

Influenza Surveillance Report

2023 MMWR Week 03 (ending Jan 21, 2023)



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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 January 21, 2023 (end of 2023 MMWR Week 03).

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 November, the 5-week average counts of ILI for both children under 18 and adults 18 and over are each showing downward trends.
- 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 trend. Both ILI without and an RSV or COVID diagnosis and the discharge diagnosed influenza counts have been on a downward trend.
- In the past 5 weeks, both the percentage of visits with ILI and the percentage of visits with discharge diagnosed influenza are on a downward trend.
- For 2023 Week 3, one school tested positive for influenza A (3.1% of schools sampled).

	5-week Trend	Change from Previous Week	Current Week (2023 MMWR Week 03)	Current Week (2023 MMWR Week 02)	Change from Previous Week in Texas	Change from Previous Week in U.S.
Percentage of Visits with ILI	Decreasing	+0.09%	0.98%	0.89%	Decreasing	Decreasing
Percentage of Visits with Discharge Diagnosed Influenza	Decreasing	-0.08%	0.40%	0.48%	N/A	N/A

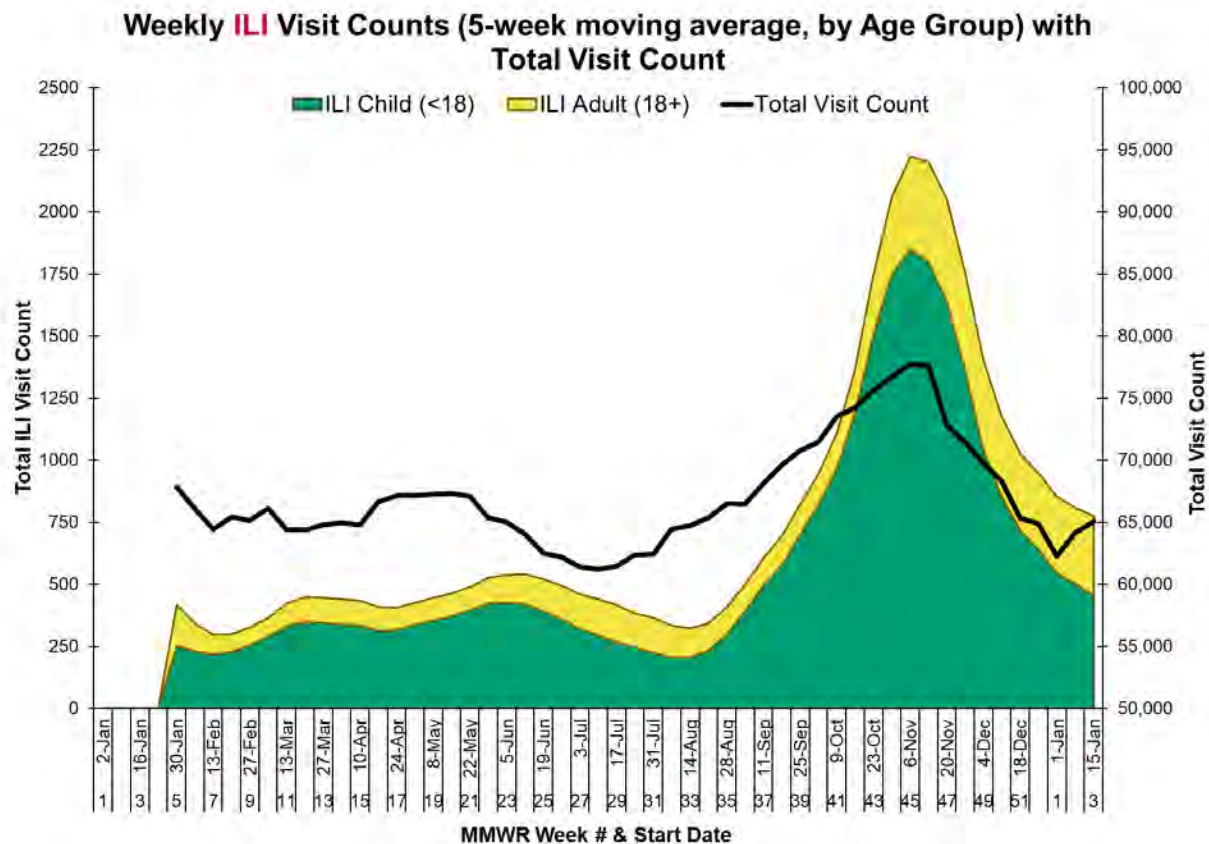


Figure 1. The ILI Counts by Age Group with the Total Visit Count (5-week Moving Averages).

As seen in Figure 1, the 5-week average counts of ILI for both age groups above have been on an upward trend since August 2022. Since beginning of November 2022, these values are each showing downward trends with a recent uptick in total visit count, most likely returning to a pre-winter/holiday number.



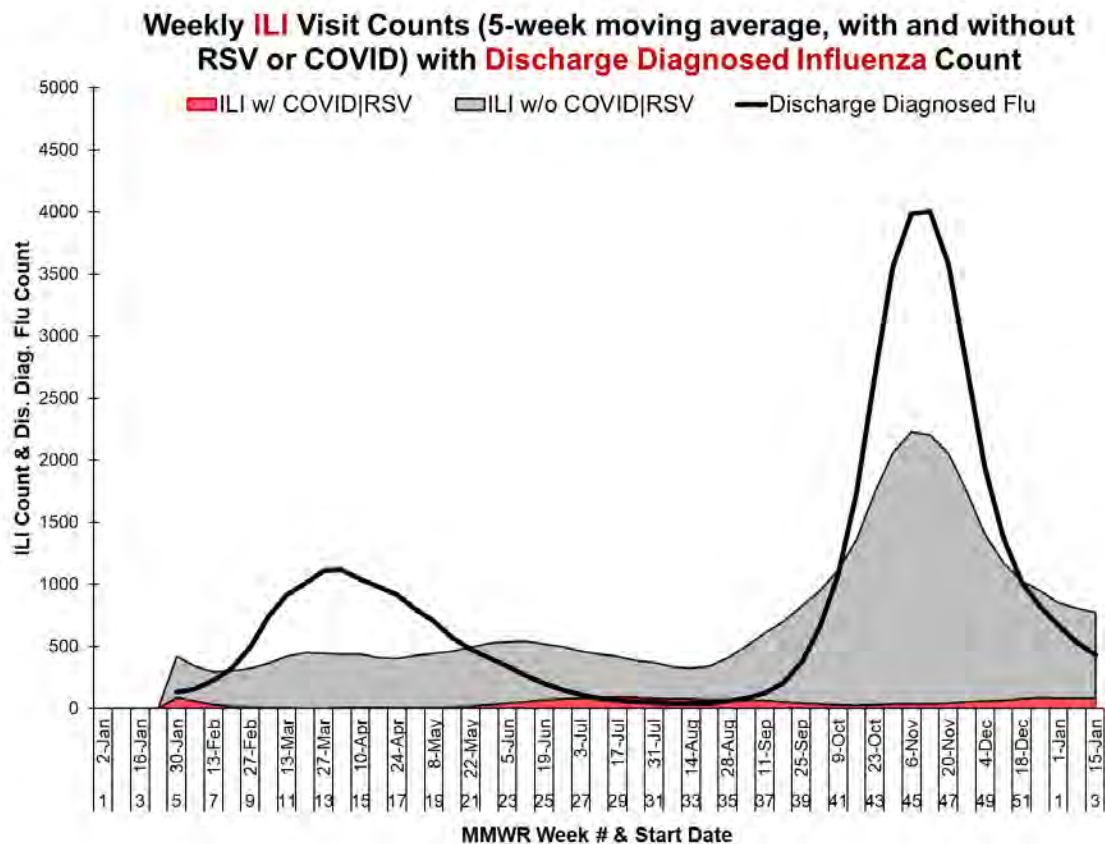


Figure 2. The Weekly ILI Visit Counts, with and without an RSV or COVID Diagnosis, with the Discharge Diagnosed Influenza Count (5-week Moving Averages).

As seen in Figure 2, the 5-week average count of ILI with an RSV or COVID diagnosis has been on a downward trend since August, however, beginning late Oct/early Nov indicate a slight upward trend. Both ILI without and an RSV or COVID diagnosis and the discharge diagnosed influenza counts have been on an upward trend since August, however, beginning late Oct/early Nov indicate a downward trend.

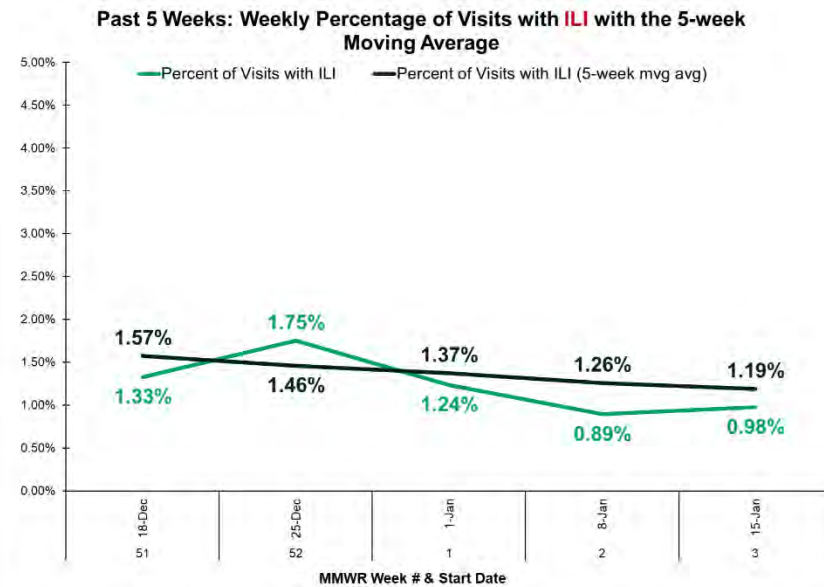
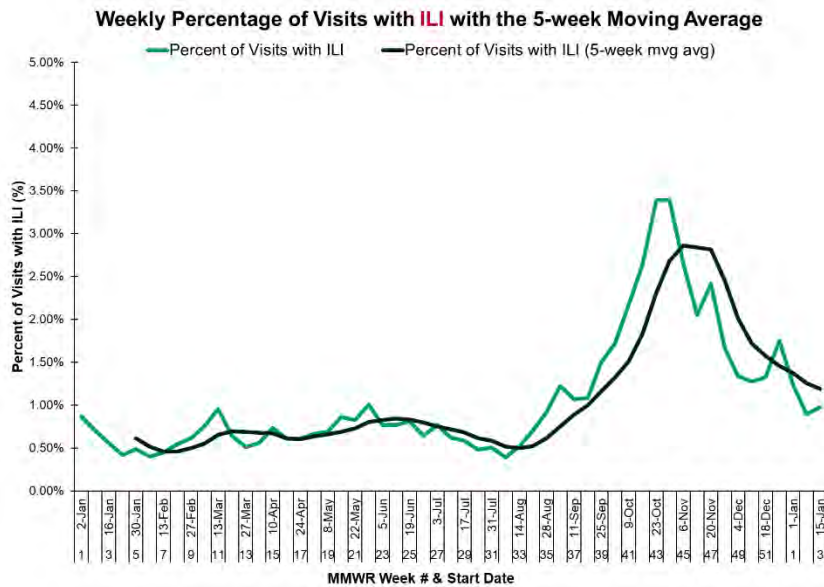


Figure 3. The Percentage of Visits with ILI with 5-week Moving Average.

As seen in Figure 3, the percentage of visits with ILI is on a slight downward trend for the past 5 weeks.

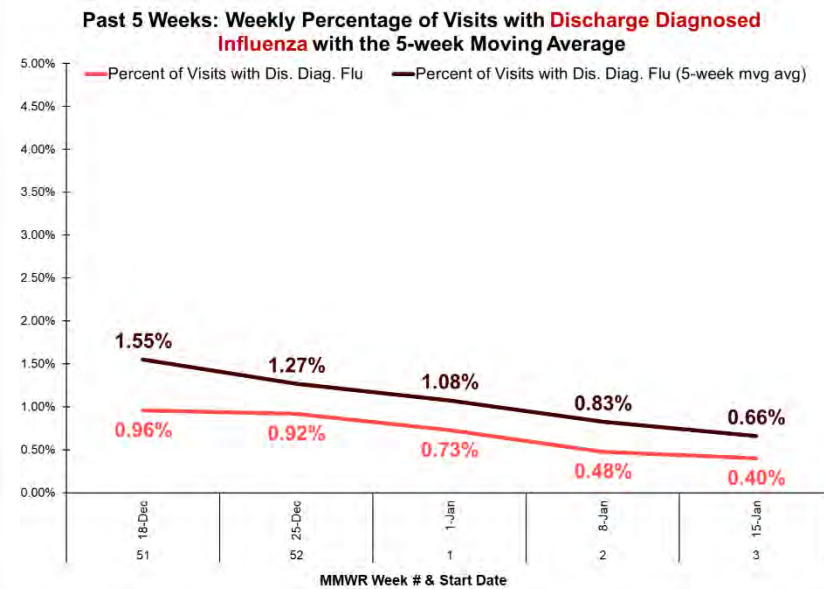
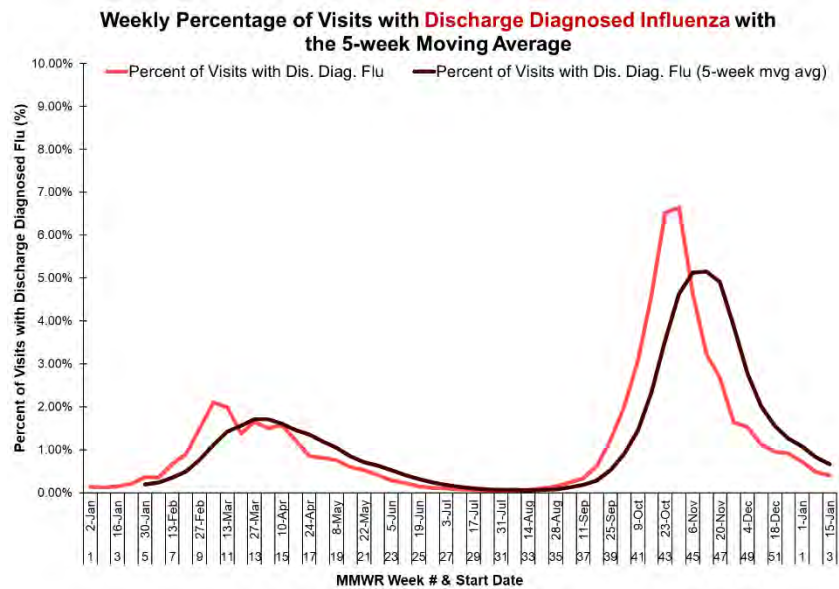


Figure 4. The Percentage of Visits with Discharge Diagnosed Influenza with 5-week Moving Average.

As seen in Figure 4, the percentage of visits with discharge diagnosed influenza is on a slight downward trend for the past 5 weeks.

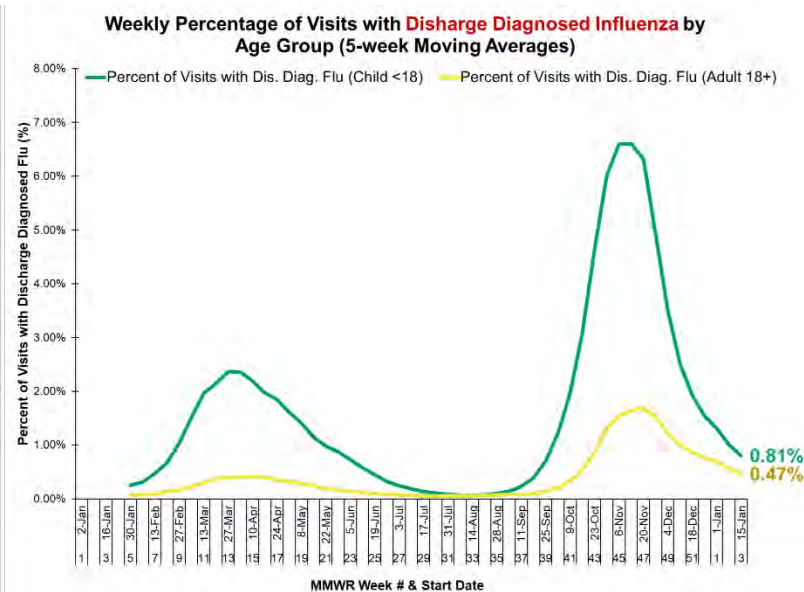
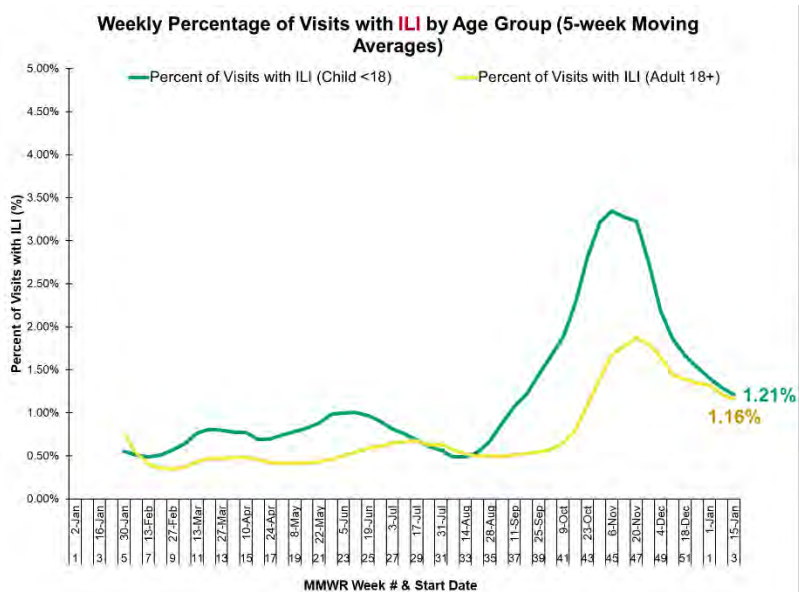


Figure 5. The Percentage of Visits with ILI by Age Group (left, 5-week moving averages) and the Percentage of Visits with Discharge Diagnosed Influenza (right, 5-week moving averages).

As seen in Figure 5, since August, both the percentage of visits with ILI and the percentage of visits with discharge diagnosed influenza are on an upward trend for both age groups. Recent ILI & discharge diagnosed influenza values indicate a downward trend for children and adults. For both these metrics, the percentages for the children under 18 age group are higher compared to percentages seen in the adult age group.

Weekly Percentage of Visits with ILI by Flu Season

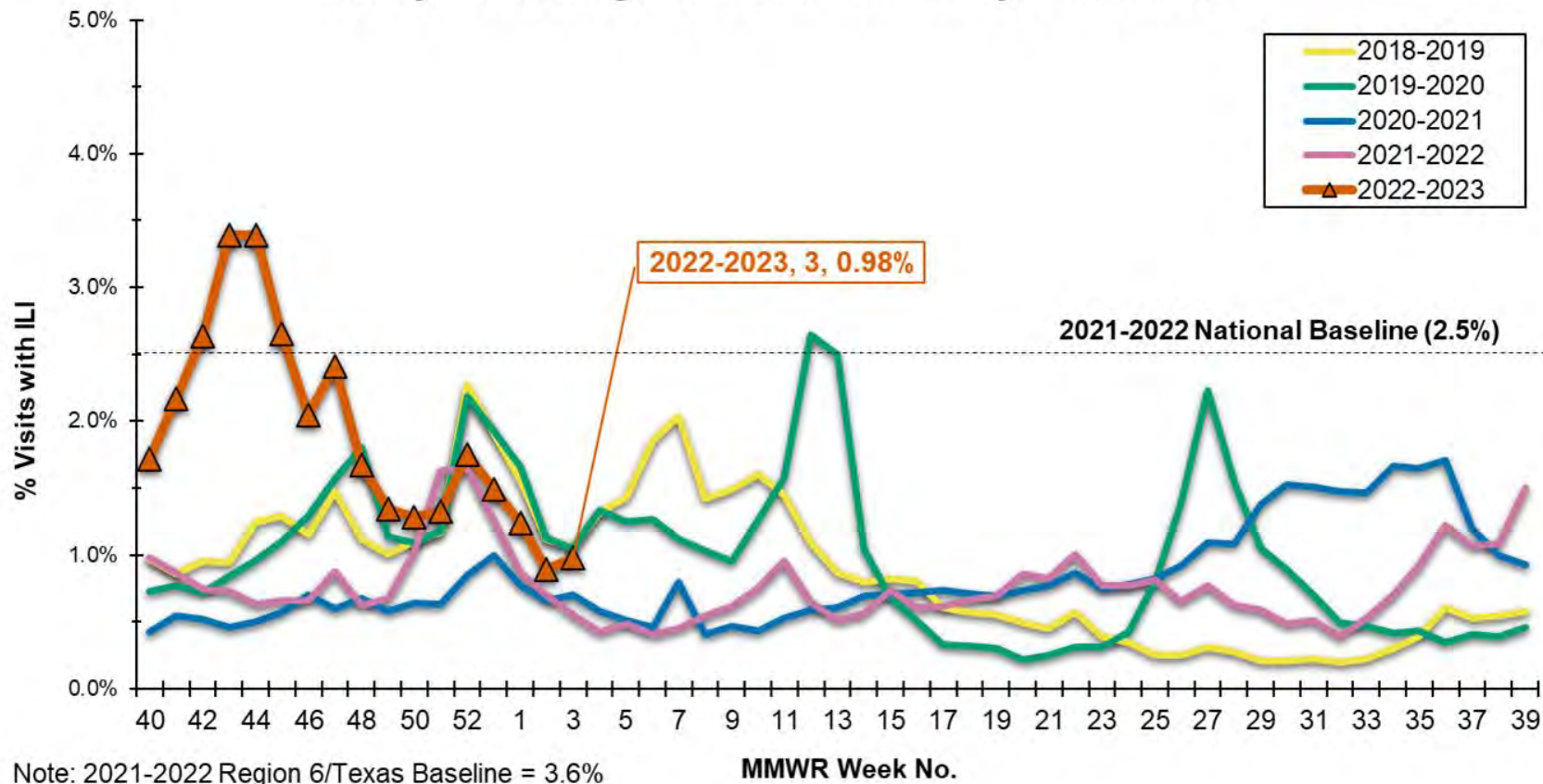


Figure 6. The Weekly Percentage of Visits with ILI for Current (2022-2023) and Previous Seasons.

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.

Weekly Percentage of Visits with Discharge Diagnosed Influenza by Flu Season

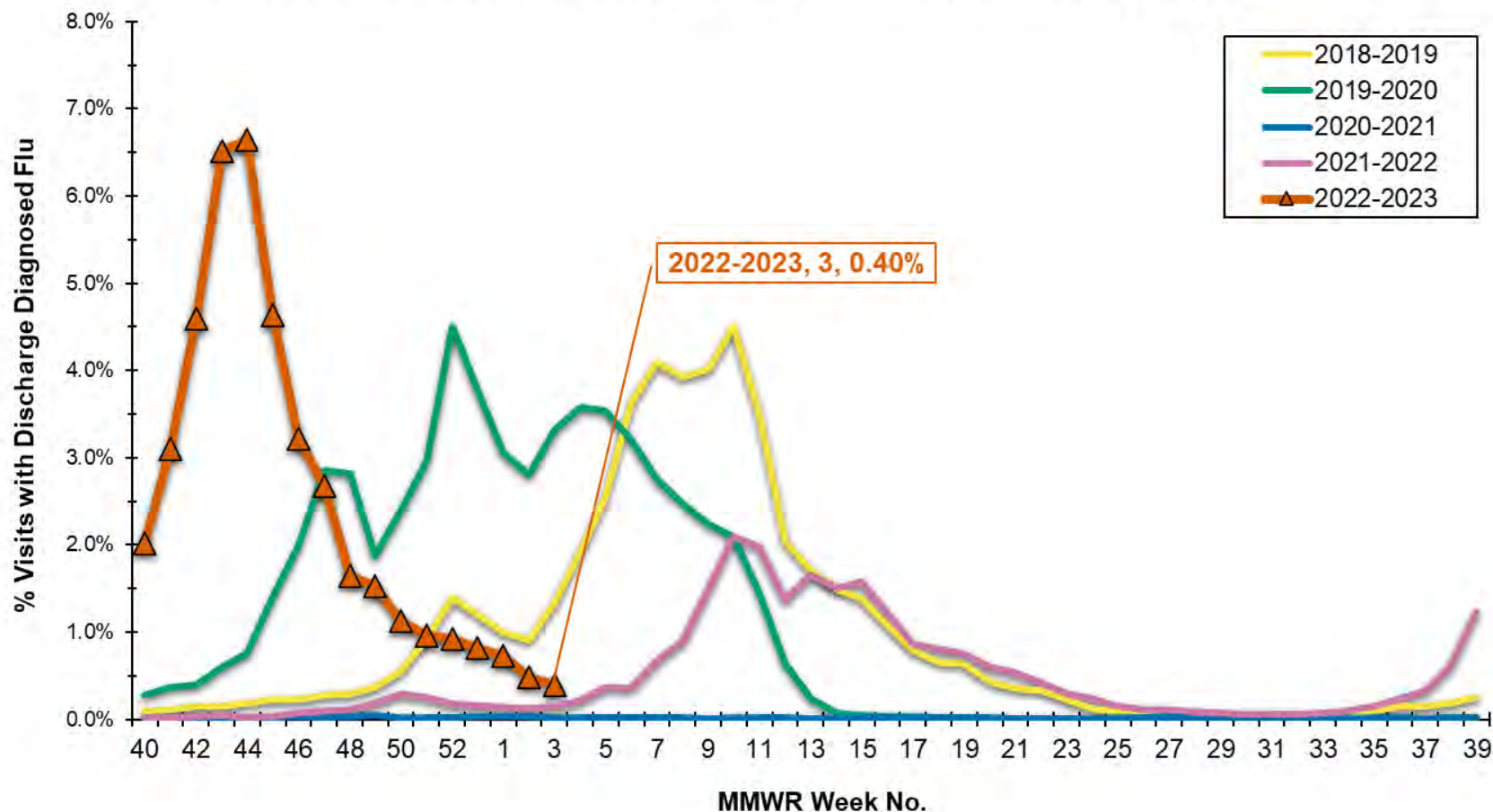


Figure 7. The Weekly Percentage of Visits with Discharge Diagnosed Influenza for Current (2022-2023) and Previous Seasons.

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	329,837	29%	6,598	30%	8997	30%
5 to 17	416,411	37%	13,220	60%	17862	59%
18 to 39	209,346	19%	1,399	6%	2221	7%
40 to 59	88,495	8%	437	2%	704	2%
60 to 79	64,459	6%	321	1%	497	2%
80 plus	19,754	2%	105	0%	161	1%
Total	1,128,302		22,080		30,442	

Figure 8. For the 2022 to 2023 Flu Season starting MMWR 2022 Week 40 to 2023 Week 03 (October 2nd, 2022 to January 21st, 2022), the Count Breakdown for Total Visits, ILI Visits, and Discharge Diagnosed Influenza Visits by Age Group.

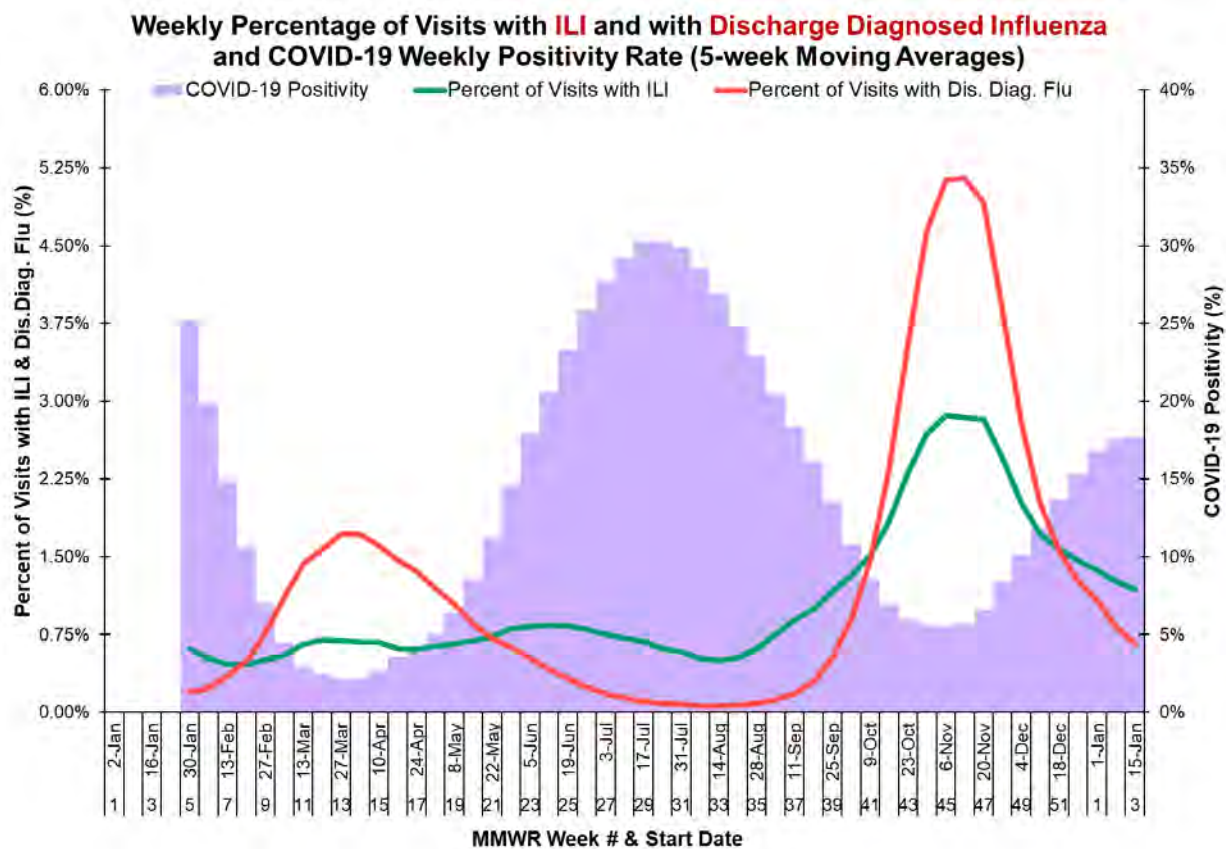


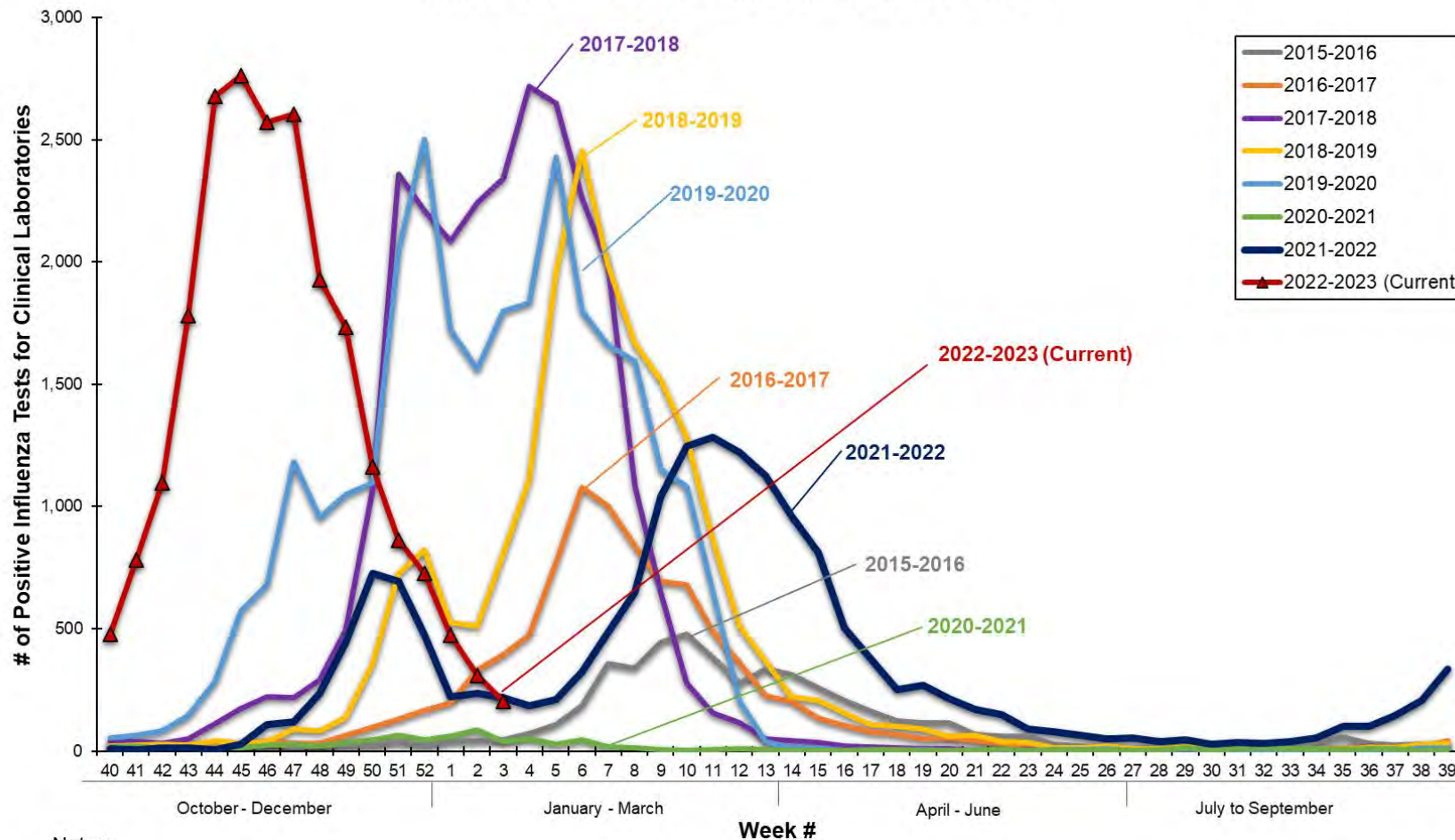
Figure 9. The Weekly Percentage of Visits with ILI and the Weekly Percentage of Visits with Discharge Diagnosed Influenza with the Weekly COVID-19 Positivity Rate.

As seen in Figure 10 and previous figures, the percentage of visits with ILI and the percentage of visits with discharge diagnosed influenza have been trending downwards, while the recent COVID-19 positivity rate is trending upward.

NOTE: COVID-19 positivity rate as of 01/25/2023.

The Statewide Positive Influenza Tests for Texas

Statewide Positive Influenza Tests for Texas

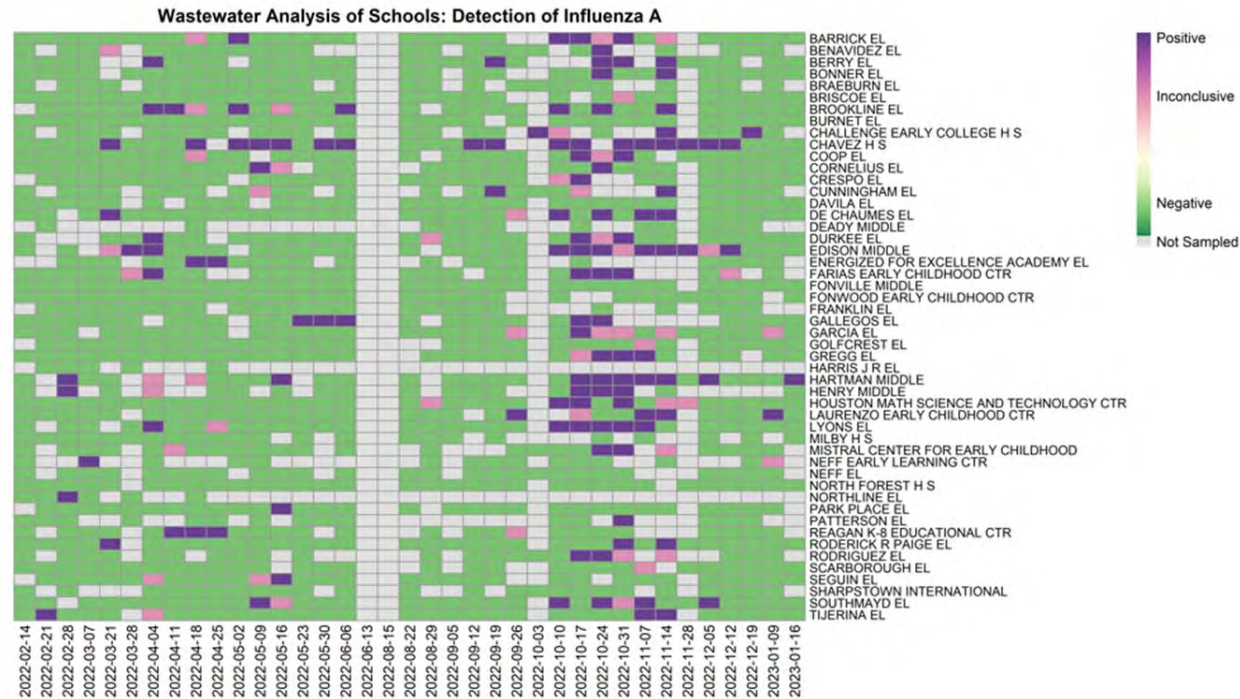


Notes:

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 past weeks in the 2021-2022 & current 2022-2023 season are subject to change.



The Wastewater Analysis of Schools: Influenza A



On 01/16/2023 (2023 Week 3), out of the 32 schools sampled for the week:

- **1 school tested positive for Influenza A:** Hartman Middle.
- **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:

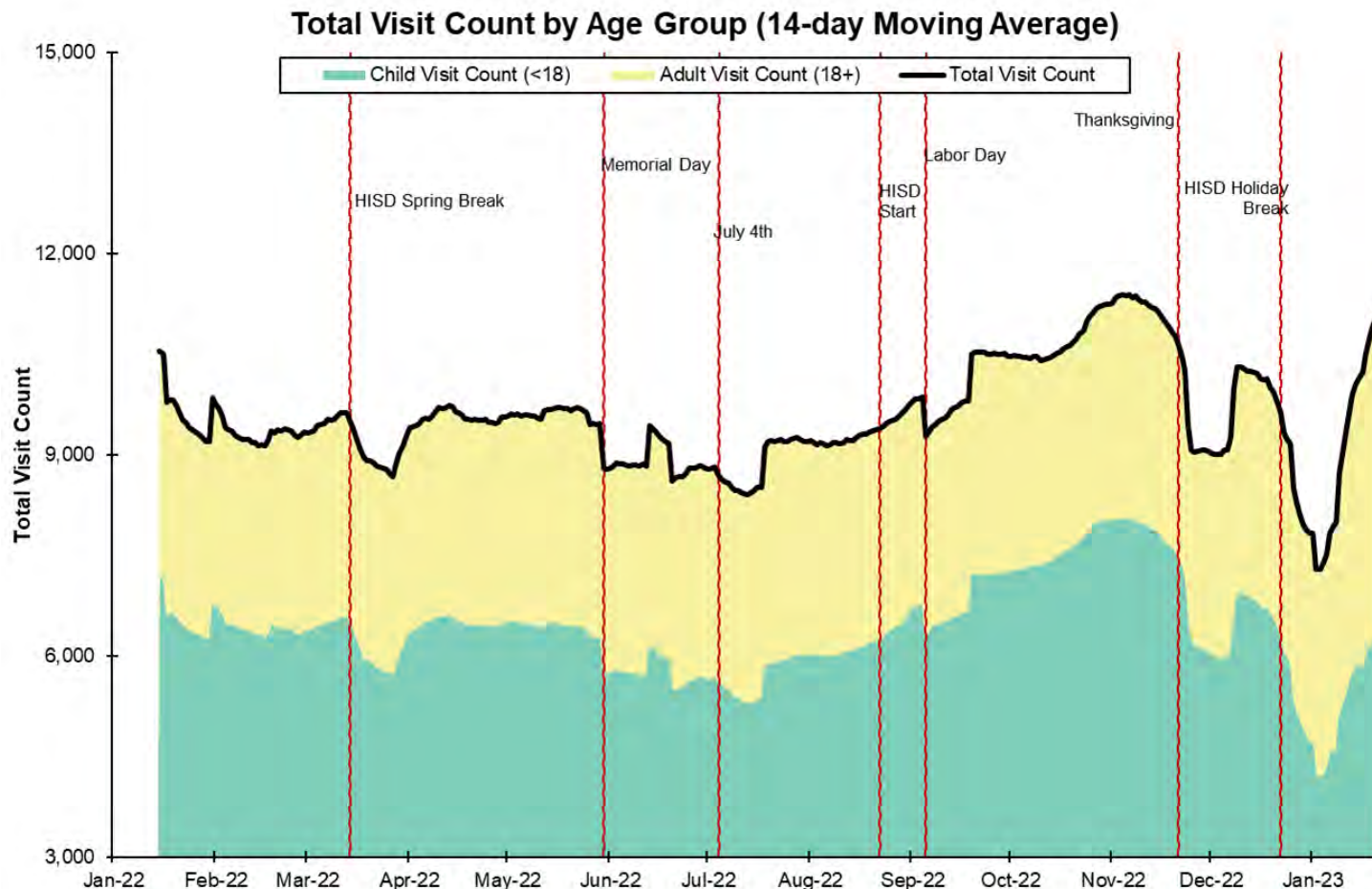
$$\% \text{ of Visits with ILI (weekly)} = \frac{\# \text{ of visits with ILI in week}}{\# \text{ of visits in week}}$$

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

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

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.

MMWR Week #	2020		2021		2022		2023	
	Start	End	Start	End	Start	End	Start	End
1	12/29/2019	1/4/2020	1/3/2021	1/9/2021	1/2/2022	1/8/2022	1/1/2023	1/7/2023
2	1/5/2020	1/11/2020	1/10/2021	1/16/2021	1/9/2022	1/15/2022	1/8/2023	1/14/2023
3	1/12/2020	1/18/2020	1/17/2021	1/23/2021	1/16/2022	1/22/2022	1/15/2023	1/21/2023
4	1/19/2020	1/25/2020	1/24/2021	1/30/2021	1/23/2022	1/29/2022	1/22/2023	1/28/2023
5	1/26/2020	2/1/2020	1/31/2021	2/6/2021	1/30/2022	2/5/2022	1/29/2023	2/4/2023
6	2/2/2020	2/8/2020	2/7/2021	2/13/2021	2/6/2022	2/12/2022	2/5/2023	2/11/2023
7	2/9/2020	2/15/2020	2/14/2021	2/20/2021	2/13/2022	2/19/2022	2/12/2023	2/18/2023
8	2/16/2020	2/22/2020	2/21/2021	2/27/2021	2/20/2022	2/26/2022	2/19/2023	2/25/2023
9	2/23/2020	2/29/2020	2/28/2021	3/6/2021	2/27/2022	3/5/2022	2/26/2023	3/4/2023
10	3/1/2020	3/7/2020	3/7/2021	3/13/2021	3/6/2022	3/12/2022	3/5/2023	3/11/2023
11	3/8/2020	3/14/2020	3/14/2021	3/20/2021	3/13/2022	3/19/2022	3/12/2023	3/18/2023
12	3/15/2020	3/21/2020	3/21/2021	3/27/2021	3/20/2022	3/26/2022	3/19/2023	3/25/2023
13	3/22/2020	3/28/2020	3/28/2021	4/3/2021	3/27/2022	4/2/2022	3/26/2023	4/1/2023
14	3/29/2020	4/4/2020	4/4/2021	4/10/2021	4/3/2022	4/9/2022	4/2/2023	4/8/2023
15	4/5/2020	4/11/2020	4/11/2021	4/17/2021	4/10/2022	4/16/2022	4/9/2023	4/15/2023
16	4/12/2020	4/18/2020	4/18/2021	4/24/2021	4/17/2022	4/23/2022	4/16/2023	4/22/2023
17	4/19/2020	4/25/2020	4/25/2021	5/1/2021	4/24/2022	4/30/2022	4/23/2023	4/29/2023
18	4/26/2020	5/2/2020	5/2/2021	5/8/2021	5/1/2022	5/7/2022	4/30/2023	5/6/2023
19	5/3/2020	5/9/2020	5/9/2021	5/15/2021	5/8/2022	5/14/2022	5/7/2023	5/13/2023
20	5/10/2020	5/16/2020	5/16/2021	5/22/2021	5/15/2022	5/21/2022	5/14/2023	5/20/2023
21	5/17/2020	5/23/2020	5/23/2021	5/29/2021	5/22/2022	5/28/2022	5/21/2023	5/27/2023
22	5/24/2020	5/30/2020	5/30/2021	6/5/2021	5/29/2022	6/4/2022	5/28/2023	6/3/2023
23	5/31/2020	6/6/2020	6/6/2021	6/12/2021	6/5/2022	6/11/2022	6/4/2023	6/10/2023
24	6/7/2020	6/13/2020	6/13/2021	6/19/2021	6/12/2022	6/18/2022	6/11/2023	6/17/2023
25	6/14/2020	6/20/2020	6/20/2021	6/26/2021	6/19/2022	6/25/2022	6/18/2023	6/24/2023
26	6/21/2020	6/27/2020	6/27/2021	7/3/2021	6/26/2022	7/2/2022	6/25/2023	7/1/2023
27	6/28/2020	7/4/2020	7/4/2021	7/10/2021	7/3/2022	7/9/2022	7/2/2023	7/8/2023



28	7/5/2020	7/11/2020	7/11/2021	7/17/2021	7/10/2022	7/16/2022	7/9/2023	7/15/2023
29	7/12/2020	7/18/2020	7/18/2021	7/24/2021	7/17/2022	7/23/2022	7/16/2023	7/22/2023
30	7/19/2020	7/25/2020	7/25/2021	7/31/2021	7/24/2022	7/30/2022	7/23/2023	7/29/2023
31	7/26/2020	8/1/2020	8/1/2021	8/7/2021	7/31/2022	8/6/2022	7/30/2023	8/5/2023
32	8/2/2020	8/8/2020	8/8/2021	8/14/2021	8/7/2022	8/13/2022	8/6/2023	8/12/2023
33	8/9/2020	8/15/2020	8/15/2021	8/21/2021	8/14/2022	8/20/2022	8/13/2023	8/19/2023
34	8/16/2020	8/22/2020	8/22/2021	8/28/2021	8/21/2022	8/27/2022	8/20/2023	8/26/2023
35	8/23/2020	8/29/2020	8/29/2021	9/4/2021	8/28/2022	9/3/2022	8/27/2023	9/2/2023
36	8/30/2020	9/5/2020	9/5/2021	9/11/2021	9/4/2022	9/10/2022	9/3/2023	9/9/2023
37	9/6/2020	9/12/2020	9/12/2021	9/18/2021	9/11/2022	9/17/2022	9/10/2023	9/16/2023
38	9/13/2020	9/19/2020	9/19/2021	9/25/2021	9/18/2022	9/24/2022	9/17/2023	9/23/2023
39	9/20/2020	9/26/2020	9/26/2021	10/2/2021	9/25/2022	10/1/2022	9/24/2023	9/30/2023
40	9/27/2020	10/3/2020	10/3/2021	10/9/2021	10/2/2022	10/8/2022	10/1/2023	10/7/2023
41	10/4/2020	10/10/2020	10/10/2021	10/16/2021	10/9/2022	10/15/2022	10/8/2023	10/14/2023
42	10/11/2020	10/17/2020	10/17/2021	10/23/2021	10/16/2022	10/22/2022	10/15/2023	10/21/2023
43	10/18/2020	10/24/2020	10/24/2021	10/30/2021	10/23/2022	10/29/2022	10/22/2023	10/28/2023
44	10/25/2020	10/31/2020	10/31/2021	11/6/2021	10/30/2022	11/5/2022	10/29/2023	11/4/2023
45	11/1/2020	11/7/2020	11/7/2021	11/13/2021	11/6/2022	11/12/2022	11/5/2023	11/11/2023
46	11/8/2020	11/14/2020	11/14/2021	11/20/2021	11/13/2022	11/19/2022	11/12/2023	11/18/2023
47	11/15/2020	11/21/2020	11/21/2021	11/27/2021	11/20/2022	11/26/2022	11/19/2023	11/25/2023
48	11/22/2020	11/28/2020	11/28/2021	12/4/2021	11/27/2022	12/3/2022	11/26/2023	12/2/2023
49	11/29/2020	12/5/2020	12/5/2021	12/11/2021	12/4/2022	12/10/2022	12/3/2023	12/9/2023
50	12/6/2020	12/12/2020	12/12/2021	12/18/2021	12/11/2022	12/17/2022	12/10/2023	12/16/2023
51	12/13/2020	12/19/2020	12/19/2021	12/25/2021	12/18/2022	12/24/2022	12/17/2023	12/23/2023
52	12/20/2020	12/26/2020	12/26/2021	1/1/2022	12/25/2022	12/31/2022	12/24/2023	12/30/2023
53	12/27/2020	1/2/2021						

