# The Flu Season that Would Never End

## An update on the 2021-2022 Influenza Season

NAIIS Call

June 30, 2022

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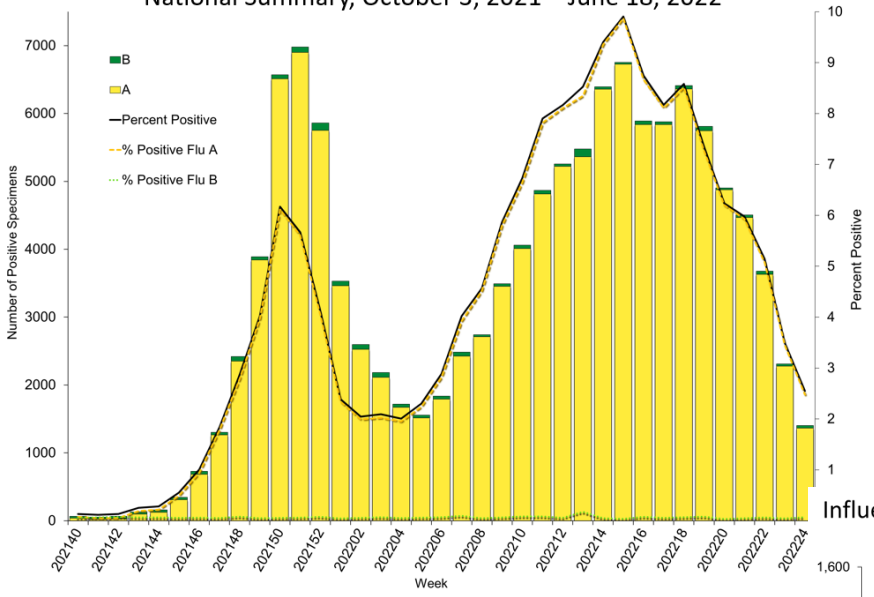
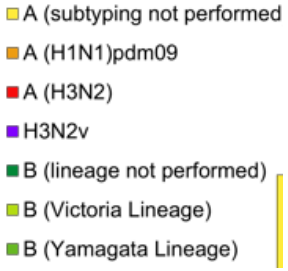
Influenza Division, NCIRD, CDC

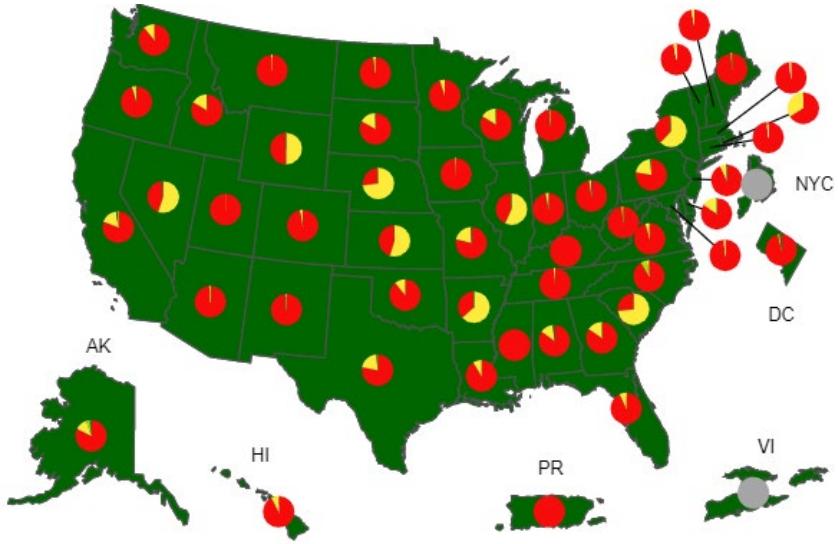
# Viruses

# A(H3N2) – All the time and everywhere (update maps)

Influenza Positive Tests Reported to CDC by U.S. Clinical Laboratories, National Summary, October 3, 2021 – June 18, 2022

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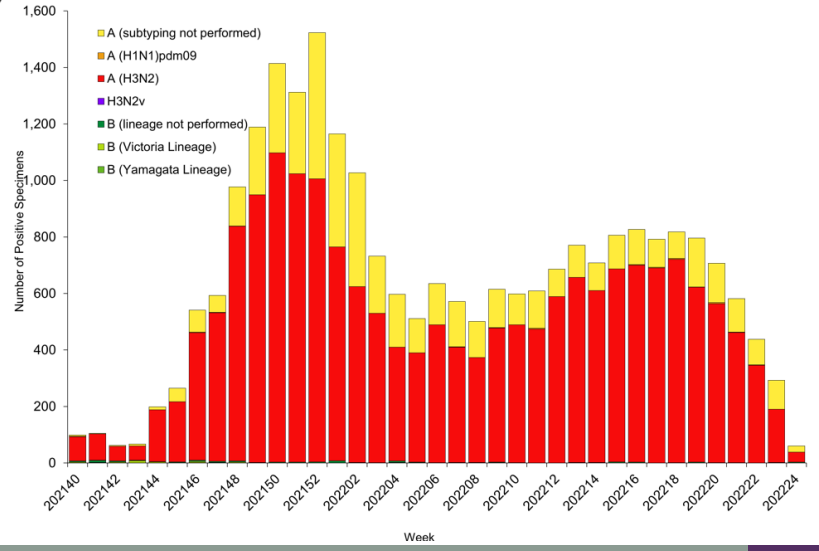
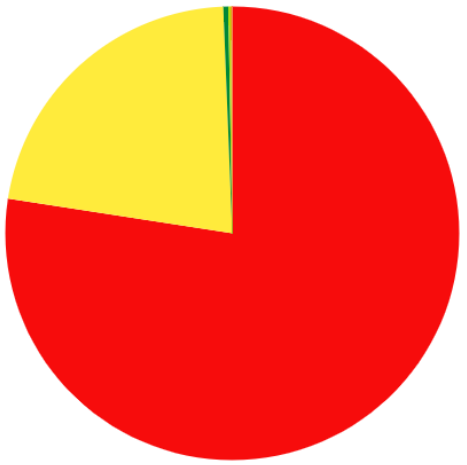


* Data through June 18; reported to CDC as of June 22, 2022.

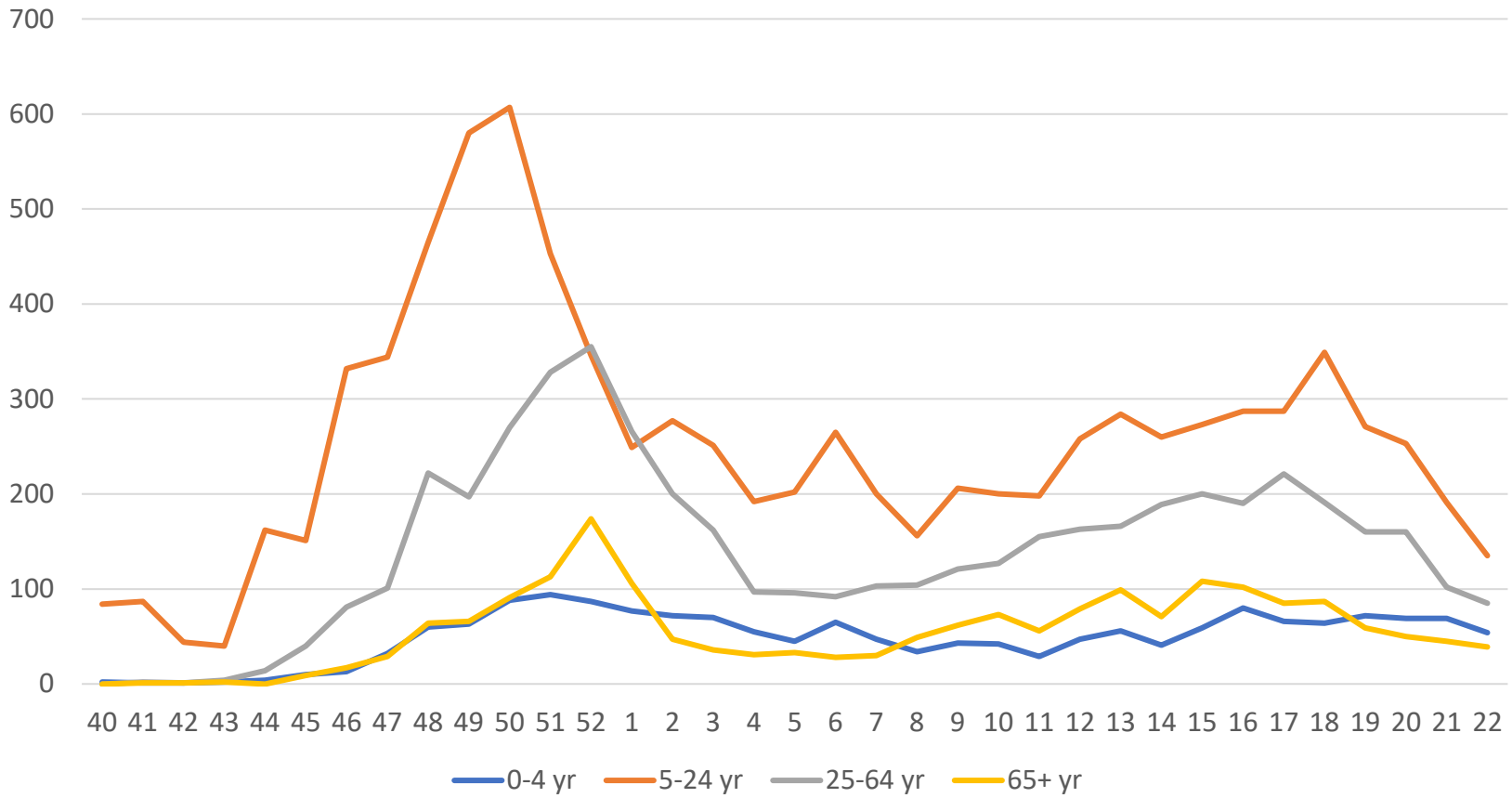
# A(H3N2) Viruses - Predominant in All the Age Groups 2021-22

0-4 yrs.

5-24 yrs.

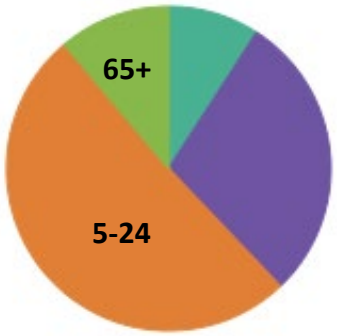
25-64 yrs.

65+ yrs.




* Data through June 4, 2022; reported to CDC as of June 22, 2022.

# A(H3N2) Viruses by Age Group During H3N2 Predominant Seasons



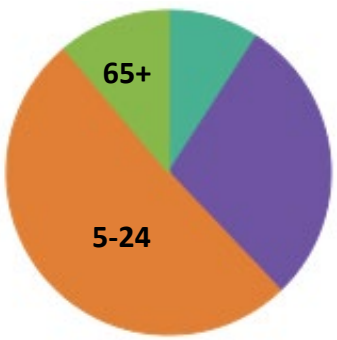

2021-2022*

H3 = 99% of circulating viruses

Proportion of H3 by age
- 5-24 yo = 51%
- 65+ = 11%


* Data through June 18, 2022; reported to CDC as of June 22, 2022.

# H3N2 Viruses by Age Group During H3N2 Predominant Seasons

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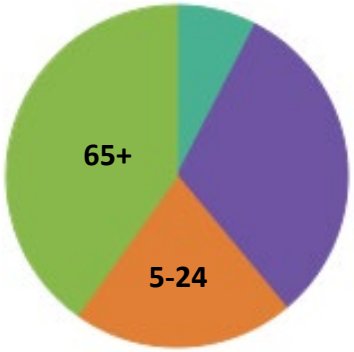
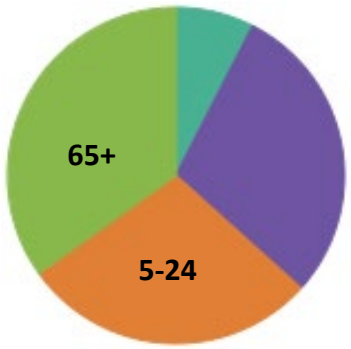



2017-2018

H3 = 60% of circulating viruses

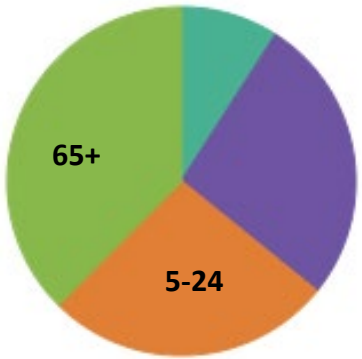
Proportion of H3 by age
- 5-24 yo = 21%
- 65+ = 40%




2016-2017

H3 = 75% of circulating viruses

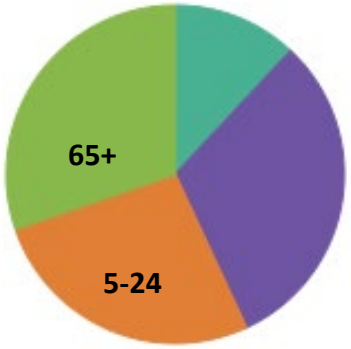
Proportion of H3 by age
- 5-24 yo = 28%
- 65+ = 35%




2014-2015

H3 = 83% of circulating viruses

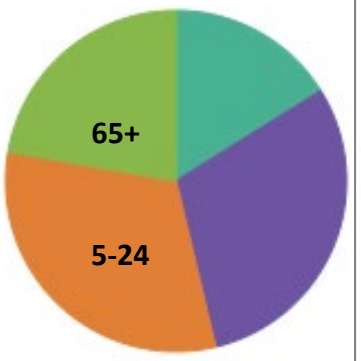
Proportion of H3 by age
- 5-24 yo = 27%
- 65+ = 38%




2012-2013

H3 = 66% of circulating viruses

Proportion of H3 by age
- 5-24 yo = 27%
- 65+ = 30%




2011-2012

H3 = 60% of circulating viruses

Proportion of H3 by age
- 5-24 yo = 31%
- 65+ = 22%

5-24 yo: avg 27%

65+: avg 33%

* Data through June 18, 2022; reported to CDC as of June 22, 2022.

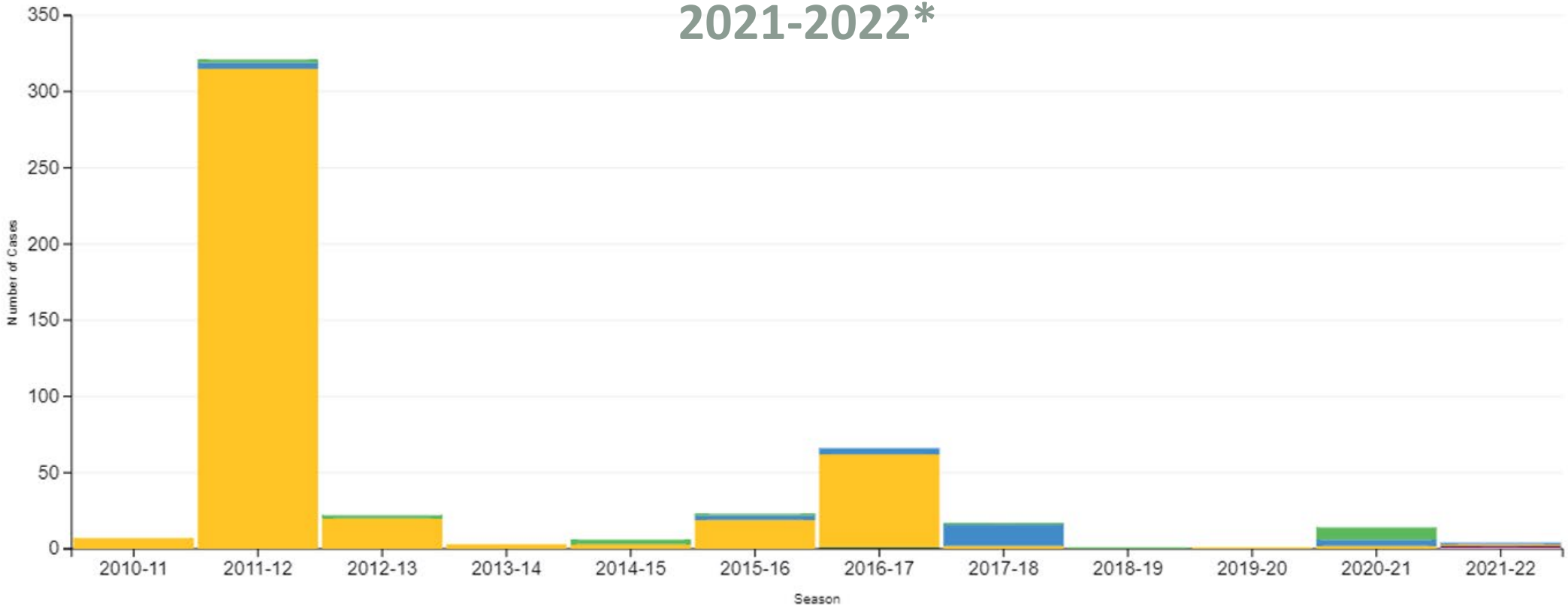
# Influenza Virus Characterization 2021-2022*

| Virus | Genetic Characterization | | Antigenic Characterization | |
|---|---|---|---|---|
| | Number Tested | Clade/Subclade | Number Tested | Similarity to vaccine reference virus |
| **H3** | 1,567 | 99.7% - 3C.2a1b.2a.2 | 117 | 3% similar to cell-grown |
| | | | | 18% similar to egg-grown |
| **B/Victoria** | 24 | 38% - V1A.3 | 15 | 73% similar to cell-grown |
| | | 63% - V1A.3a.2 | | 73% similar to egg-grown |

| Virus Susceptibility to Antiviral Medications | | |
|---|---|---|
| **Antiviral** | **Number Tested** | **Number with Reduced Inhibition/Decr. Susceptibility** |
| **Oseltamivir, Peramivir, Zanamivir** | 1,615 | 1 |
| **Baloxivir** | 1,613 | 1 |

* Data through June 11, 2022; reported to CDC as of June 15.

# Novel Influenza A Viruses 2021-2022*

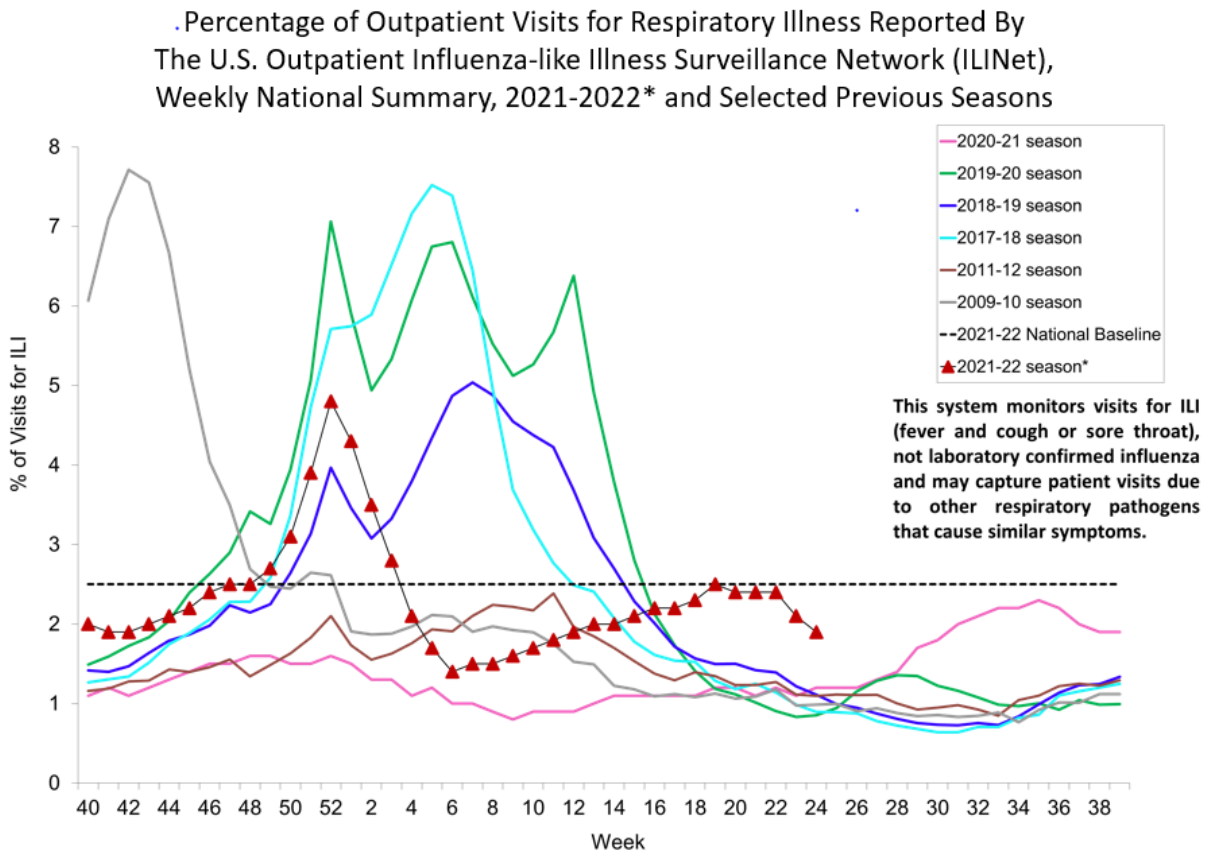


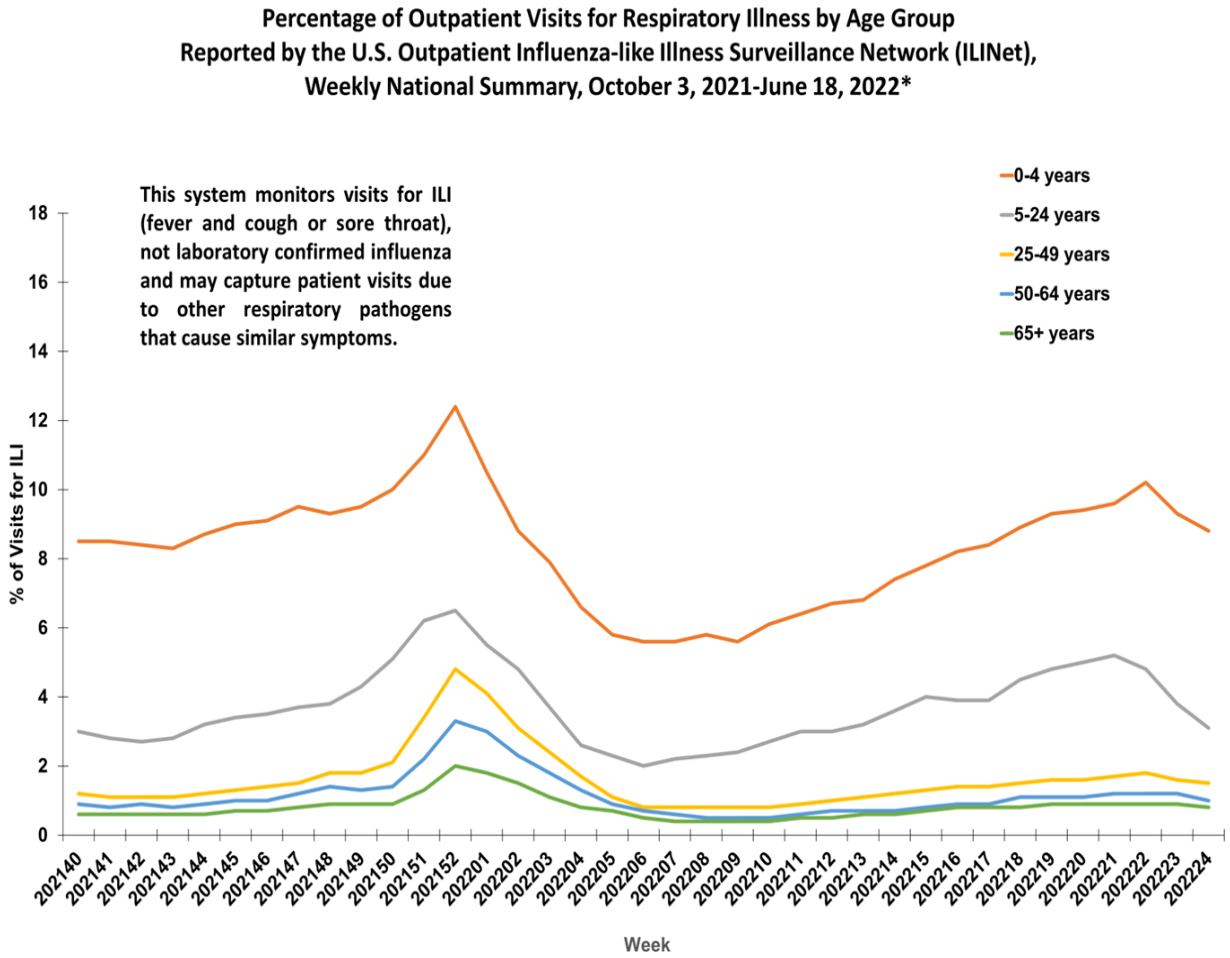

| | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Influenza A H1N1v | 0 | 2 | 2 | 0 | 3 | 1 | 0 | 1 | 1 | 0 | 8 | 0 | 18 |
| Influenza A H1N2v | 0 | 4 | 0 | 0 | 0 | 3 | 4 | 14 | 0 | 0 | 4 | 1 | 30 |
| Influenza A H3N2v | 7 | 315 | 20 | 3 | 3 | 19 | 61 | 2 | 0 | 1 | 2 | 1 | 434 |
| Influenza A H7N2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Influenza A H1v | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Influenza A H5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Total | 7 | 321 | 22 | 3 | 6 | 23 | 66 | 17 | 1 | 1 | 14 | 4 | 485 |

* Data through June 4, 2022; reported to CDC as of June 8.

# Disease Activity / Severity

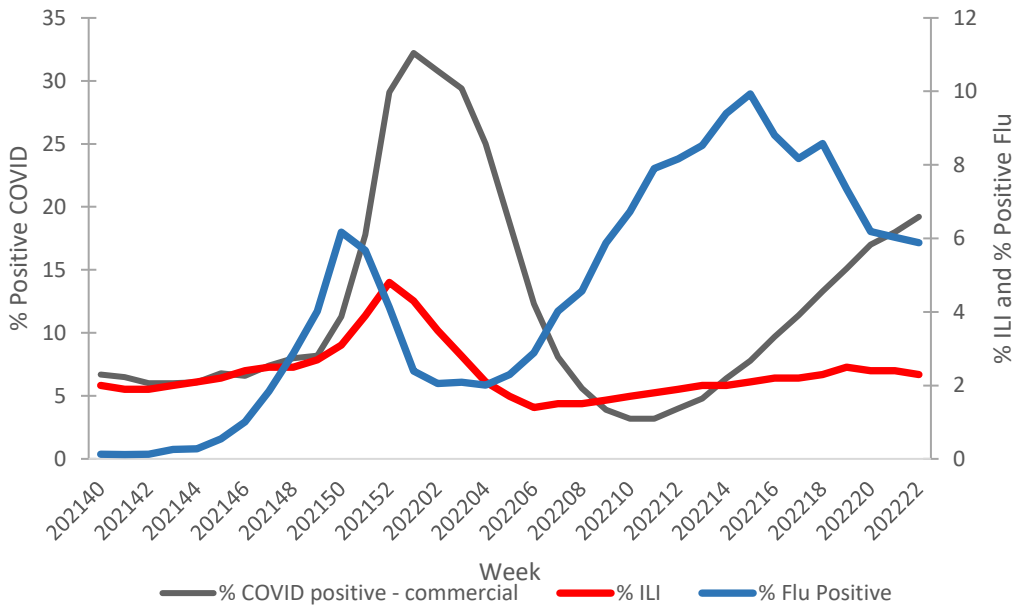
# ILINet: Outpatient Respiratory Illness

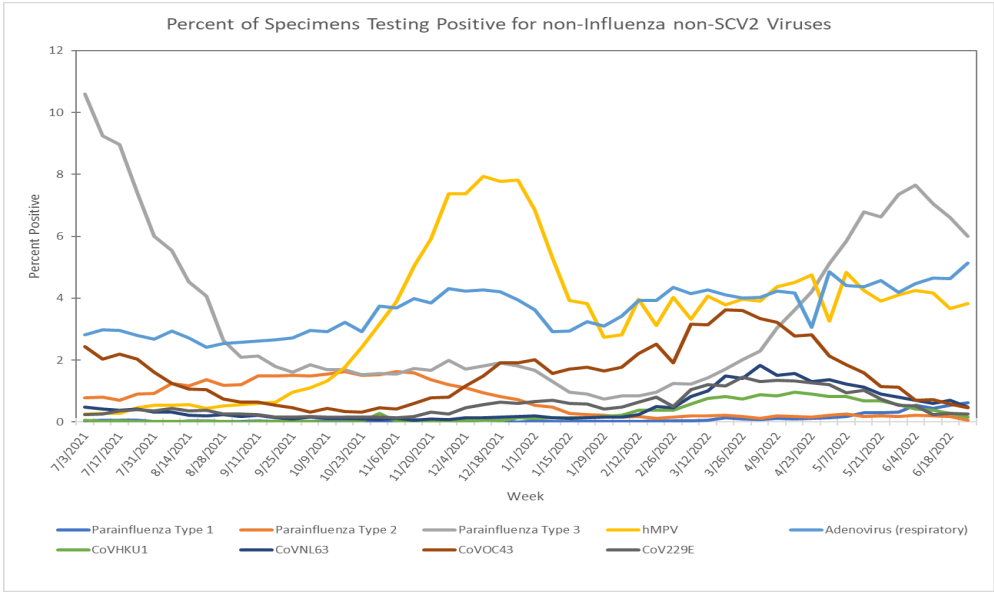


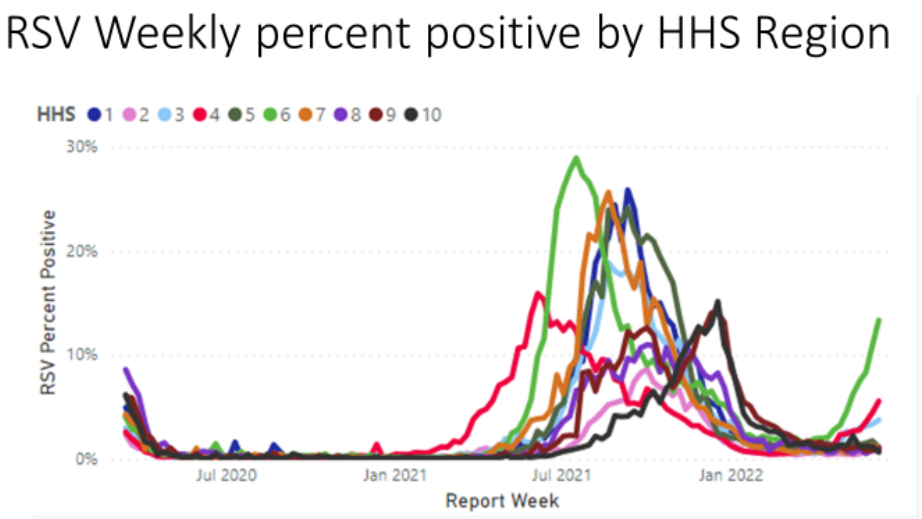



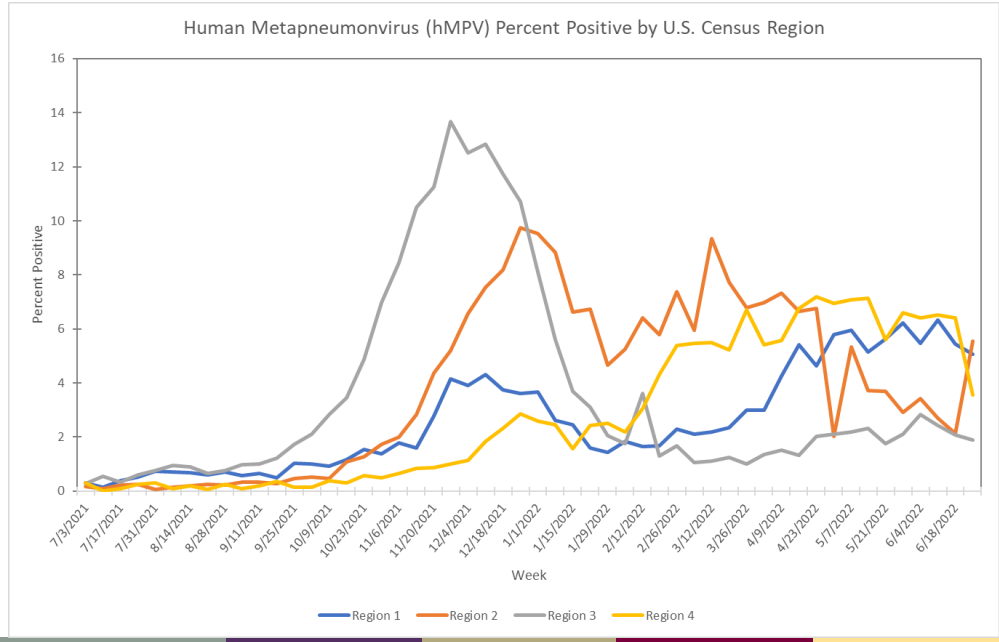

* Data through June 18, 2022; reported to CDC as of June 24.

# Is Outpatient Respiratory Illness Being Driven By Flu or COVID or ????

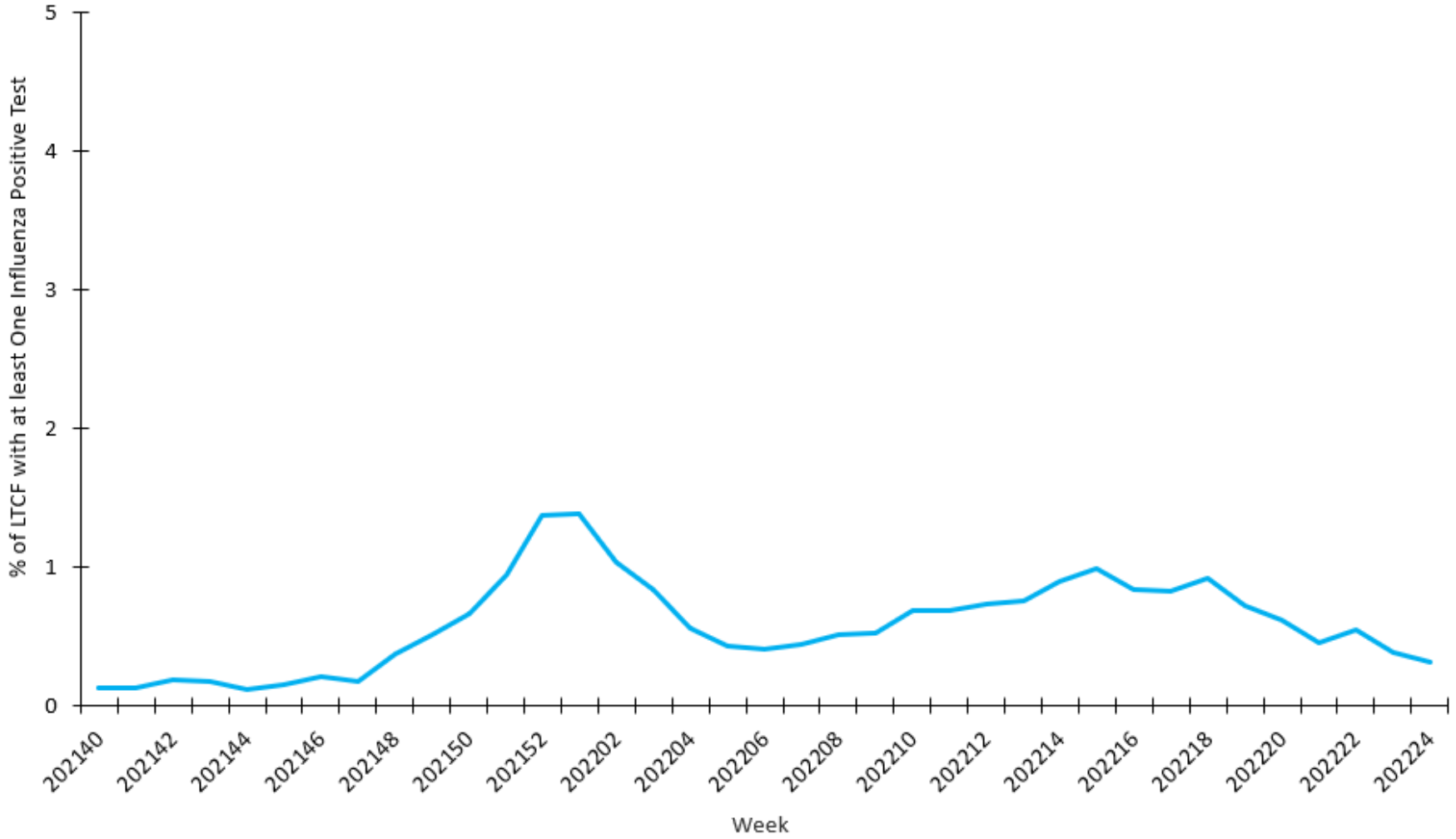


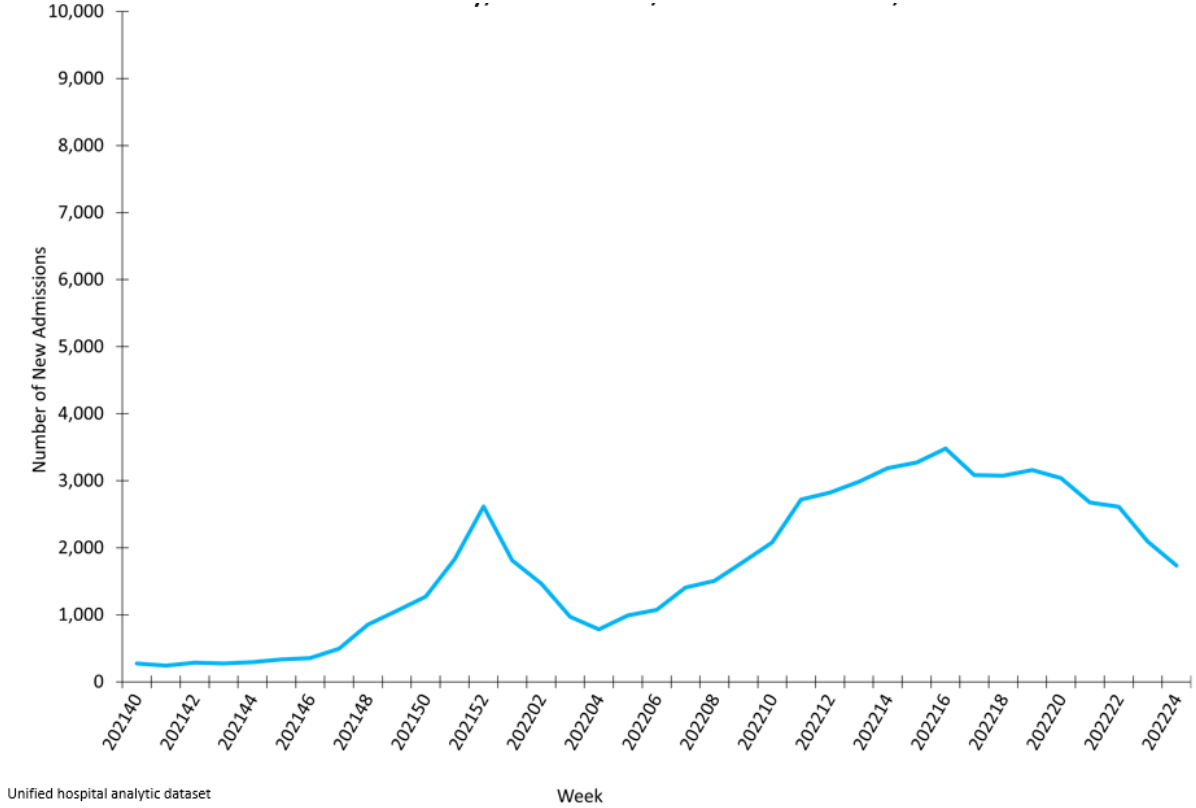
# Influenza in Long Term Care Facilities:
# Percent of facilities with ≥ 1 influenza positive test among residents



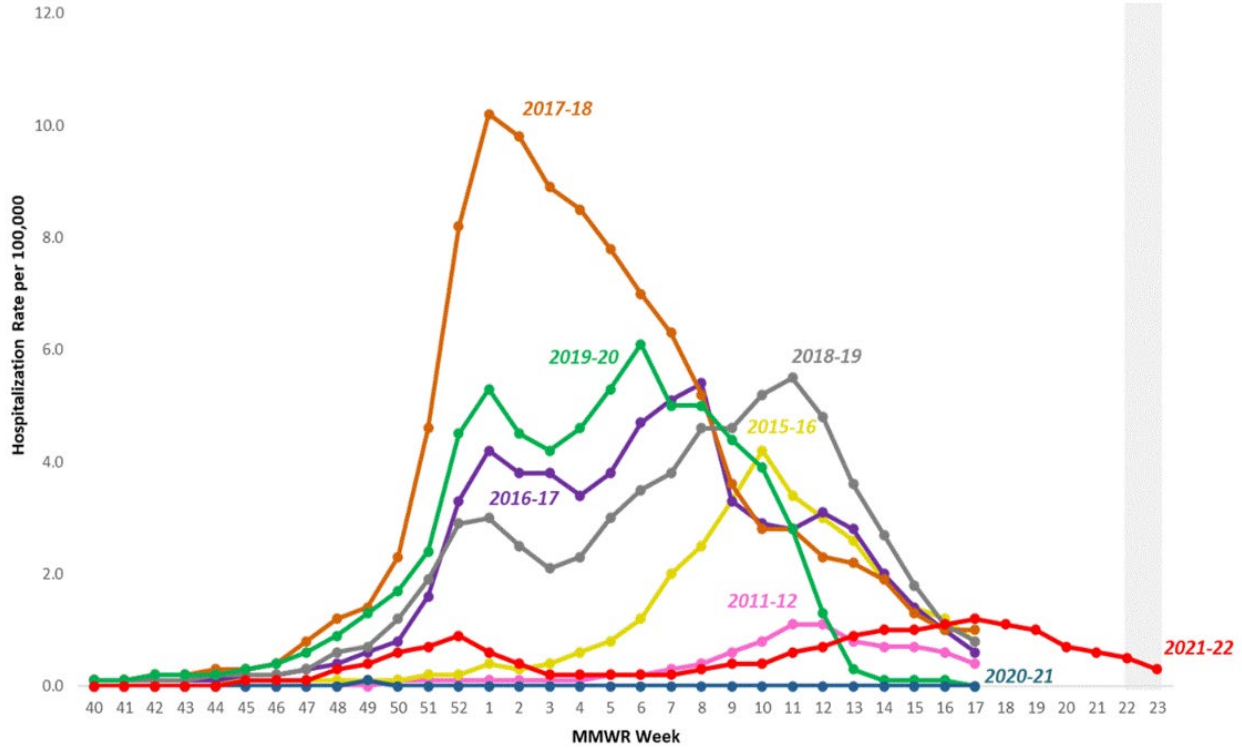

* Data through June 19, 2022; reported to CDC as of June 22.

# Influenza-Associated Hospitalizations: HHS Protect and FluSurv-NET

Weekly Number of Hospital Admissions Reported to HHS Protect
(Entire United States)




Weekly Rate of Hospital Admissions Reported to FluSurv-NET
(9% of United States population)

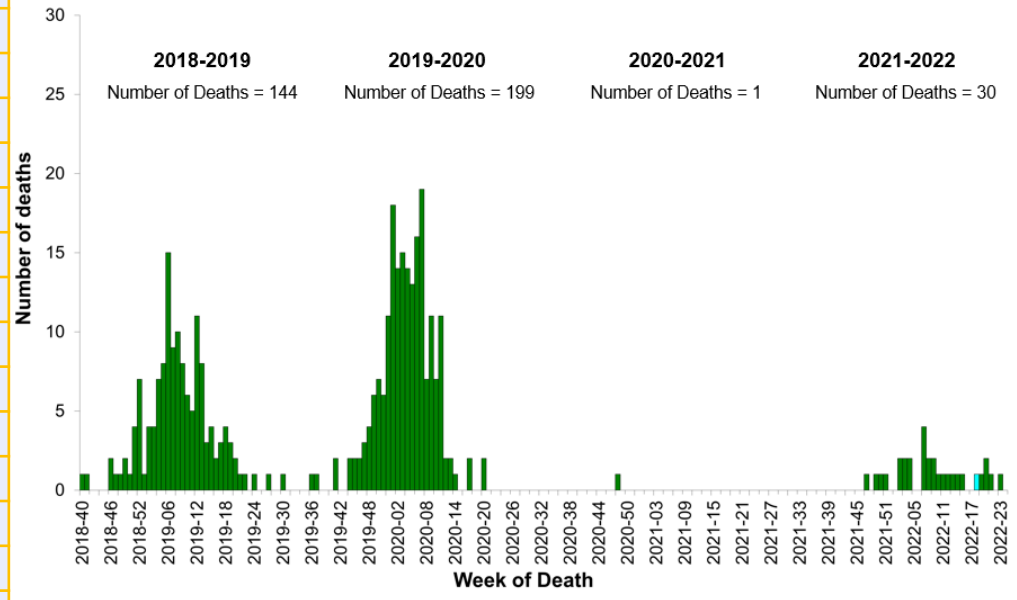



Overall cumulative flu hospitalization rate for the season:
17.2 per 100,000

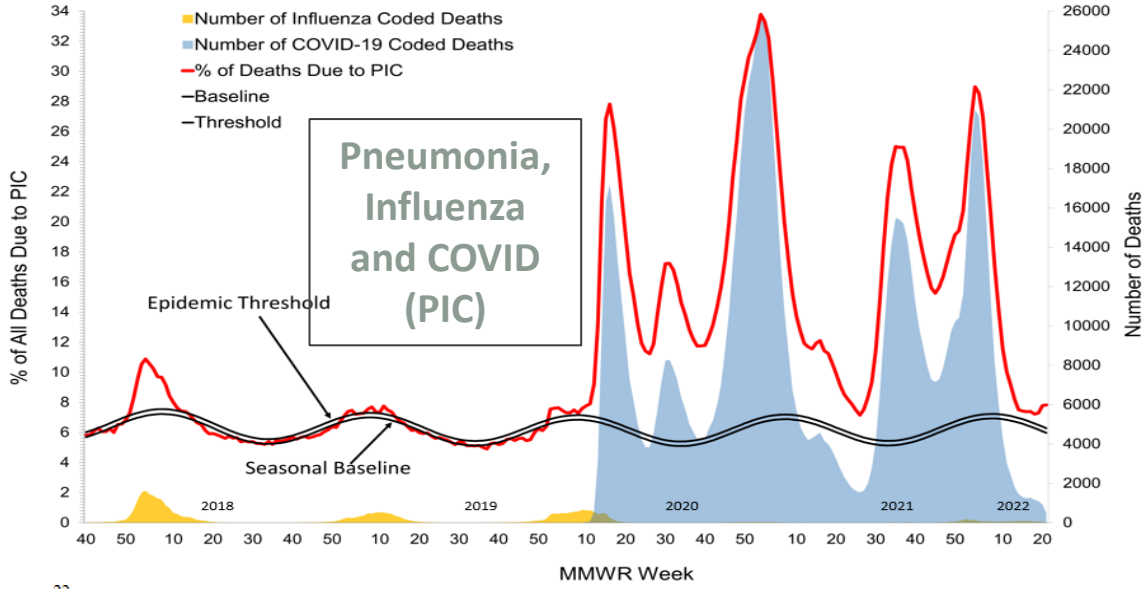
* Data through June 18, 2022; reported to CDC as of June 22.

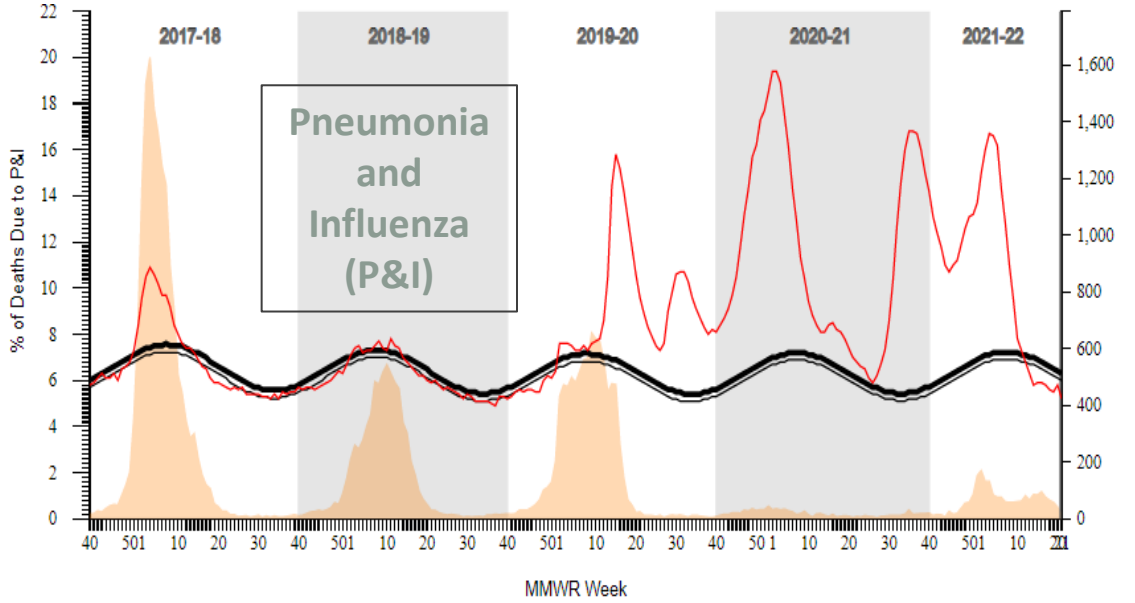
# Influenza-Associated Pediatric Deaths*

| | No. of Pediatric Deaths* |
|---|---|
| 2004-05 | 47 |
| 2005-06 | 46 |
| 2006-07 | 77 |
| 2007-08 | 88 |
| 2008-09 | 137 |
| 2009-10 | 288 |
| 2010-11 | 124 |
| 2011-12 | **37** |
| 2012-13 | 171 |
| 2013-14 | 111 |
| 2014-15 | 148 |
| 2015-16 | 95 |
| 2016-17 | 110 |
| 2017-18 | 188 |
| 2018-19 | 144 |
| 2019-20 | 198 |
| | |
| 2020-21 | 1 |
| 2021-22 | 30 |




# NCHS Mortality Surveillance System¥




* Data through June 18, 2022; reported to CDC as of June 22, 2022.
¥ Data through May 28, 2022; reported to CDC as of June 2, 2022.

# Preliminary In-Season Burden Estimates

CDC estimates* that, from **October 1, 2021** through **June 11, 2022**, there have been:

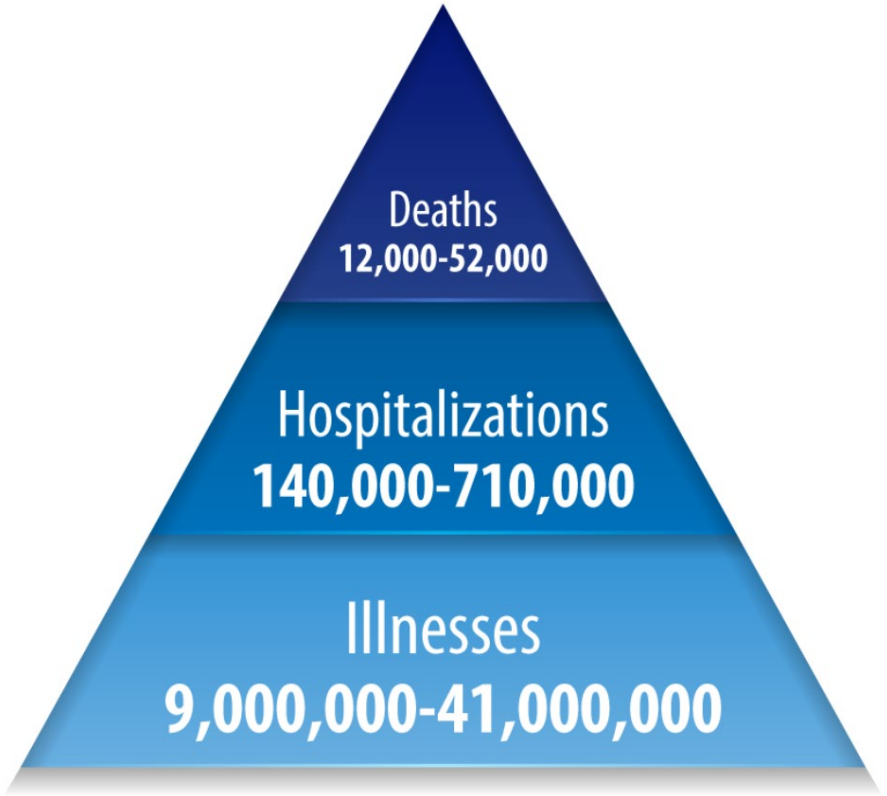
8,000,000 – 13,000,000
flu illnesses

3,700,000 – 6,100,000
flu medical visits

82,000 – 170,000
flu hospitalizations

5,000 – 14,000
flu deaths

Estimated Range of Annual Burden
of Flu
in the U.S.
from 2010 – 2020



# Timing

# Peak Week Nationally:
# Clinical Lab % Positive, Hospitalization and Mortality

| | Week | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 50 | 51 | 52 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| Clinical Labs | X (%) | X (#) | | | | | | | | | | | | | | | | X | | |
| Hospitalizations: FluSurv-NET | | | X | | | | | | | | | | | | | | | | | X |
| Hospitalizations: HHS Protect | | | X | | | | | | | | | | | | | | | | X | |
| Influenza coded deaths (NCHS) | | | X | X | | | | | | | | | | | | | | | X* | |

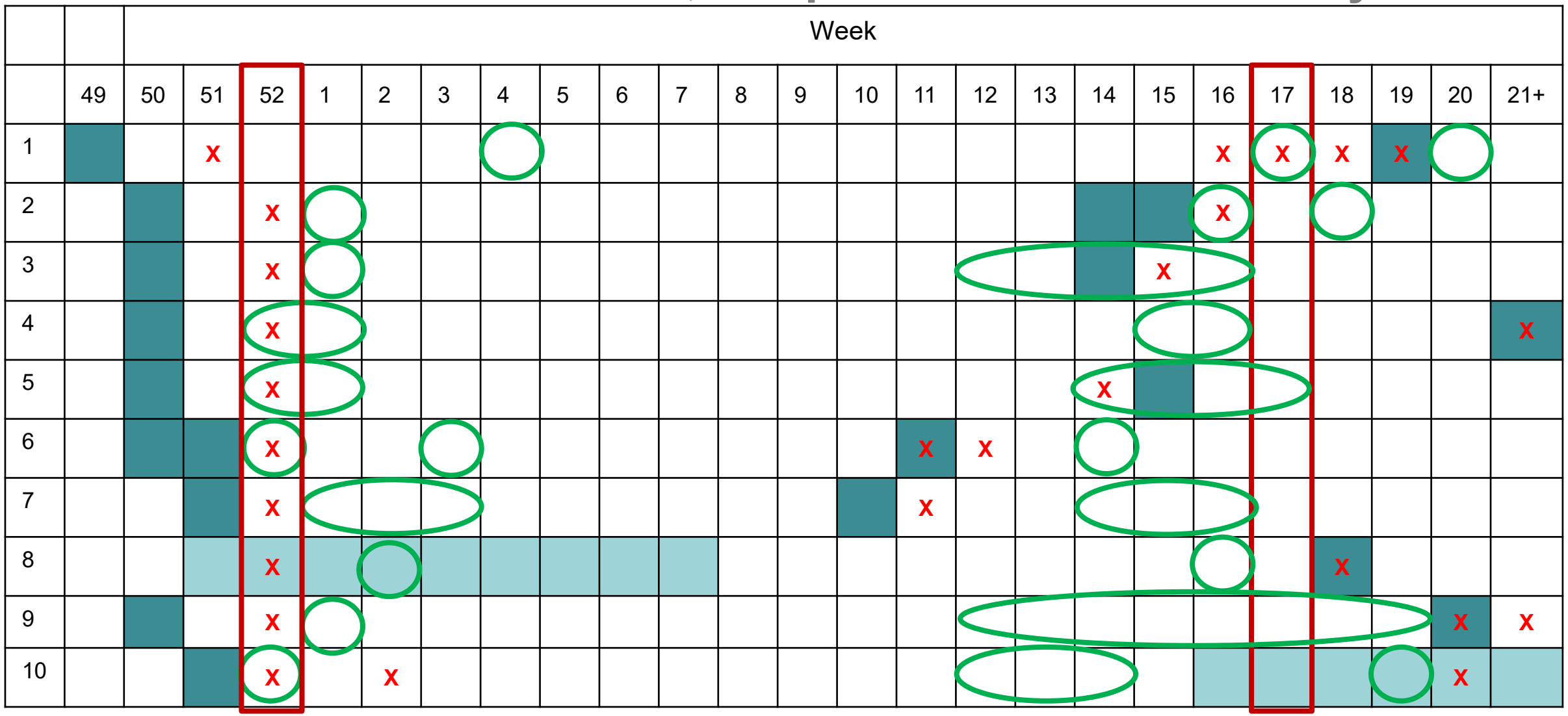
**X = peak**

* May change as additional data are reported

- 1st peak – mid/late December
- 2nd peak – mid/late April

February – most common month for peak activity

# Peak Week by Region, Waves 1 and 2: Clinical Lab % Positive, Hospitalization and Mortality




Peak FluSurv-NET

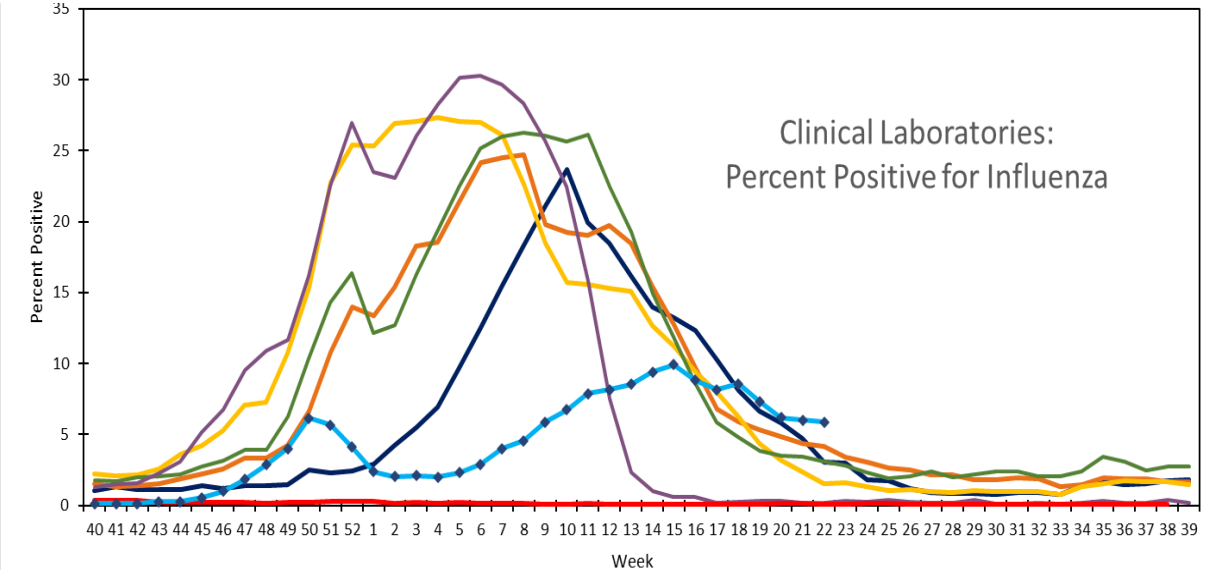
X Peak HHS Protect

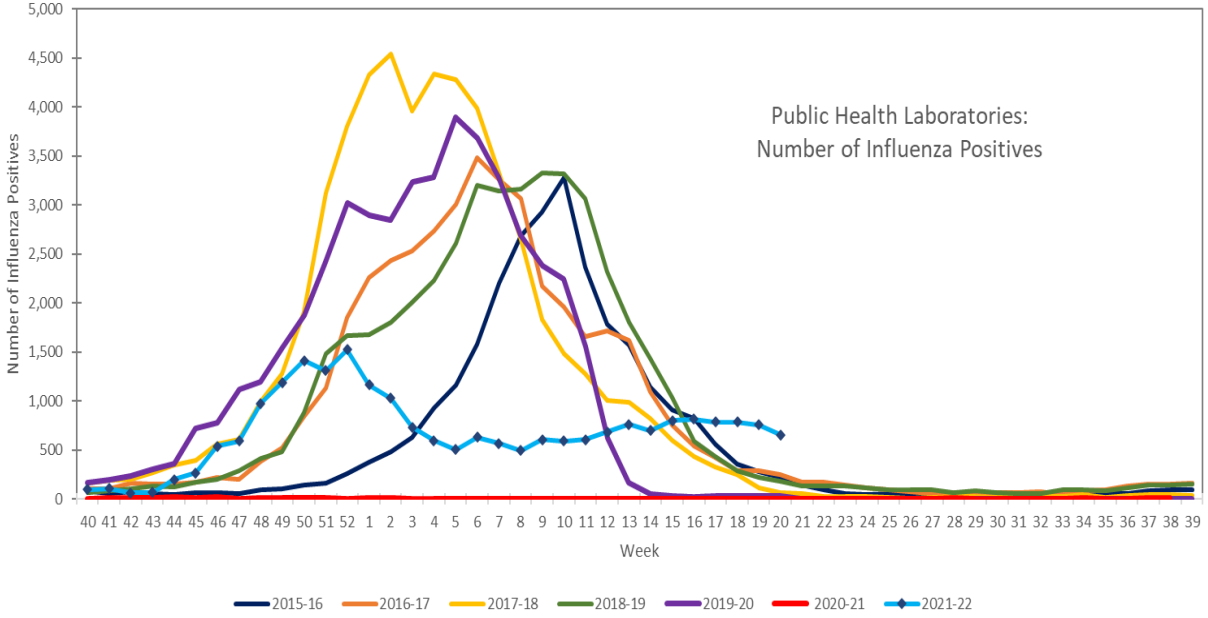
Peak % positive

Near peak % positive

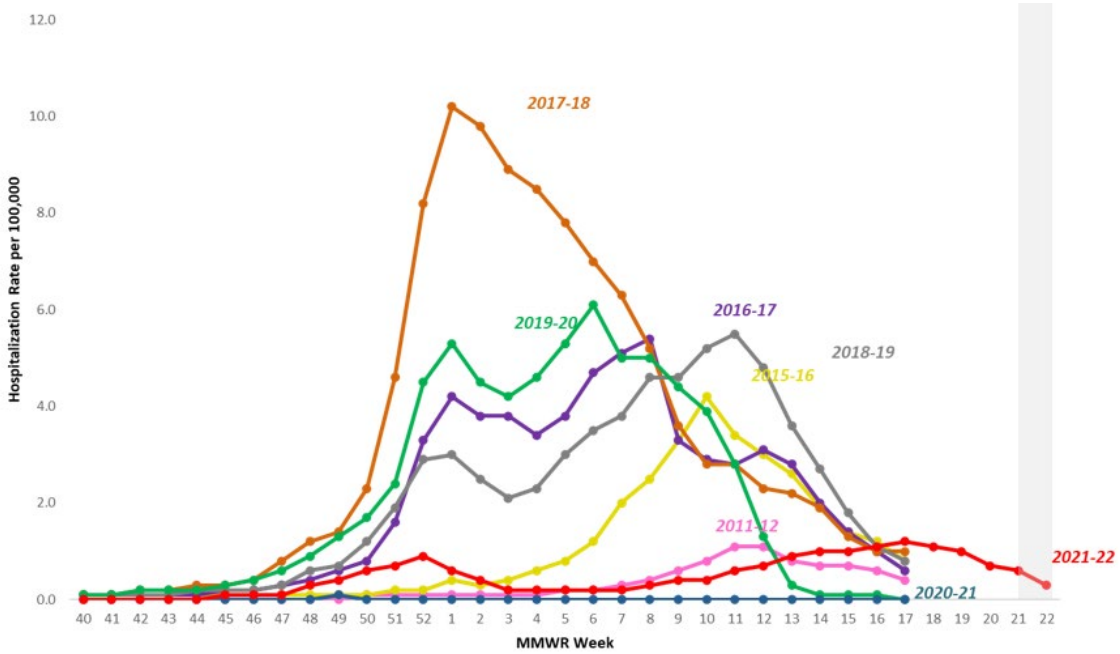
Peak mortality (2nd wave may change as more data are reported)

# More Activity Later Than Usual, But Low Overall

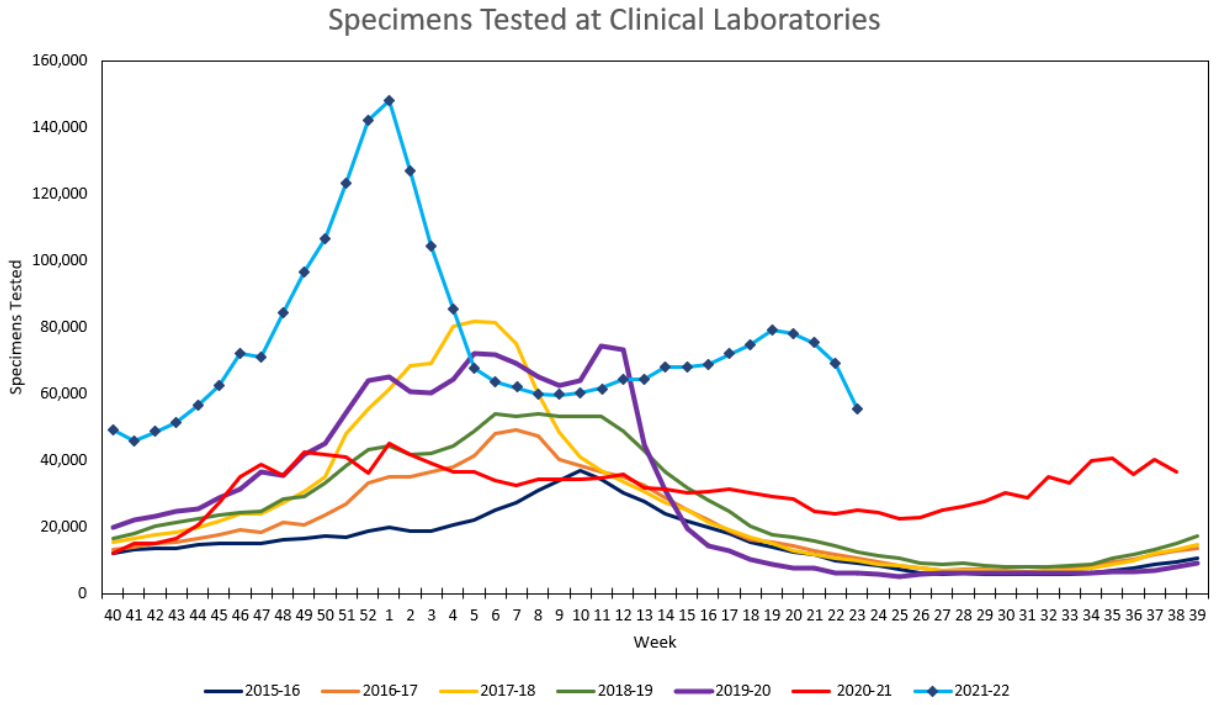


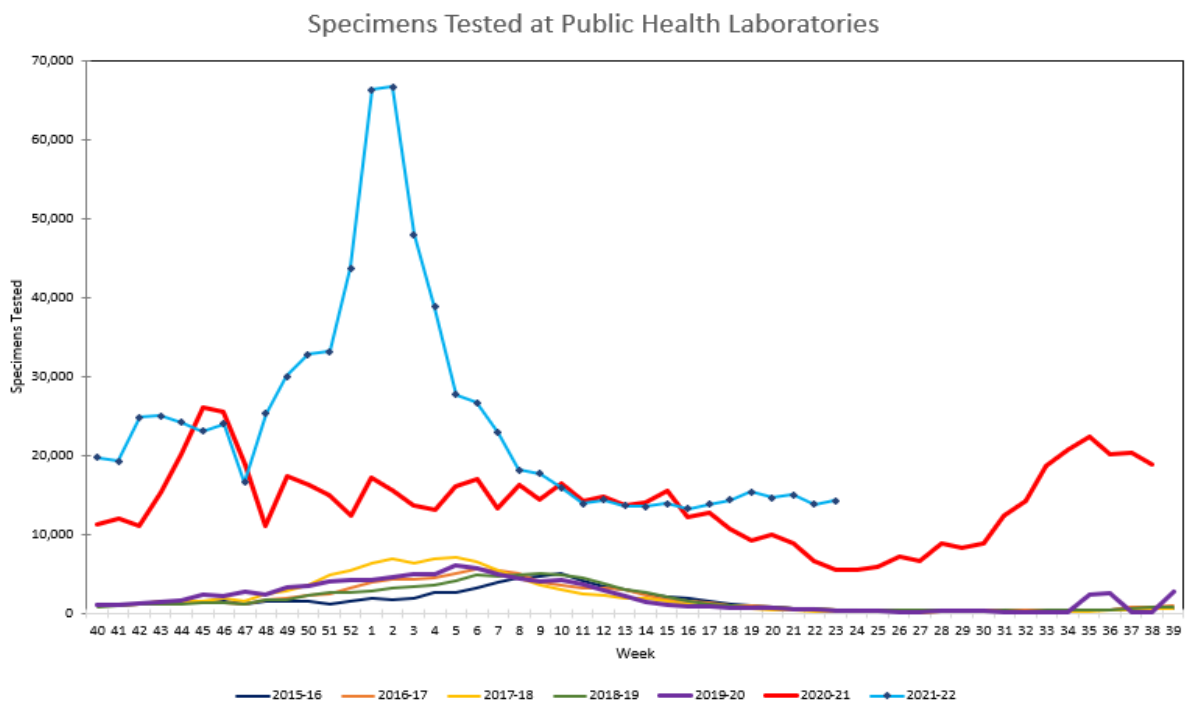




Weekly Rate of Hospital Admissions Reported to FluSurv-NET



# Specimens Tested for Influenza and Reported to CDC by U.S. Clinical and Public Health Laboratories, National Summary 2015-2016 through 2021-2022*




* Data through June 11, 2022; reported to CDC as of June 15, 2022.

# International Influenza Activity

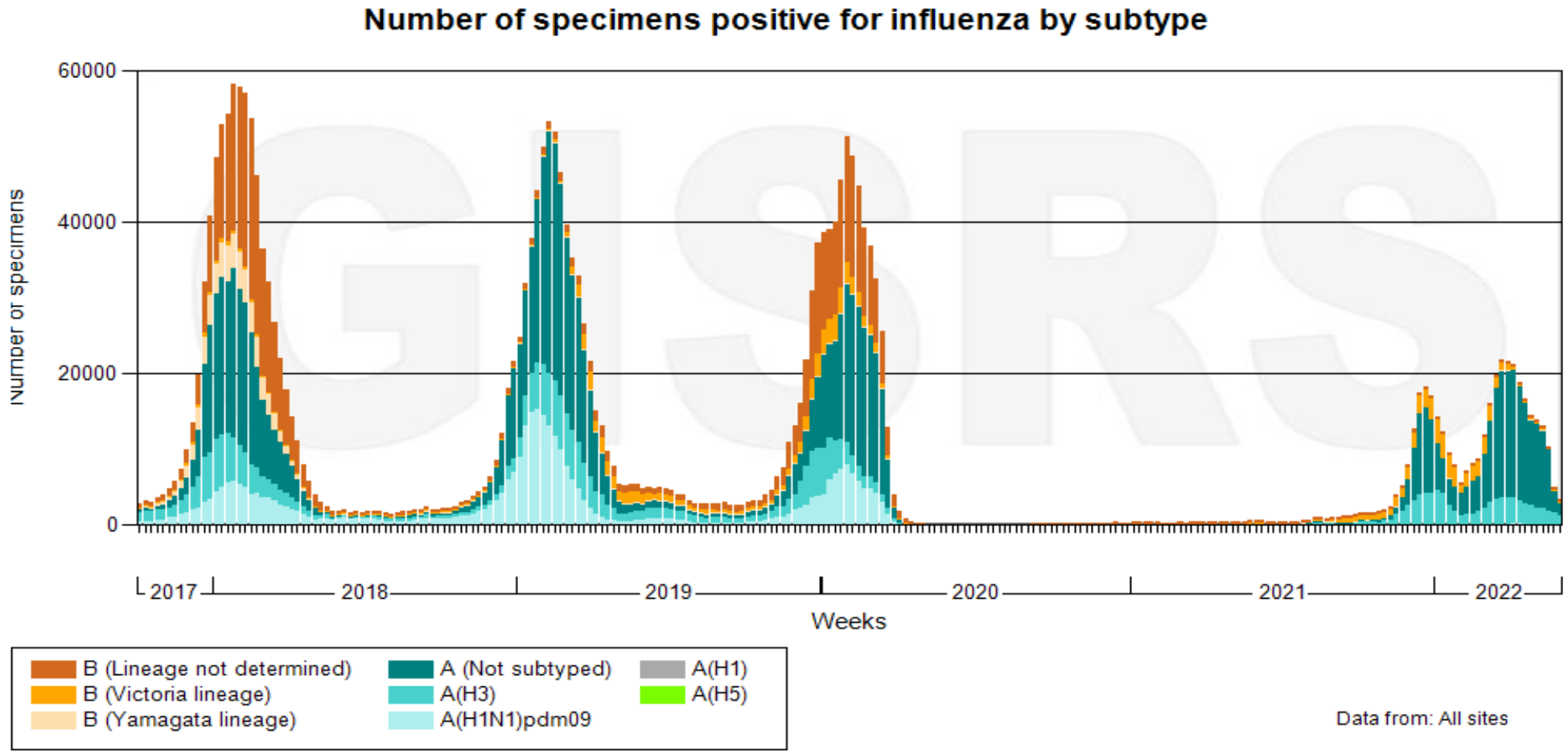
World Health Organization

Influenza Laboratory Surveillance Information

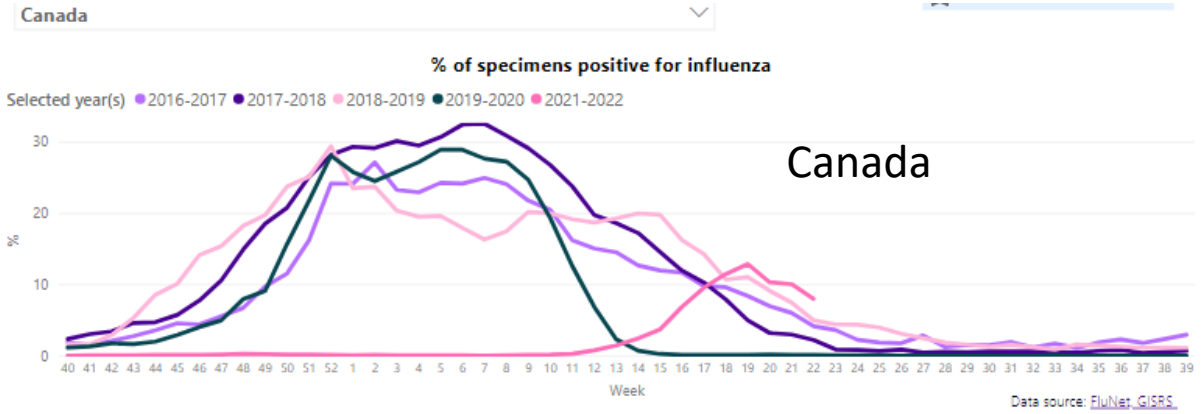
by the Global Influenza Surveillance and Response System (GISRS)

# 2021-22: Less Influenza Virus Circulation Globally than Pre-COVID but the Most Since the COVID Pandemic Declaration

## Global circulation of influenza viruses



# Timing of Influenza Activity is Unusual in Many Countries



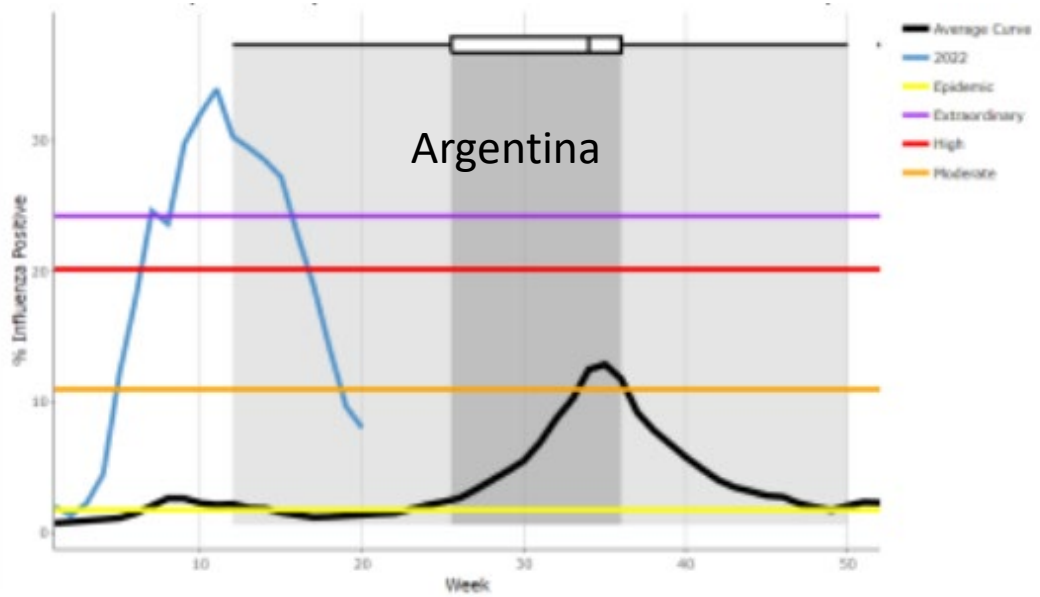
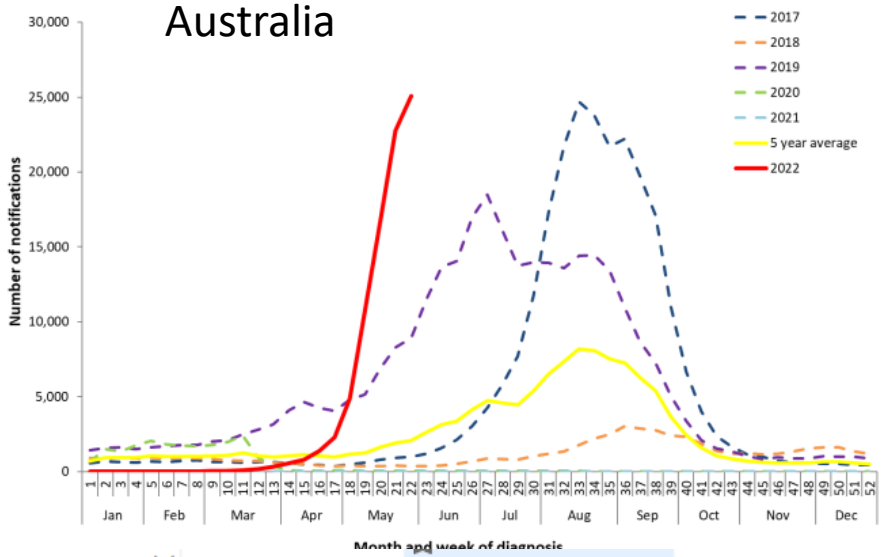
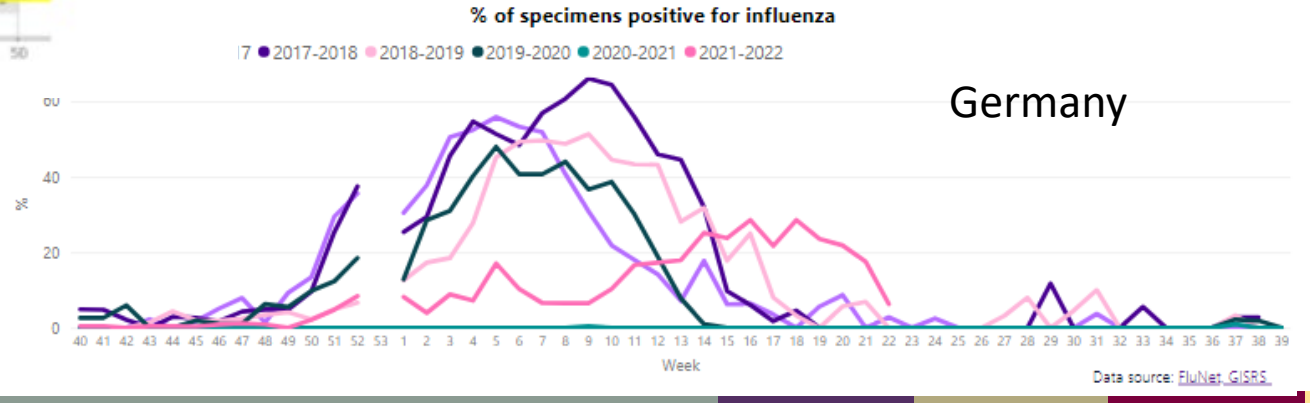




**Figure 4. Notifications of laboratory-confirmed influenza, Australia, 01 January 2017 to 05 June 2022, by month and week of diagnosis***



# Summary

# Summary

- All H3 – all the time, everywhere, everyone with flu
- Long and late season
  - Activity began to increase in November, still elevated and even increasing in some areas in May and early June
  - Activity levels higher in May and June than ever before
- Low levels of activity overall
  - Lowest ever compared to pre-pandemic seasons by most metrics
    - FluSurv-NET slightly higher this season than 2011-12
  - But higher than 2020-21
- Unusual timing and amount of activity was not unique to the U.S.
- Stay alert to what might be next
  - Avian H5, variant viruses this summer, early start to 2022-23 season


Any Questions