HOUSTON HEALTH DEPARTMENT

Influenza Surveillance Report

2022 MMWR Week 1 (ending Jan 8th, 2022)

This report is in the process of format change to provide more detailed interpretation. Expect edits over the next few weeks. The original report analyzed the influenza-like illness (ILI) designation in ESSENCE, which defines ILI based on general symptoms (e.g., fever, sore throat, and cough) associated with influenza, but can also be symptoms of other illnesses (e.g., RSV or COVID). New to this report is the inclusion of the evaluation of the percentage ILI due to non-Influenza discharge diagnoses.

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Summary

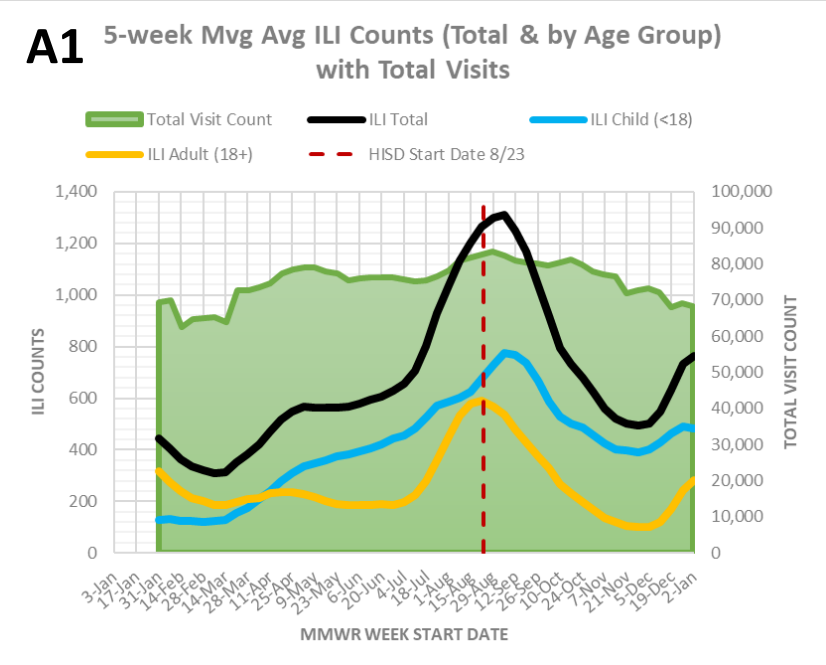
Objective: To monitor trends in influenza and influenza-like visits to facilities reporting to the Southeast Texas Syndromic Surveillance System (HHD-ESSENCE) in Houston/Harris County for public health intervention.

Time Frame: January 3, 2021 (start of 2021 MMWR Week 1) to January 8, 2022 (end of 2022 MMWR Week 1).

Summary:

- Since October 2021, both ILI and Discharge Diagnosed Influenza visits are trending upward (overall, children under 18, and 18 and over).
- Since October 2021, the percentage of visits due to ILI is trending upwards, along with the percentage of visits due to Discharge Diagnosed Influenza.
- Currently, children under 18 have a lower percentage of visits due to ILI than adults, however, both age groups are on a slight upward trend for this measure.
- Currently, children under 18 have a slightly higher percentage of visits due to Discharge Diagnosed Influenza than adults, and both age groups are trending upwards for this measure.

	5-week Trend	Change from Previous Week	Current Week (2022 MMWR Week 1)	Previous Week (2021 MMWR Week 52)	Trend in Texas	Trend in U.S.
Percentage of Visits due to ILI	Increasing	-0.77%	0.87%	1.64%	Decreasing	Decreasing
Percentage of Visits due to Discharge Diagnosed Influenza	Decreasing	-0.05%	0.13%	0.18%	N/A	N/A



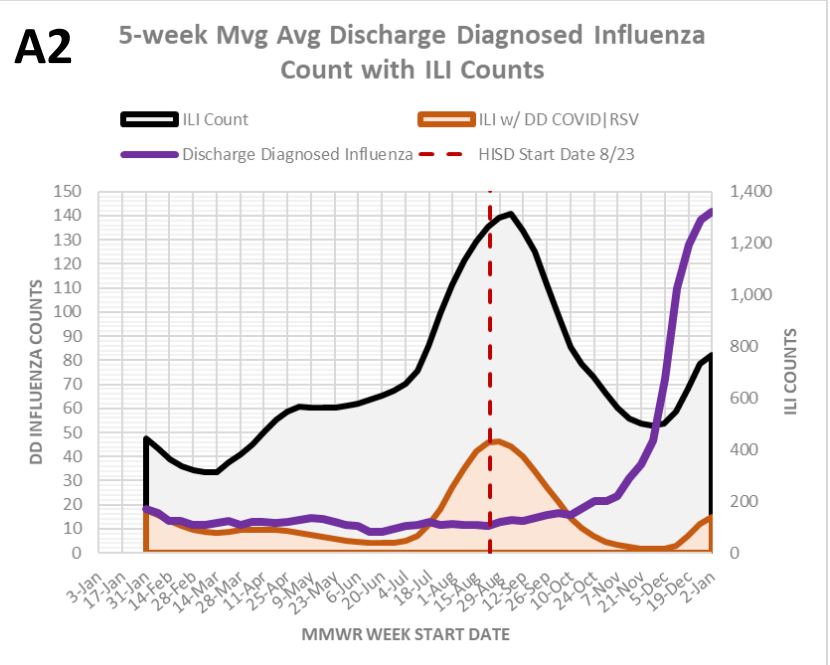
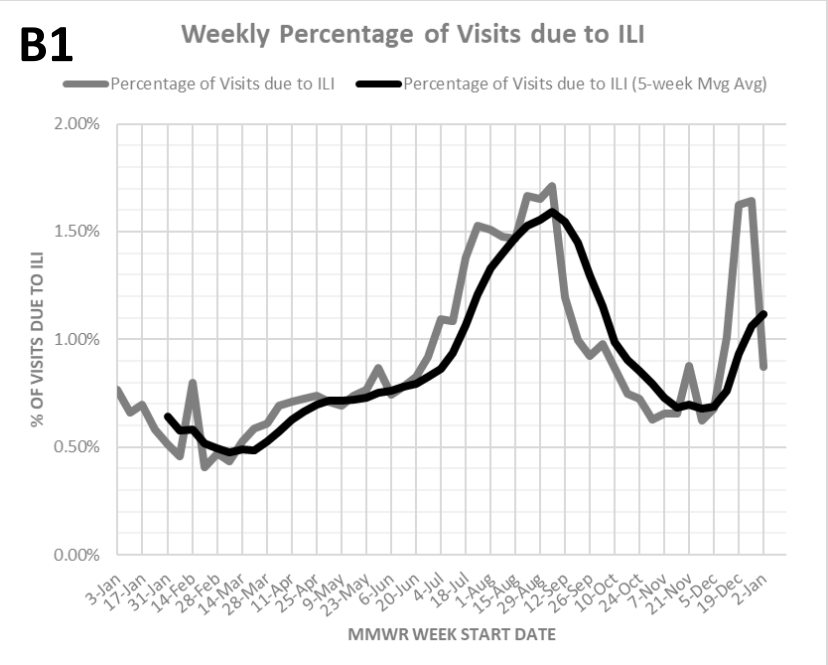


Figure A1. ILI Counts (Total, Child, & Adult) with Total Visit Count (5-week Moving Averages).
Figure A2. Discharge Diagnosed Influenza with ILI Counts, including Total & Discharge Diagnosed COVID or RSV (5-week Moving Averages).

Since beginning of December, ILI visits have been on an upward trend. Discharge diagnosed influenza visits have been on upward trend since August/September.



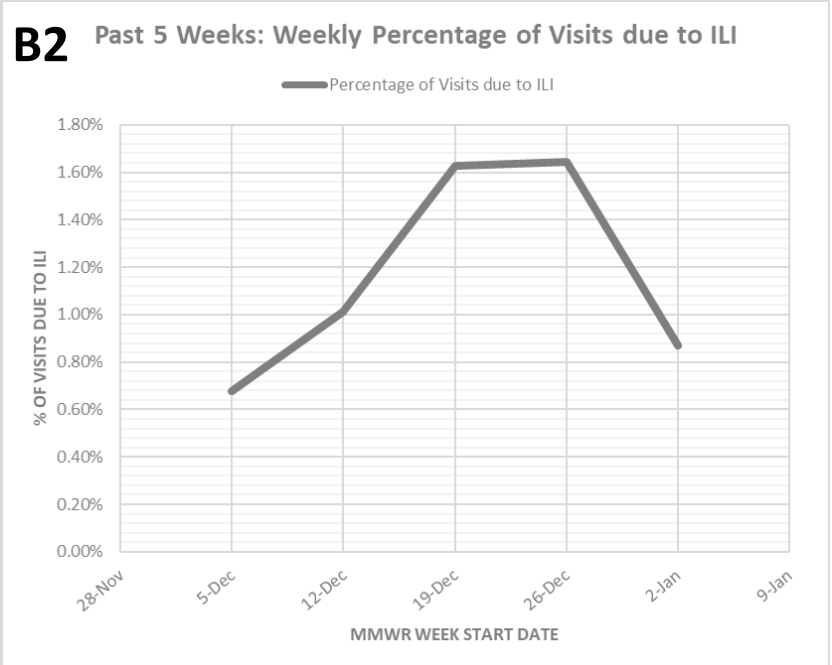


Figure B1. Percentage of Visits due to ILI with 5-week moving average.
Figure B2. Percentage of Visits due to ILI in the past 5 weeks (MMWR 2021 Week #49 to 2022 #1).

In the past 5 weeks, the percentage of visits due to ILI is on an upward trend.

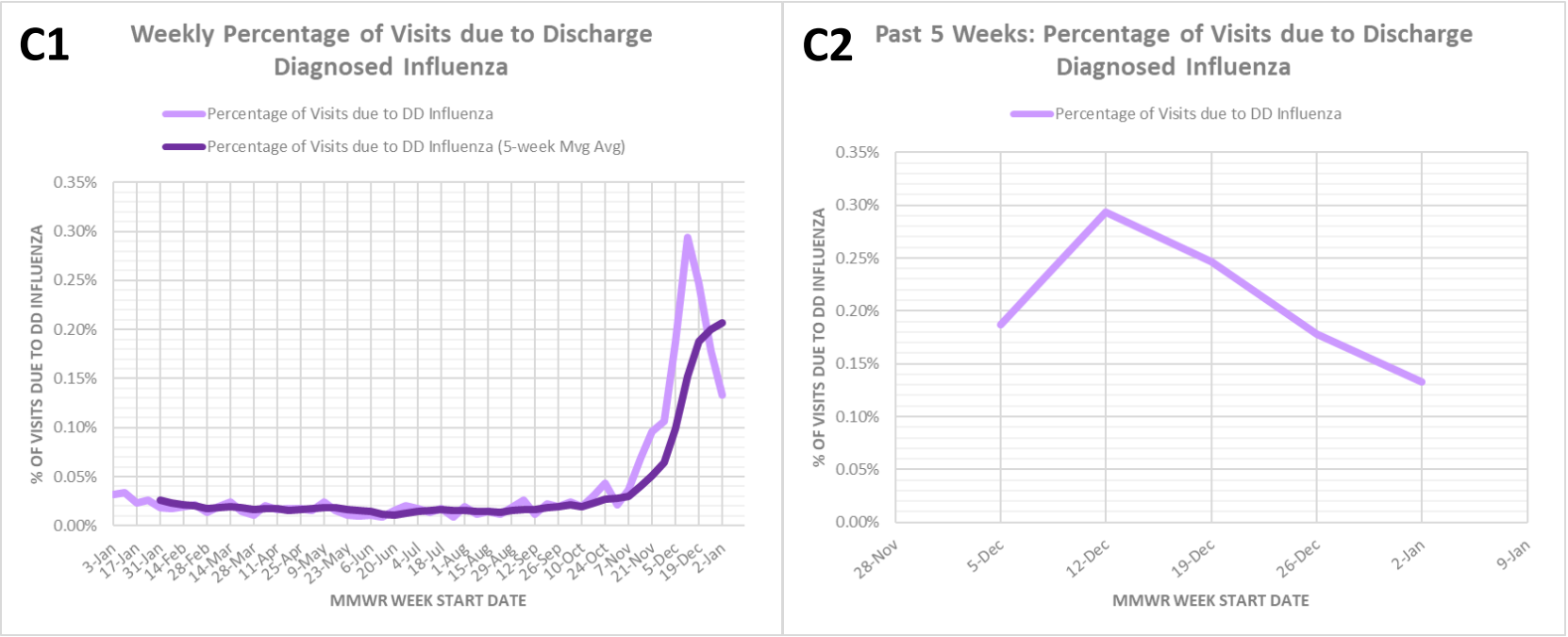
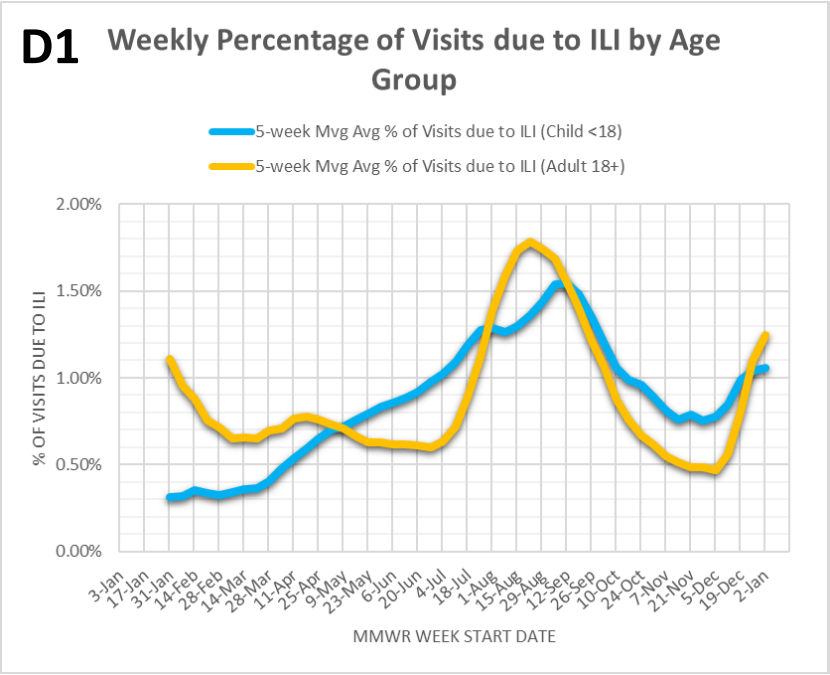


Figure C1. Percentage of Visits due to Discharge Diagnosed Influenza with 5-week moving average.
Figure C2. Percentage of Visits due to Discharge Diagnosed Influenza in the past 5 weeks (MMWR 2021 Week #49 to 2022 #1).

In the past 5 weeks, the percentage of visits due to discharge diagnosed influenza is on a downward trend.



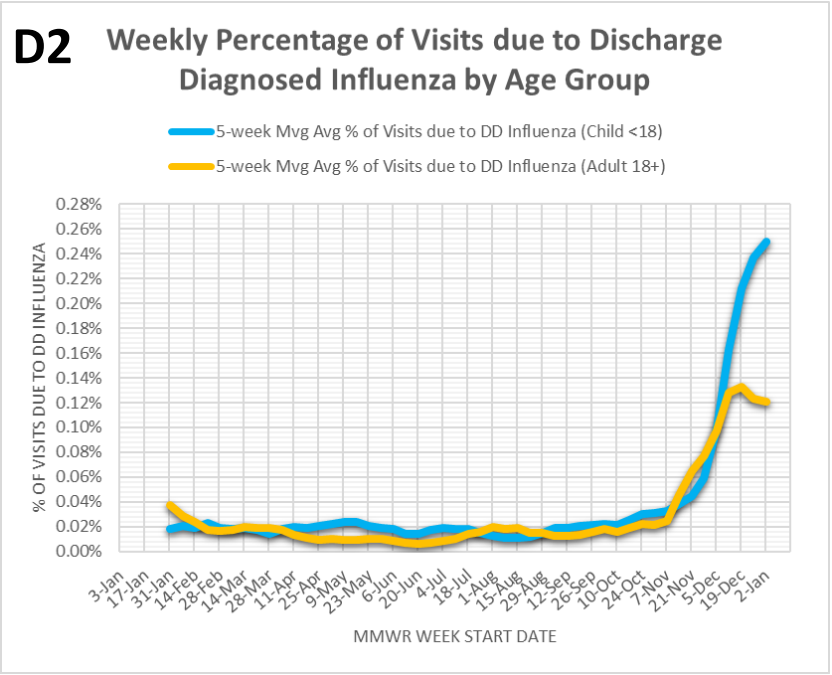


Figure D1. Weekly Percentage of Visits due to ILI by Age Group (with 5-week Moving Averages).
Figure D2. Weekly Percentage of Visits due to Discharge Diagnosed Influenza by Age Group (with 5-week Moving Averages).

Recently, children under 18 have a slightly lower percentage of visits due to ILI compared to adults 18 and over (change from previous week). Both age groups are on an upward trend for this measure.

Recently, children under 18 have a higher percentage of visits due to discharge diagnosed influenza compared to adults 18 and over (no change from previous week). Both age groups are on a slight upward/steady trend for this measure.

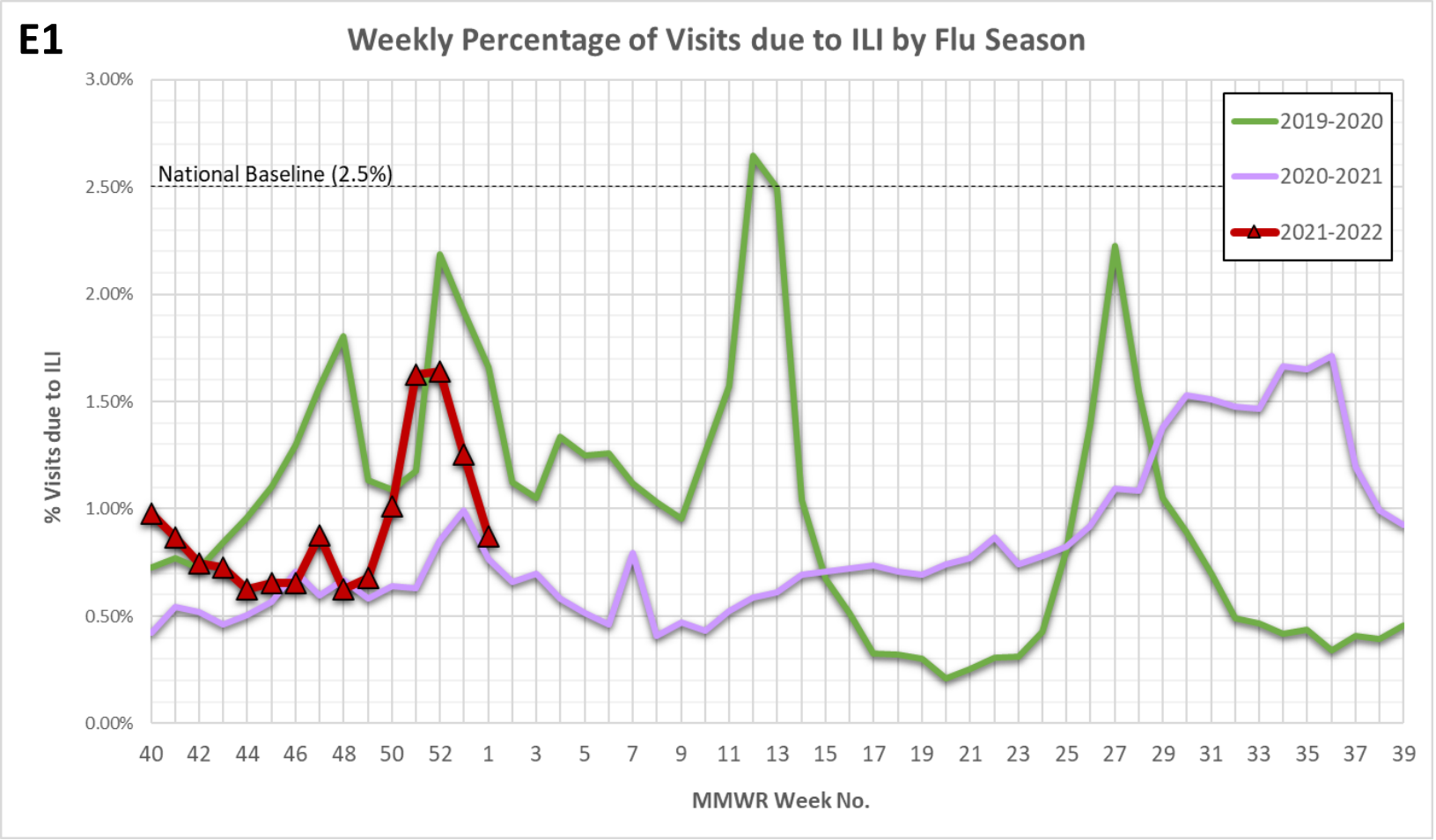


Figure E1. Weekly Percentage of Visits due to ILI for current (2021-2022) and previous seasons.

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.

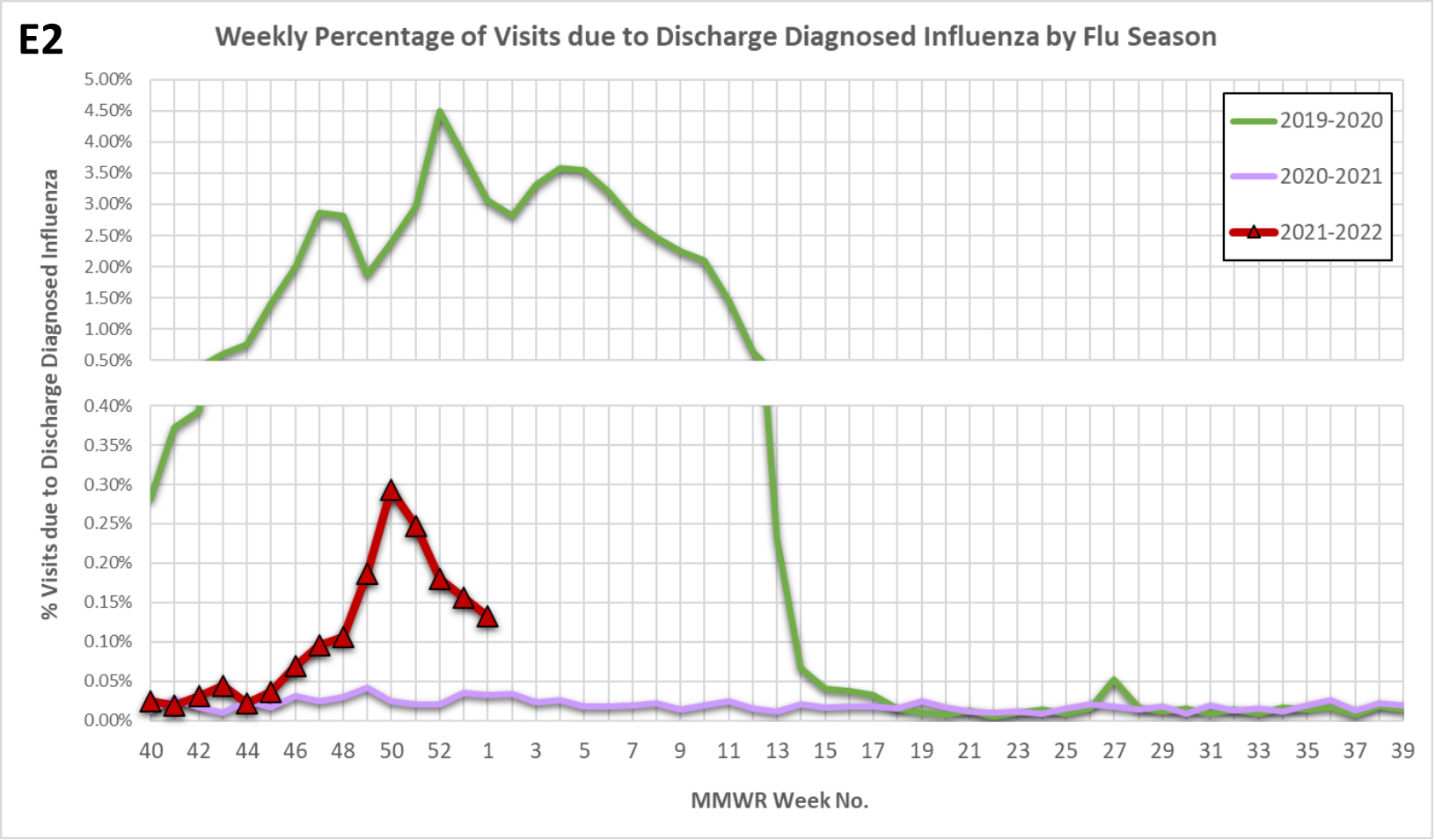


Figure E2. Weekly Percentage of Visits due to Discharge Diagnosed Influenza for current (2021-2022) and previous seasons.

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	284,586	28%	3,976	45%	307	30%
5 to 17	405,312	40%	2,303	26%	482	47%
18 to 39	189,684	19%	1,443	16%	187	18%
40 to 59	75,841	7%	757	8%	31	3%
60 to 79	50,798	5%	373	4%	21	2%
80 plus	15,135	1%	71	1%	6	1%
Total	1,021,356		8,923		1,034	

Table 1. For MMWR 2021 Week 40 to 2022 Week 1 (October 3rd, 2021 to January 8th, 2022), the count breakdown for total visits, ILI visits, and discharge diagnosed influenza visits by age group.

Note: change from previous report – this table now gives cumulative counts for current flu season (beginning MMWR 2021 Week 40 on October 3rd, 2021 to 2022 Week 1 ending Jan 8th, 2022)

APPENDIX

Data Source & Method

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 due to ILI was calculated on a weekly basis:

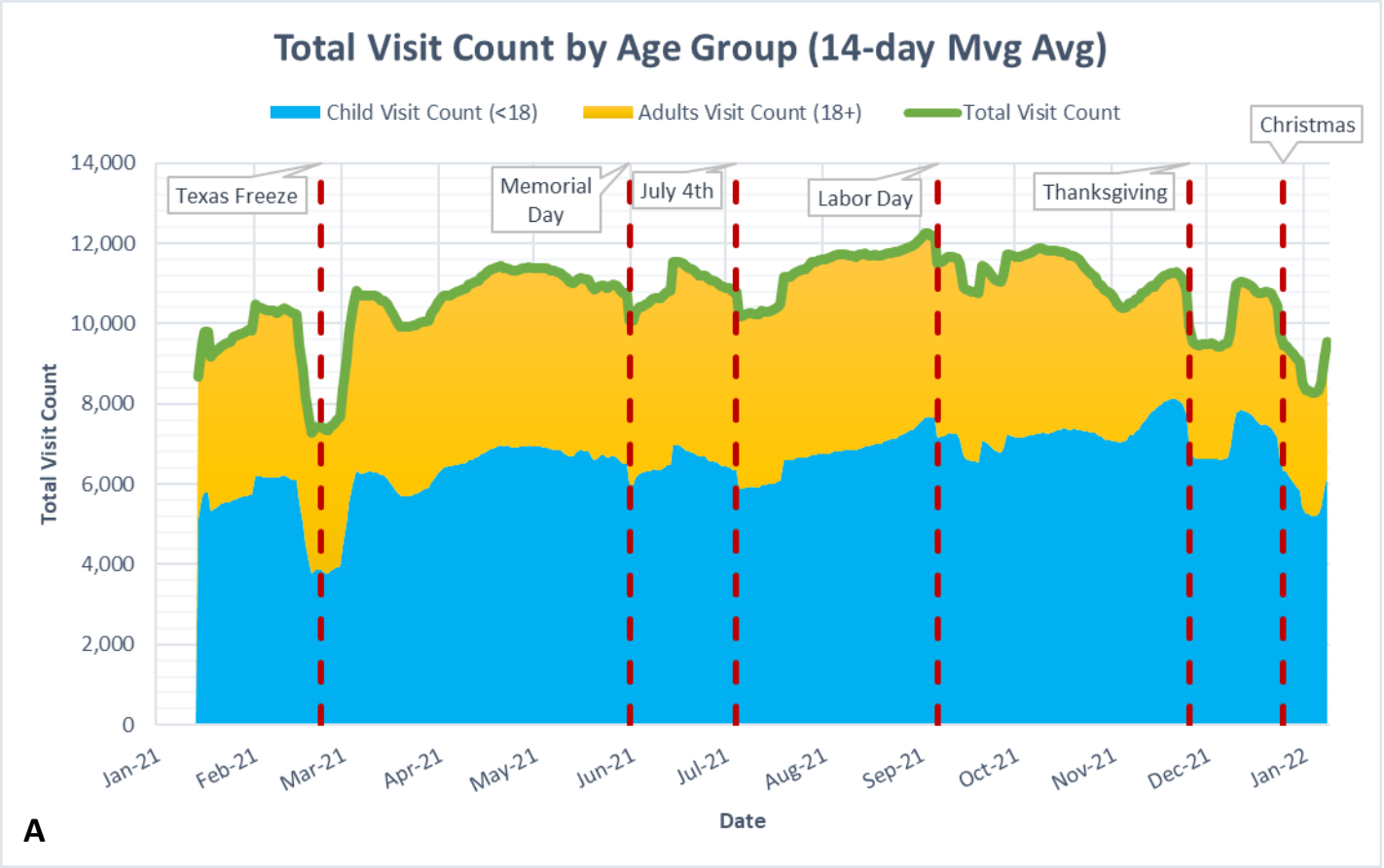
$$\%\ of\ Visits\ due\ to\ ILI\ (weekly) = \frac{\#\ of\ visits\ due\ to\ ILI\ in\ week}{\#\ of\ visits\ in\ week}$$

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

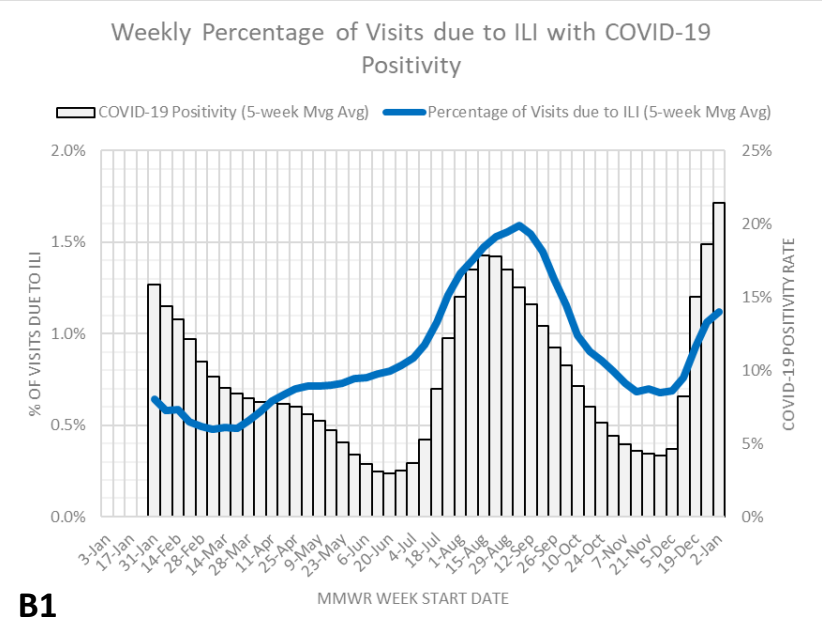
$$\%\ of\ Visits\ due\ to\ Discharge\ Diagnosed\ Influenza\ (weekly) = \frac{\#\ of\ visits\ due\ to\ Discharge\ Diagnosed\ Influenza\ in\ week}{\#\ of\ visits\ in\ week}$$

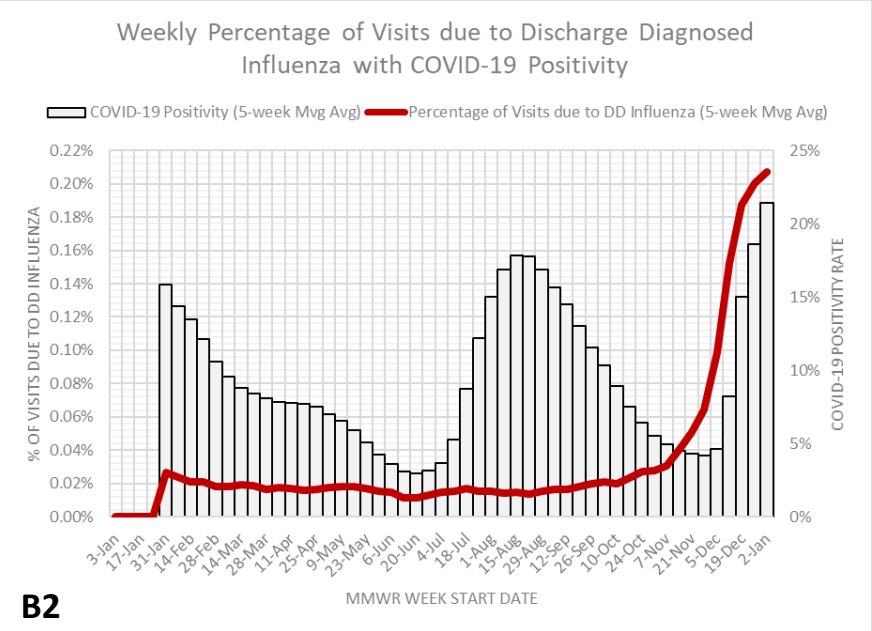
5. The 5-week moving average of these values was calculated and shown in figures.
6. Other tables and figures show similar values by age group or with respect to average temperature and relative humidity.

Appendix Figure A. Total Visits by Age Group (14-day Moving Averages).



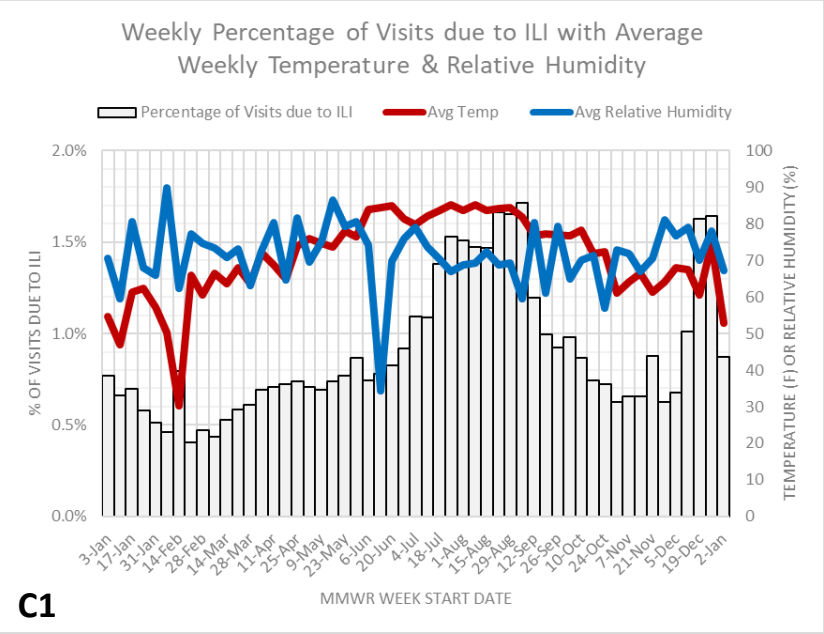
Total daily visit counts have stayed fairly consistent throughout the year, with drops in counts tending to coincide with major events or holidays (e.g., February Freeze, July 4th, and Thanksgiving Week).

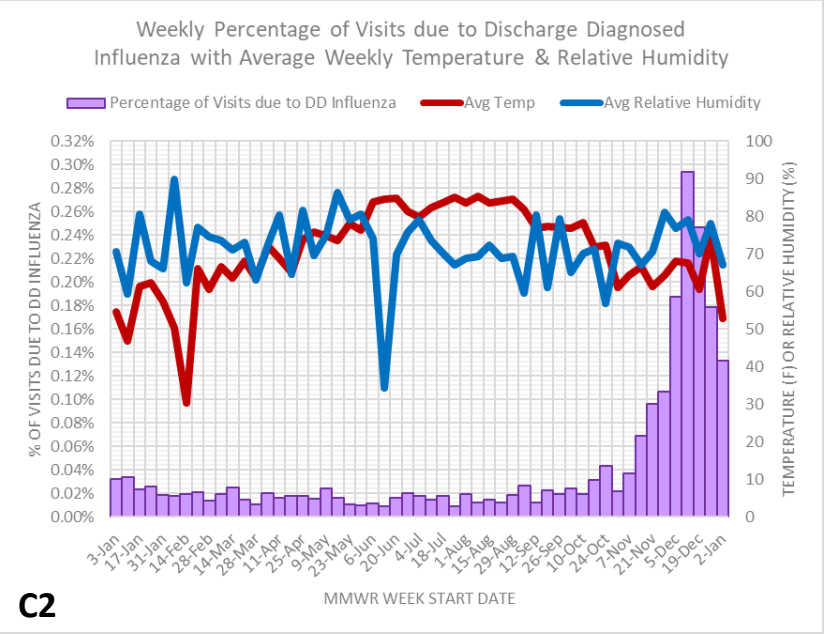




Appendix Figure B1. The Weekly Percentage of Visits due to ILI with the 14-day moving average COVID-19 Positivity Rate for COH.
Appendix Figure B2. The Weekly Percentage of Visits due to Discharge Diagnosed Influenza with the 14-day moving average COVID-19 Positivity Rate for COH.

NOTE: Positivity rate as of 01/07/2022.

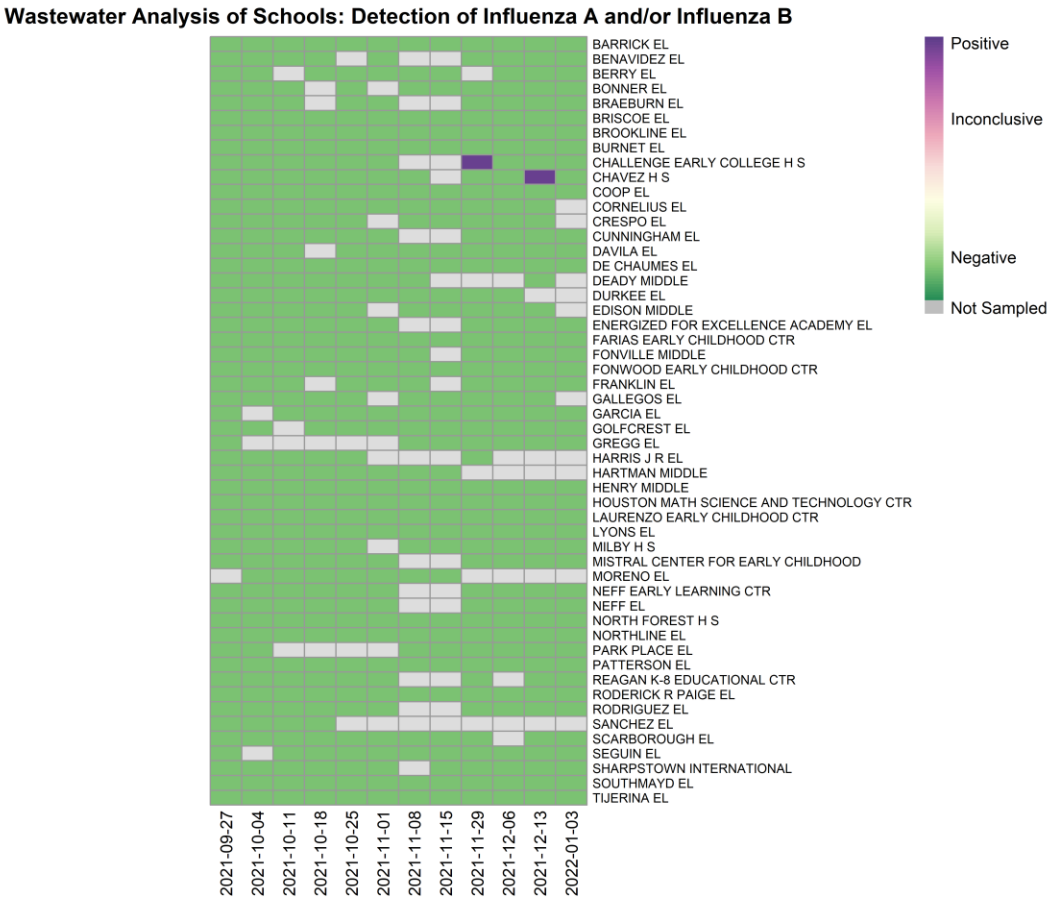




Appendix Figure C1. The Weekly Percentage of Visits due to ILI with the Average Weekly Temperature and Relative Humidity.

Appendix Figure C2. The Weekly Percentage of Visits due to Discharge Diagnosed Influenza with Average Weekly Temperature and Relative Humidity.

Wastewater Analysis of Schools: Influenza



Influenza A was found in the wastewater at two schools: Challenge Early College HS the week of 11/29/2021 and Chavez HS the week of 12/13/2021.

HOUSTON HEALTH DEPARTMENT

	2019		2020		2021		2022	
MMWR Week #	Start	End	Start	End	Start	End	Start	End
1	12/30/2018	1/5/2019	12/29/2019	1/4/2020	1/3/2021	1/9/2021	1/2/2022	1/8/2022
2	1/6/2019	1/12/2019	1/5/2020	1/11/2020	1/10/2021	1/16/2021	1/9/2022	1/15/2022
3	1/13/2019	1/19/2019	1/12/2020	1/18/2020	1/17/2021	1/23/2021	1/16/2022	1/22/2022
4	1/20/2019	1/26/2019	1/19/2020	1/25/2020	1/24/2021	1/30/2021	1/23/2022	1/29/2022
5	1/27/2019	2/2/2019	1/26/2020	2/1/2020	1/31/2021	2/6/2021	1/30/2022	2/5/2022
6	2/3/2019	2/9/2019	2/2/2020	2/8/2020	2/7/2021	2/13/2021	2/6/2022	2/12/2022
7	2/10/2019	2/16/2019	2/9/2020	2/15/2020	2/14/2021	2/20/2021	2/13/2022	2/19/2022
8	2/17/2019	2/23/2019	2/16/2020	2/22/2020	2/21/2021	2/27/2021	2/20/2022	2/26/2022
9	2/24/2019	3/2/2019	2/23/2020	2/29/2020	2/28/2021	3/6/2021	2/27/2022	3/5/2022
10	3/3/2019	3/9/2019	3/1/2020	3/7/2020	3/7/2021	3/13/2021	3/6/2022	3/12/2022
11	3/10/2019	3/16/2019	3/8/2020	3/14/2020	3/14/2021	3/20/2021	3/13/2022	3/19/2022
12	3/17/2019	3/23/2019	3/15/2020	3/21/2020	3/21/2021	3/27/2021	3/20/2022	3/26/2022
13	3/24/2019	3/30/2019	3/22/2020	3/28/2020	3/28/2021	4/3/2021	3/27/2022	4/2/2022
14	3/31/2019	4/6/2019	3/29/2020	4/4/2020	4/4/2021	4/10/2021	4/3/2022	4/9/2022
15	4/7/2019	4/13/2019	4/5/2020	4/11/2020	4/11/2021	4/17/2021	4/10/2022	4/16/2022
16	4/14/2019	4/20/2019	4/12/2020	4/18/2020	4/18/2021	4/24/2021	4/17/2022	4/23/2022
17	4/21/2019	4/27/2019	4/19/2020	4/25/2020	4/25/2021	5/1/2021	4/24/2022	4/30/2022
18	4/28/2019	5/4/2019	4/26/2020	5/2/2020	5/2/2021	5/8/2021	5/1/2022	5/7/2022
19	5/5/2019	5/11/2019	5/3/2020	5/9/2020	5/9/2021	5/15/2021	5/8/2022	5/14/2022
20	5/12/2019	5/18/2019	5/10/2020	5/16/2020	5/16/2021	5/22/2021	5/15/2022	5/21/2022
21	5/19/2019	5/25/2019	5/17/2020	5/23/2020	5/23/2021	5/29/2021	5/22/2022	5/28/2022
22	5/26/2019	6/1/2019	5/24/2020	5/30/2020	5/30/2021	6/5/2021	5/29/2022	6/4/2022
23	6/2/2019	6/8/2019	5/31/2020	6/6/2020	6/6/2021	6/12/2021	6/5/2022	6/11/2022
24	6/9/2019	6/15/2019	6/7/2020	6/13/2020	6/13/2021	6/19/2021	6/12/2022	6/18/2022
25	6/16/2019	6/22/2019	6/14/2020	6/20/2020	6/20/2021	6/26/2021	6/19/2022	6/25/2022
26	6/23/2019	6/29/2019	6/21/2020	6/27/2020	6/27/2021	7/3/2021	6/26/2022	7/2/2022
27	6/30/2019	7/6/2019	6/28/2020	7/4/2020	7/4/2021	7/10/2021	7/3/2022	7/9/2022

28	7/7/2019	7/13/2019	7/5/2020	7/11/2020	7/11/2021	7/17/2021	7/10/2022	7/16/2022
29	7/14/2019	7/20/2019	7/12/2020	7/18/2020	7/18/2021	7/24/2021	7/17/2022	7/23/2022
30	7/21/2019	7/27/2019	7/19/2020	7/25/2020	7/25/2021	7/31/2021	7/24/2022	7/30/2022
31	7/28/2019	8/3/2019	7/26/2020	8/1/2020	8/1/2021	8/7/2021	7/31/2022	8/6/2022
32	8/4/2019	8/10/2019	8/2/2020	8/8/2020	8/8/2021	8/14/2021	8/7/2022	8/13/2022
33	8/11/2019	8/17/2019	8/9/2020	8/15/2020	8/15/2021	8/21/2021	8/14/2022	8/20/2022
34	8/18/2019	8/24/2019	8/16/2020	8/22/2020	8/22/2021	8/28/2021	8/21/2022	8/27/2022
35	8/25/2019	8/31/2019	8/23/2020	8/29/2020	8/29/2021	9/4/2021	8/28/2022	9/3/2022
36	9/1/2019	9/7/2019	8/30/2020	9/5/2020	9/5/2021	9/11/2021	9/4/2022	9/10/2022
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38	9/15/2019	9/21/2019	9/13/2020	9/19/2020	9/19/2021	9/25/2021	9/18/2022	9/24/2022
39	9/22/2019	9/28/2019	9/20/2020	9/26/2020	9/26/2021	10/2/2021	9/25/2022	10/1/2022
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41	10/6/2019	10/12/2019	10/4/2020	10/10/2020	10/10/2021	10/16/2021	10/9/2022	10/15/2022
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43	10/20/2019	10/26/2019	10/18/2020	10/24/2020	10/24/2021	10/30/2021	10/23/2022	10/29/2022
44	10/27/2019	11/2/2019	10/25/2020	10/31/2020	10/31/2021	11/6/2021	10/30/2022	11/5/2022
45	11/3/2019	11/9/2019	11/1/2020	11/7/2020	11/7/2021	11/13/2021	11/6/2022	11/12/2022
46	11/10/2019	11/16/2019	11/8/2020	11/14/2020	11/14/2021	11/20/2021	11/13/2022	11/19/2022
47	11/17/2019	11/23/2019	11/15/2020	11/21/2020	11/21/2021	11/27/2021	11/20/2022	11/26/2022
48	11/24/2019	11/30/2019	11/22/2020	11/28/2020	11/28/2021	12/4/2021	11/27/2022	12/3/2022
49	12/1/2019	12/7/2019	11/29/2020	12/5/2020	12/5/2021	12/11/2021	12/4/2022	12/10/2022
50	12/8/2019	12/14/2019	12/6/2020	12/12/2020	12/12/2021	12/18/2021	12/11/2022	12/17/2022
51	12/15/2019	12/21/2019	12/13/2020	12/19/2020	12/19/2021	12/25/2021	12/18/2022	12/24/2022
52	12/22/2019	12/28/2019	12/20/2020	12/26/2020	12/26/2021	1/1/2022	12/25/2022	12/31/2022
53			12/27/2020	1/2/2021				