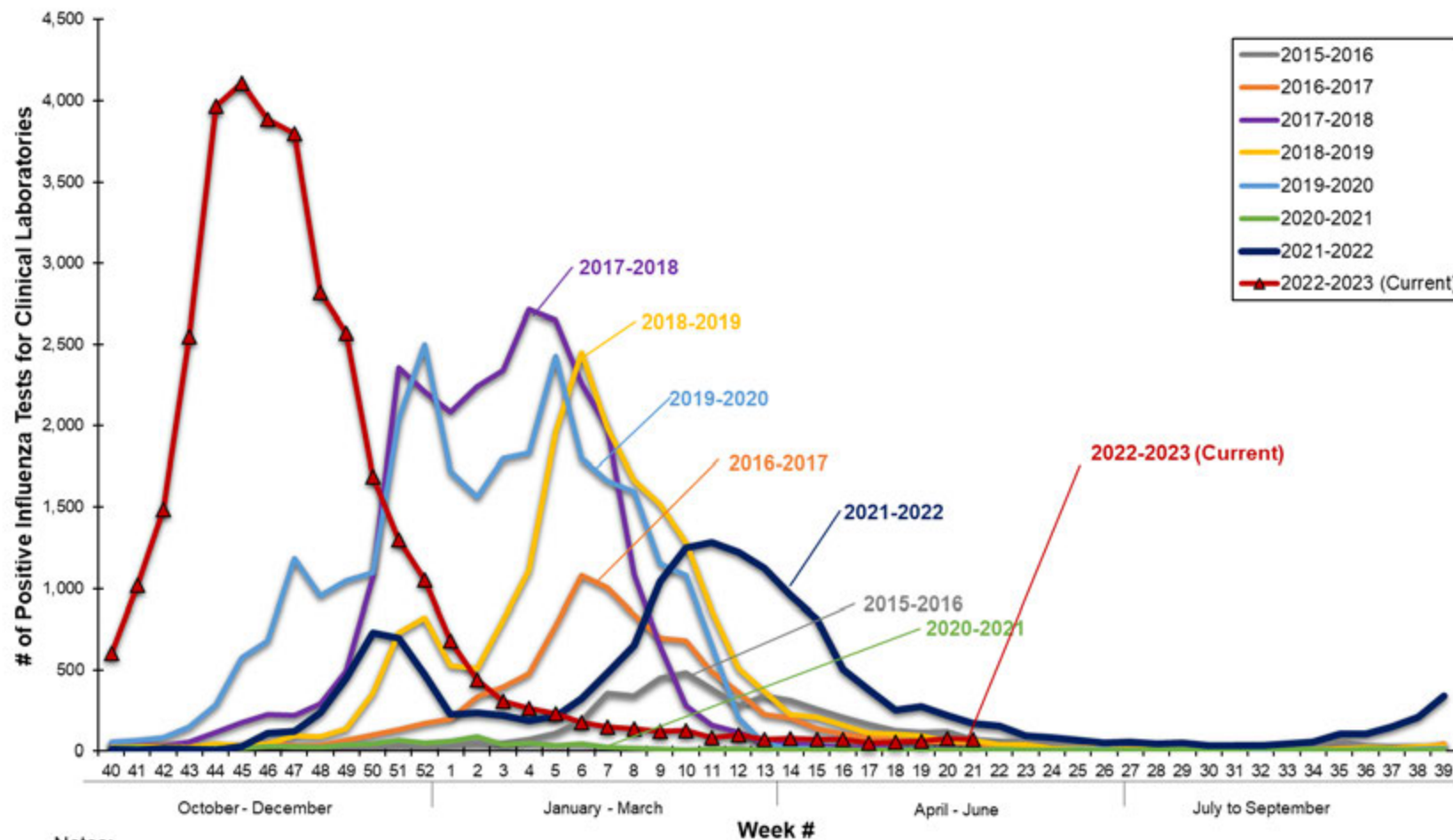
Notes:
1. Source: https://gis.cdc.gov/grasp/fluview/fluportaldashboard.html
2. Months listed on the x-axis are approximate guidelines, as week numbers will correspond to different dates each year.
3. The 53rd week in 2020 is not shown in the figure.
4. Weekly counts for the current 2022-2023 season are subject to change moving forward.

**The Wastewater Analysis of Schools: Influenza A**



Wastewater Analysis of Schools: Detection of Influenza A
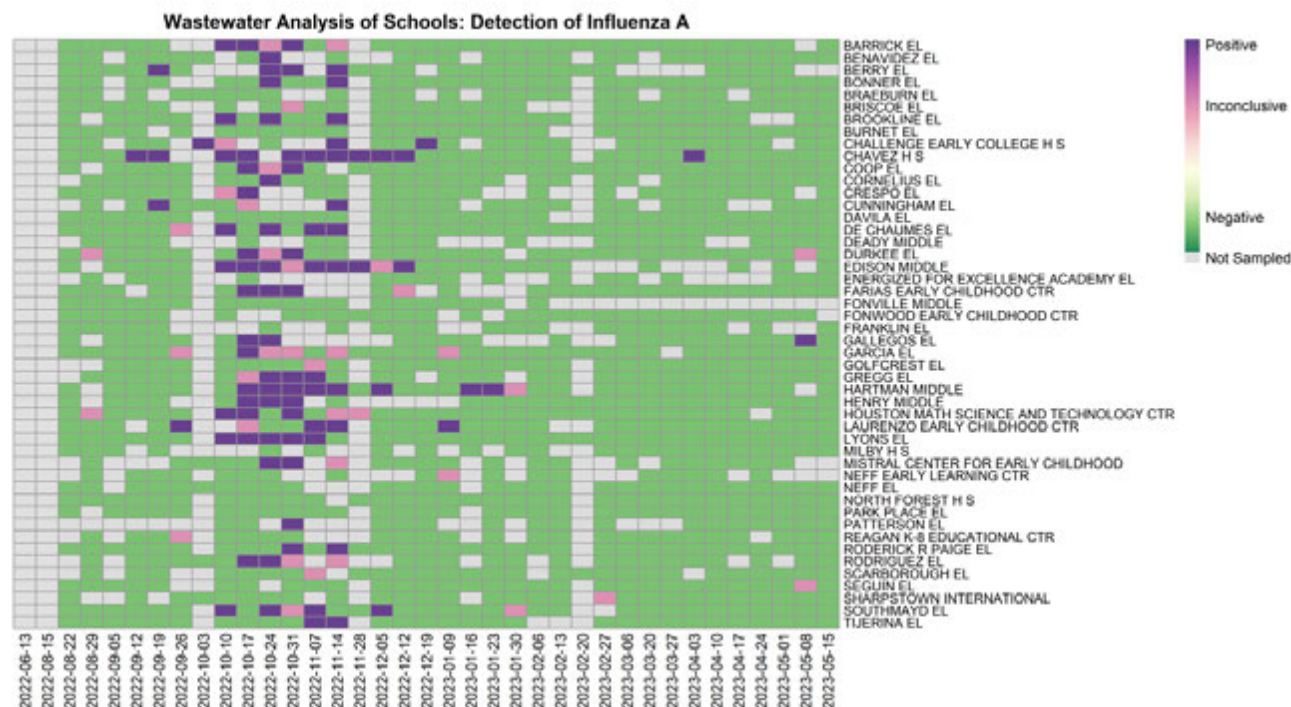
No update. On 5/15/2023 (2023 Week 20), out of the 45 schools sampled for the week:
- **0 schools tested positive for Influenza A**.
- **0 schools had inconclusive results.**
- All other schools sampled tested negative.

*Note: Wastewater sampling for influenza in schools was suspended during HISD summer break. Sampling resumed the first week of class on 8/22/2022. There are a total 50 schools that can be sampled in a week.*

*\* Indicates the school has tested positive or inconclusive for previous sampled consecutive weeks.*

# APPENDIX

**Data Source:** Three main types of visit data from the Southeast Texas Syndromic Surveillance System (HHD-ESSENCE) were used in this analysis: total visits to the facilities, influenza-like illness (ILI) visits, and discharge diagnosed influenza visits. The queries used searched for "ILI" in the Syndrome field and/or Influenza ICD codes in the Discharge Diagnosis field. ILI records are defined by the Chief Complaint field (containing flu-like symptoms, e.g., fever plus cough or sore throat) and could have other non-Influenza cases in the Discharge Diagnosis field (e.g., RSV or COVID). Any record where "Z23" (i.e., "Encounter for immunization") was listed as the only code in Discharge Diagnosis was removed from ILI and Discharge Diagnosed Influenza records. Any record that did not have "Harris" in the county field or one of the 105 city of Houston-associated zip codes in the patient zip code field was removed.

**Method:**

1. Weekly counts were calculated for ILI and discharge diagnosed influenza facility visits.
2. Weekly counts are shown in figures with a 5-week moving average (average of current week with previous 4 weeks) of the count.
3. The percentage of facility visits with ILI was calculated on a weekly basis:

$$\% \ of \ Visits \ with \ ILI \ (weekly) = \frac{\# \ of \ visits \ with \ ILI \ in \ week}{\# \ of \ visits \ in \ week}$$

4. The percentage of facility visits with discharge diagnosed Influenza was calculated.

$$\% \ of \ Visits \ with \ Discharge \ Diagnosed \ Influenza \ (weekly) = \frac{\# \ of \ visits \ with \ Discharge \ Diagnosed \ Influenza \ in \ week}{\# \ of \ visits \ in \ week}$$

5. The 5-week moving average of these values was calculated and shown in figures.
6. Other tables and figures show similar values by age group or with respect to average temperature and relative humidity.

For more information on **wastewater sampling in schools**, please see the City of Houston SARS-Cov-2 Wastewater Monitoring Dashboard FAQ, specifically questions 8 and 9 for school-related sampling.
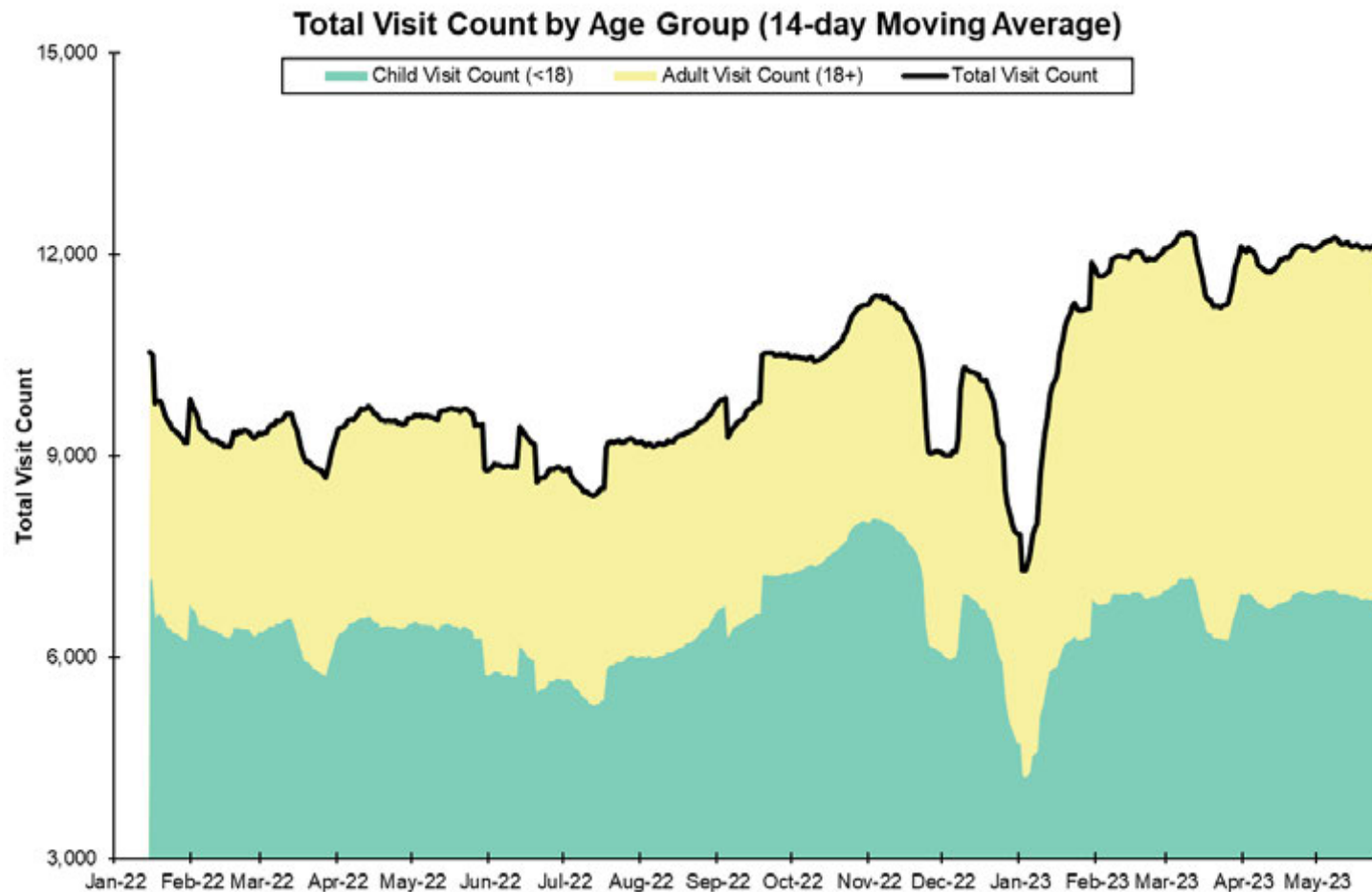
Appendix Figure 1. The Total Visits by Age Group (14-day Moving Averages).

Total daily visit counts have stayed fairly consistent throughout the year, with drops in counts tending to coincide with major events or holidays (e.g., HISD Spring Break, July 4th, and Labor Day). Since September, the daily total visit count is averaging above 10,000 visits a day.

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| MMWR Week # | 2021 Start | 2021 End | 2022 Start | 2022 End | 2023 Start | 2023 End | 2024 Start | 2024 End |
|---|---|---|---|---|---|---|---|---|
| 1 | 1/3/2021 | 1/9/2021 | 1/2/2022 | 1/8/2022 | 1/1/2023 | 1/7/2023 | 12/31/2023 | 1/6/2024 |
| 2 | 1/10/2021 | 1/16/2021 | 1/9/2022 | 1/15/2022 | 1/8/2023 | 1/14/2023 | 1/7/2024 | 1/13/2024 |
| 3 | 1/17/2021 | 1/23/2021 | 1/16/2022 | 1/22/2022 | 1/15/2023 | 1/21/2023 | 1/14/2024 | 1/20/2024 |
| 4 | 1/24/2021 | 1/30/2021 | 1/23/2022 | 1/29/2022 | 1/22/2023 | 1/28/2023 | 1/21/2024 | 1/27/2024 |
| 5 | 1/31/2021 | 2/6/2021 | 1/30/2022 | 2/5/2022 | 1/29/2023 | 2/4/2023 | 1/28/2024 | 2/3/2024 |
| 6 | 2/7/2021 | 2/13/2021 | 2/6/2022 | 2/12/2022 | 2/5/2023 | 2/11/2023 | 2/4/2024 | 2/10/2024 |
| 7 | 2/14/2021 | 2/20/2021 | 2/13/2022 | 2/19/2022 | 2/12/2023 | 2/18/2023 | 2/11/2024 | 2/17/2024 |
| 8 | 2/21/2021 | 2/27/2021 | 2/20/2022 | 2/26/2022 | 2/19/2023 | 2/25/2023 | 2/18/2024 | 2/24/2024 |
| 9 | 2/28/2021 | 3/6/2021 | 2/27/2022 | 3/5/2022 | 2/26/2023 | 3/4/2023 | 2/25/2024 | 3/2/2024 |
| 10 | 3/7/2021 | 3/13/2021 | 3/6/2022 | 3/12/2022 | 3/5/2023 | 3/11/2023 | 3/3/2024 | 3/9/2024 |
| 11 | 3/14/2021 | 3/20/2021 | 3/13/2022 | 3/19/2022 | 3/12/2023 | 3/18/2023 | 3/10/2024 | 3/16/2024 |
| 12 | 3/21/2021 | 3/27/2021 | 3/20/2022 | 3/26/2022 | 3/19/2023 | 3/25/2023 | 3/17/2024 | 3/23/2024 |
| 13 | 3/28/2021 | 4/3/2021 | 3/27/2022 | 4/2/2022 | 3/26/2023 | 4/1/2023 | 3/24/2024 | 3/30/2024 |
| 14 | 4/4/2021 | 4/10/2021 | 4/3/2022 | 4/9/2022 | 4/2/2023 | 4/8/2023 | 3/31/2024 | 4/6/2024 |
| 15 | 4/11/2021 | 4/17/2021 | 4/10/2022 | 4/16/2022 | 4/9/2023 | 4/15/2023 | 4/7/2024 | 4/13/2024 |
| 16 | 4/18/2021 | 4/24/2021 | 4/17/2022 | 4/23/2022 | 4/16/2023 | 4/22/2023 | 4/14/2024 | 4/20/2024 |
| 17 | 4/25/2021 | 5/1/2021 | 4/24/2022 | 4/30/2022 | 4/23/2023 | 4/29/2023 | 4/21/2024 | 4/27/2024 |
| 18 | 5/2/2021 | 5/8/2021 | 5/1/2022 | 5/7/2022 | 4/30/2023 | 5/6/2023 | 4/28/2024 | 5/4/2024 |
| 19 | 5/9/2021 | 5/15/2021 | 5/8/2022 | 5/14/2022 | 5/7/2023 | 5/13/2023 | 5/5/2024 | 5/11/2024 |
| 20 | 5/16/2021 | 5/22/2021 | 5/15/2022 | 5/21/2022 | 5/14/2023 | 5/20/2023 | 5/12/2024 | 5/18/2024 |
| 21 | 5/23/2021 | 5/29/2021 | 5/22/2022 | 5/28/2022 | 5/21/2023 | 5/27/2023 | 5/19/2024 | 5/25/2024 |
| 22 | 5/30/2021 | 6/5/2021 | 5/29/2022 | 6/4/2022 | 5/28/2023 | 6/3/2023 | 5/26/2024 | 6/1/2024 |
| 23 | 6/6/2021 | 6/12/2021 | 6/5/2022 | 6/11/2022 | 6/4/2023 | 6/10/2023 | 6/2/2024 | 6/8/2024 |
| 24 | 6/13/2021 | 6/19/2021 | 6/12/2022 | 6/18/2022 | 6/11/2023 | 6/17/2023 | 6/9/2024 | 6/15/2024 |
| 25 | 6/20/2021 | 6/26/2021 | 6/19/2022 | 6/25/2022 | 6/18/2023 | 6/24/2023 | 6/16/2024 | 6/22/2024 |
| 26 | 6/27/2021 | 7/3/2021 | 6/26/2022 | 7/2/2022 | 6/25/2023 | 7/1/2023 | 6/23/2024 | 6/29/2024 |
| 27 | 7/4/2021 | 7/10/2021 | 7/3/2022 | 7/9/2022 | 7/2/2023 | 7/8/2023 | 6/30/2024 | 7/6/2024 |
| 28 | 7/11/2021 | 7/17/2021 | 7/10/2022 | 7/16/2022 | 7/9/2023 | 7/15/2023 | 7/7/2024 | 7/13/2024 |
| 29 | 7/18/2021 | 7/24/2021 | 7/17/2022 | 7/23/2022 | 7/16/2023 | 7/22/2023 | 7/14/2024 | 7/20/2024 |
| 30 | 7/25/2021 | 7/31/2021 | 7/24/2022 | 7/30/2022 | 7/23/2023 | 7/29/2023 | 7/21/2024 | 7/27/2024 |
| 31 | 8/1/2021 | 8/7/2021 | 7/31/2022 | 8/6/2022 | 7/30/2023 | 8/5/2023 | 7/28/2024 | 8/3/2024 |
| 32 | 8/8/2021 | 8/14/2021 | 8/7/2022 | 8/13/2022 | 8/6/2023 | 8/12/2023 | 8/4/2024 | 8/10/2024 |
| 33 | 8/15/2021 | 8/21/2021 | 8/14/2022 | 8/20/2022 | 8/13/2023 | 8/19/2023 | 8/11/2024 | 8/17/2024 |
| 34 | 8/22/2021 | 8/28/2021 | 8/21/2022 | 8/27/2022 | 8/20/2023 | 8/26/2023 | 8/18/2024 | 8/24/2024 |
| 35 | 8/29/2021 | 9/4/2021 | 8/28/2022 | 9/3/2022 | 8/27/2023 | 9/2/2023 | 8/25/2024 | 8/31/2024 |
| 36 | 9/5/2021 | 9/11/2021 | 9/4/2022 | 9/10/2022 | 9/3/2023 | 9/9/2023 | 9/1/2024 | 9/7/2024 |
| 37 | 9/12/2021 | 9/18/2021 | 9/11/2022 | 9/17/2022 | 9/10/2023 | 9/16/2023 | 9/8/2024 | 9/14/2024 |
| 38 | 9/19/2021 | 9/25/2021 | 9/18/2022 | 9/24/2022 | 9/17/2023 | 9/23/2023 | 9/15/2024 | 9/21/2024 |
| 39 | 9/26/2021 | 10/2/2021 | 9/25/2022 | 10/1/2022 | 9/24/2023 | 9/30/2023 | 9/22/2024 | 9/28/2024 |

| 40 | 10/3/2021 | 10/9/2021 | 10/2/2022 | 10/8/2022 | 10/1/2023 | 10/7/2023 | 9/29/2024 | 10/5/2024 |
|----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 41 | 10/10/2021 | 10/16/2021 | 10/9/2022 | 10/15/2022 | 10/8/2023 | 10/14/2023 | 10/6/2024 | 10/12/2024 |
| 42 | 10/17/2021 | 10/23/2021 | 10/16/2022 | 10/22/2022 | 10/15/2023 | 10/21/2023 | 10/13/2024 | 10/19/2024 |
| 43 | 10/24/2021 | 10/30/2021 | 10/23/2022 | 10/29/2022 | 10/22/2023 | 10/28/2023 | 10/20/2024 | 10/26/2024 |
| 44 | 10/31/2021 | 11/6/2021 | 10/30/2022 | 11/5/2022 | 10/29/2023 | 11/4/2023 | 10/27/2024 | 11/2/2024 |
| 45 | 11/7/2021 | 11/13/2021 | 11/6/2022 | 11/12/2022 | 11/5/2023 | 11/11/2023 | 11/3/2024 | 11/9/2024 |
| 46 | 11/14/2021 | 11/20/2021 | 11/13/2022 | 11/19/2022 | 11/12/2023 | 11/18/2023 | 11/10/2024 | 11/16/2024 |
| 47 | 11/21/2021 | 11/27/2021 | 11/20/2022 | 11/26/2022 | 11/19/2023 | 11/25/2023 | 11/17/2024 | 11/23/2024 |
| 48 | 11/28/2021 | 12/4/2021 | 11/27/2022 | 12/3/2022 | 11/26/2023 | 12/2/2023 | 11/24/2024 | 11/30/2024 |
| 49 | 12/5/2021 | 12/11/2021 | 12/4/2022 | 12/10/2022 | 12/3/2023 | 12/9/2023 | 12/1/2024 | 12/7/2024 |
| 50 | 12/12/2021 | 12/18/2021 | 12/11/2022 | 12/17/2022 | 12/10/2023 | 12/16/2023 | 12/8/2024 | 12/14/2024 |
| 51 | 12/19/2021 | 12/25/2021 | 12/18/2022 | 12/24/2022 | 12/17/2023 | 12/23/2023 | 12/15/2024 | 12/21/2024 |
| 52 | 12/26/2021 | 1/1/2022 | 12/25/2022 | 12/31/2022 | 12/24/2023 | 12/30/2023 | 12/22/2024 | 12/28/2024 |
| 53 | | | | | | | | |