Influenza Surveillance Update

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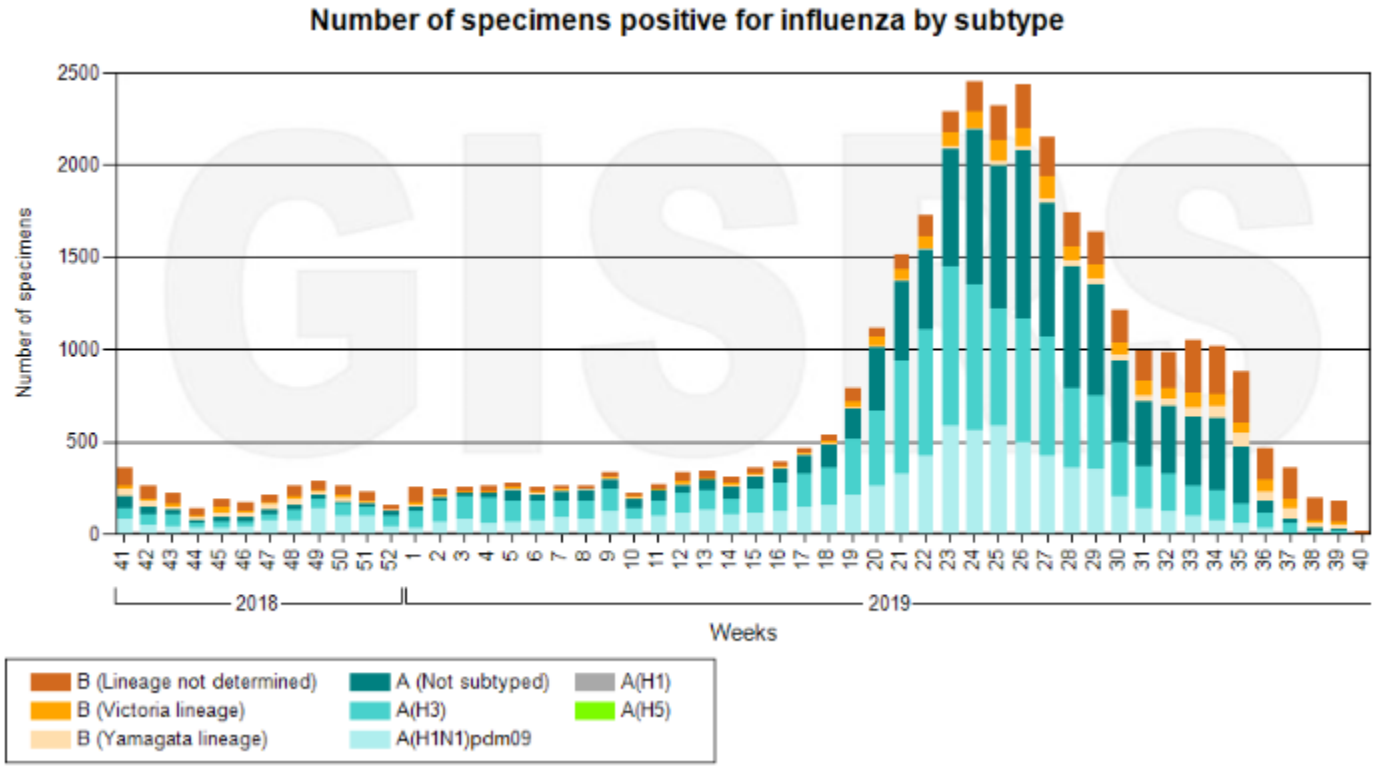
Advisory Committee on Immunization Practices
October 23, 2019

Outline

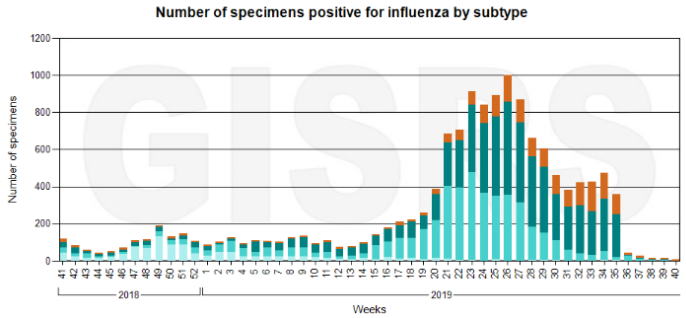
- International influenza activity update
- Recent U.S. influenza activity
- Southern Hemisphere vaccine recommendations

Southern Hemisphere Influenza Activity, 2018-19 Season
Global Influenza Surveillance and Response System, WHO

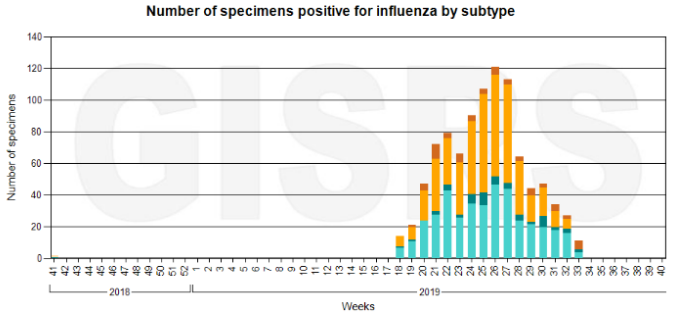


Southern Hemisphere Influenza Activity, Select Countries: November 2018 – October 2019

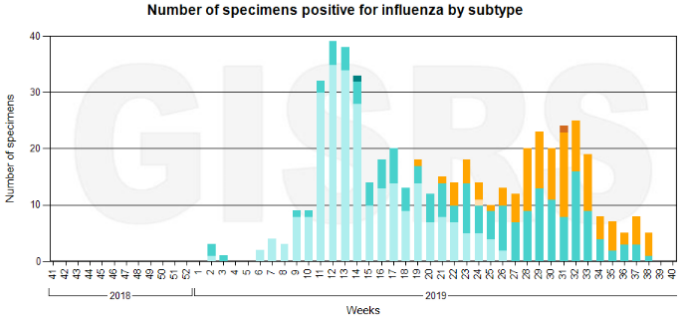
Australia



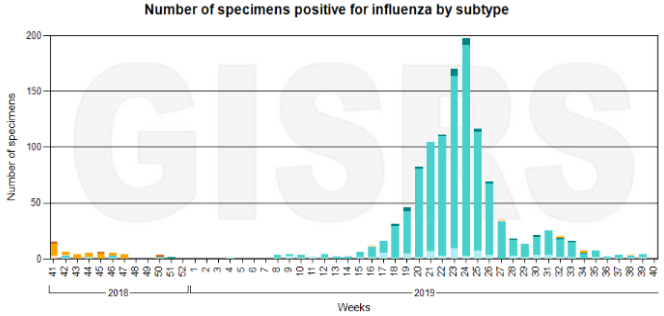
New Zealand

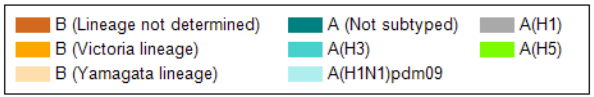


New Caledonia



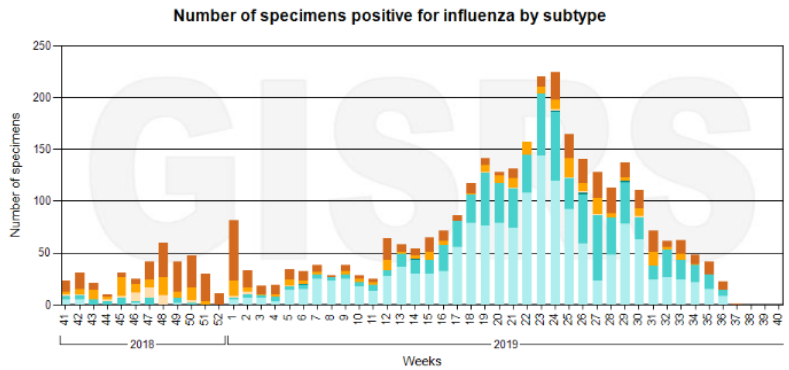
South Africa



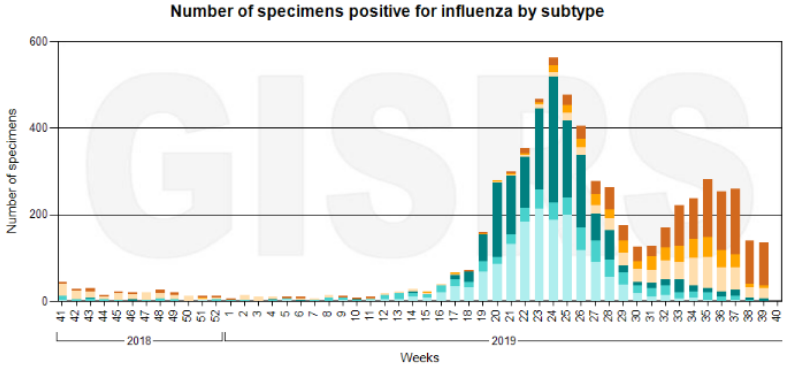


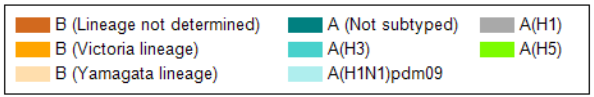
Southern Hemisphere Influenza Activity, Select Countries: November 2018 – October 2019

Brazil

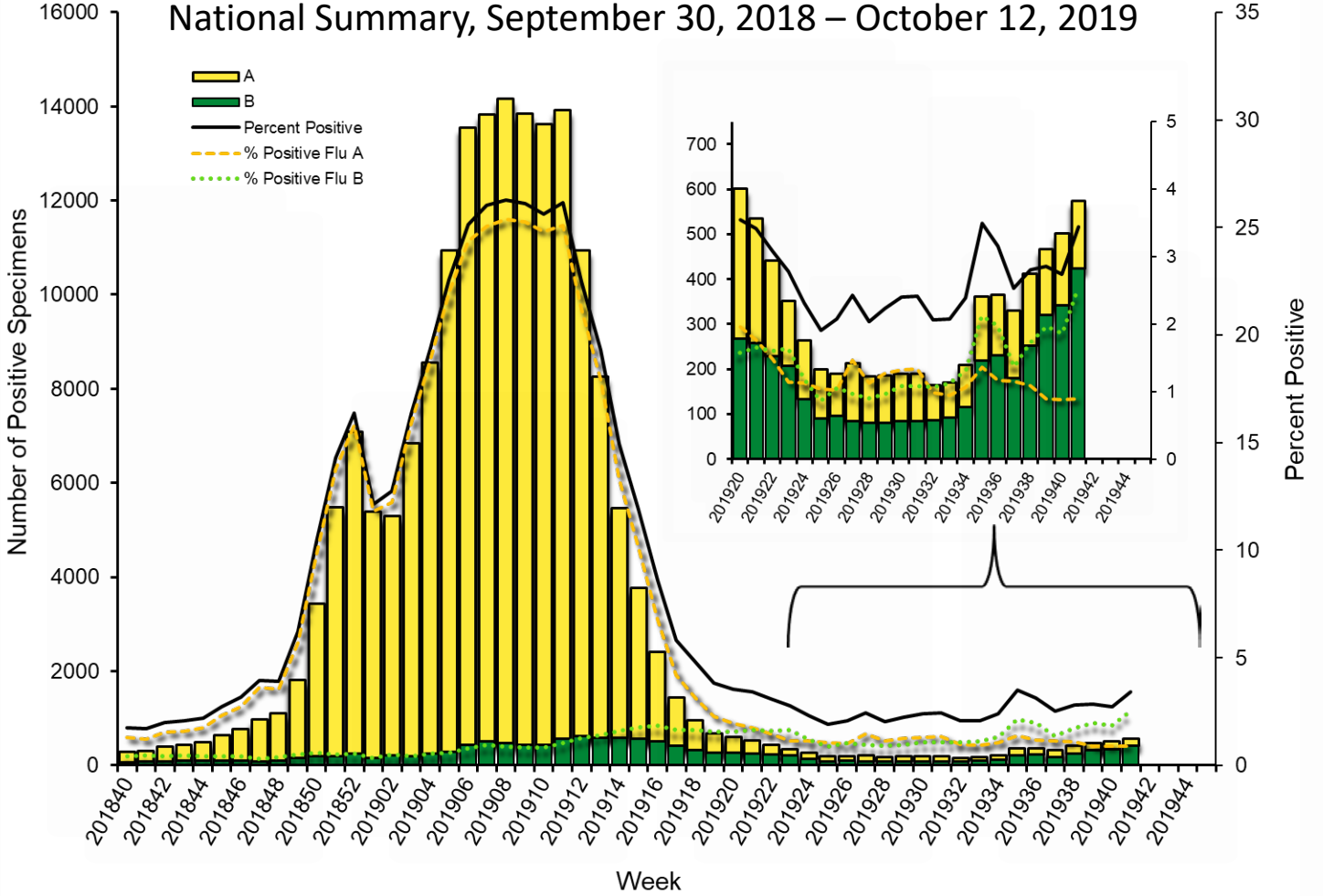


Chile

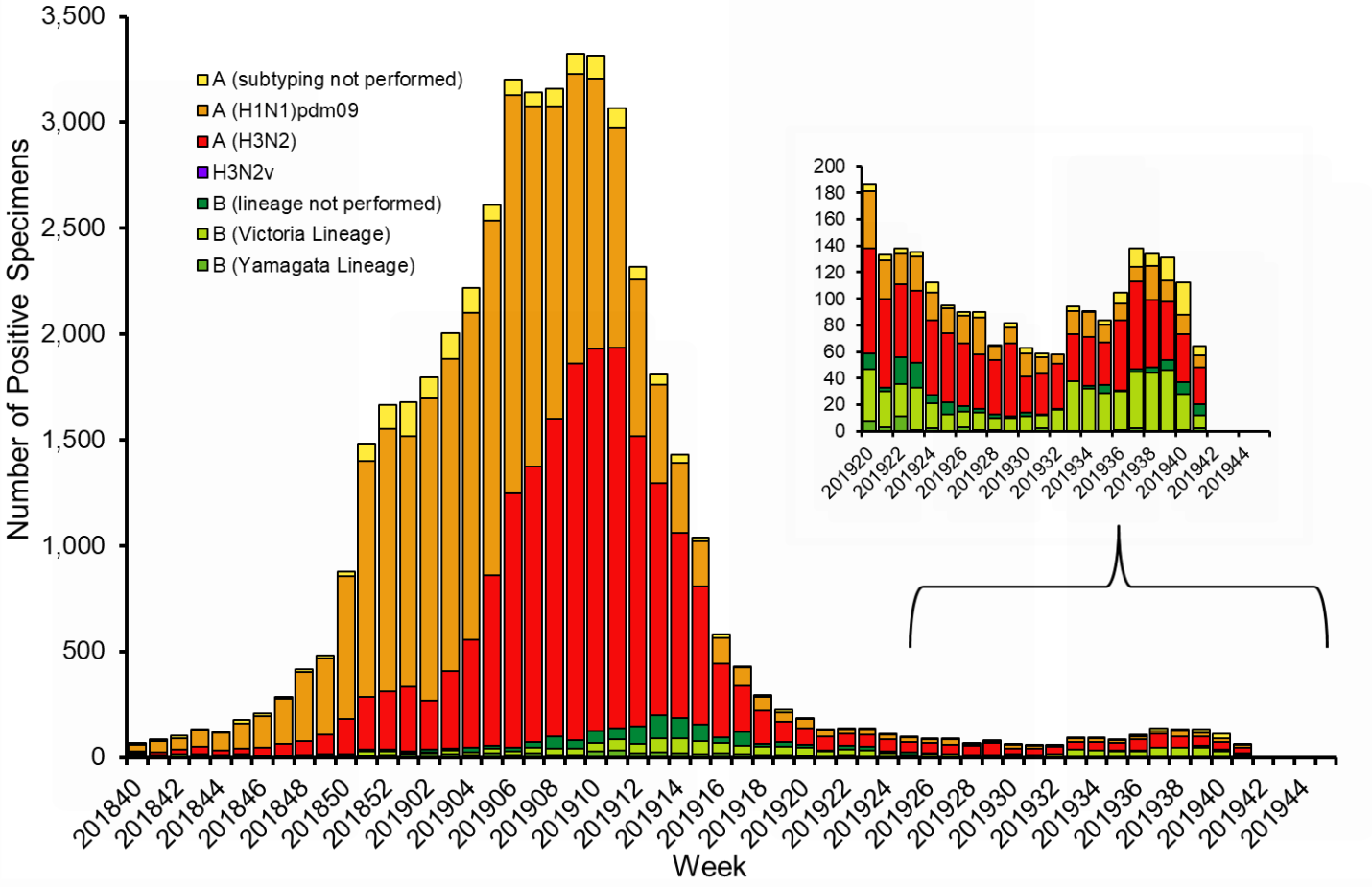




Influenza Positive Tests Reported to CDC by U.S. Clinical Laboratories, National Summary, September 30, 2018 – October 12, 2019



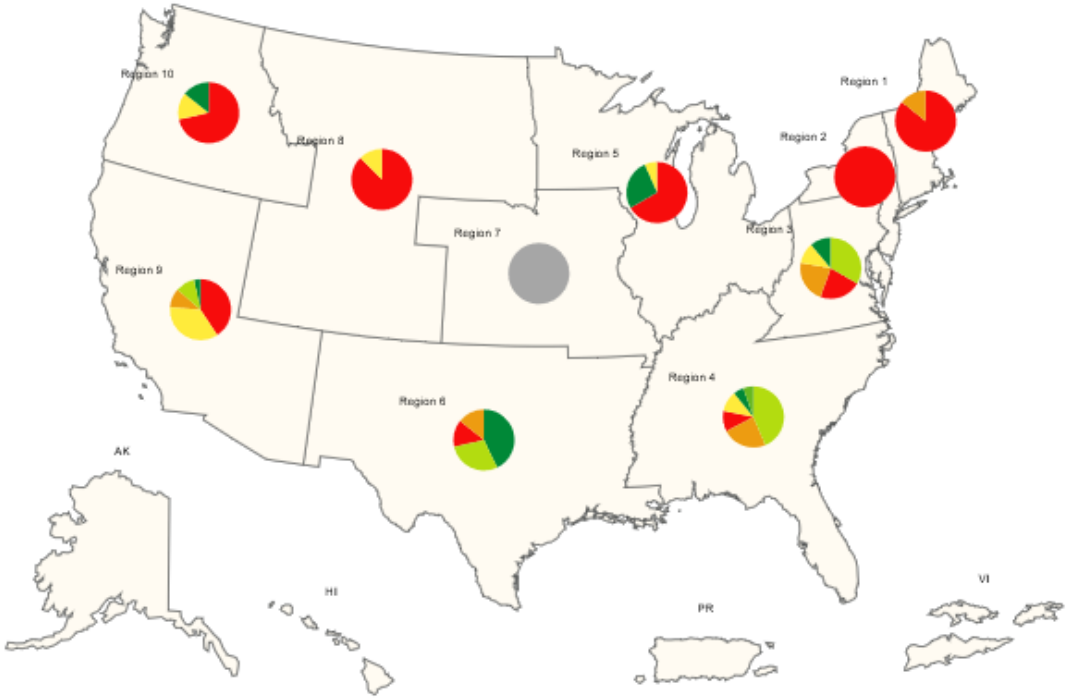
Influenza Positive Tests Reported to CDC by U.S. Public Health Laboratories, National Summary, September 30, 2018 – October 12, 2019



FluView

Influenza Positive Tests Reported to CDC by Public Health Laboratories and ILI Activity, by HHS Region, 2019-20 Season, week ending Oct 12, 2019

Reported by: U.S. WHO/NREVSS Collaboroating Laboratories and ILINet



○ Cumulative
◉ Most Recent 3 weeks

Pie Chart Legend

(Pie chart includes data from most recent 3 weeks of season)

- A (H1) - 0
- A (Unable to Subtype) - 0
- A (H3) - 6
- A (H1N1)pdm09 - 13
- A (Subtyping not Performed) - 6
- B (Lineage Unspecified) - 3
- H3N2v - 0
- B (Victoria Lineage) - 24
- B (Yamagata Lineage) - 3
- No Data/Small Data Sample

Map Legend

- ILI Elevated
- ILI Normal
- No Data

National

Genetic and Antigenic Characterization of Influenza Viruses Collected May 19 – September 28, 2019

- Data includes viruses submitted by US and international laboratories and tested at CDC
- A (H1N1)pdm09: all viruses tested belong to genetic subclade 6B.1A and 96% are similar to the cell-culture propagated 2019-20 Northern Hemisphere vaccine virus component (A/Brisbane/02/2018)
- B/Yamagata lineage: All viruses tested belonged to Y3 genetic clade and all are similar to the cell-culture propagated 2019-20 Northern Hemisphere vaccine virus component (B/Phuket/3073/2013)

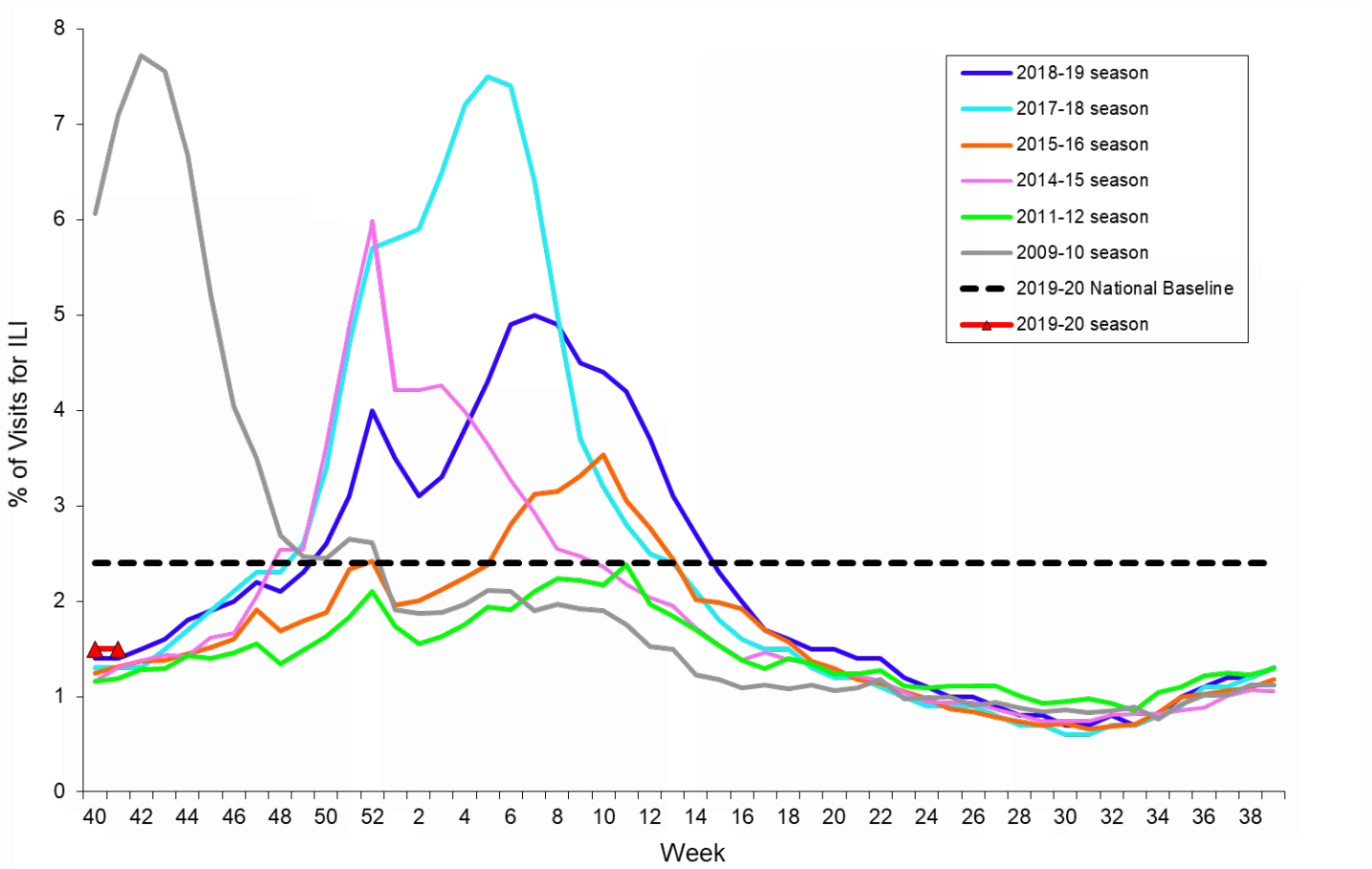
Genetic and Antigenic Characterization of Influenza A(H3N2) Viruses Collected May 19 – September 28, 2019

- Recently tested A(H3N2) viruses (n=427) belong to either clades 3C.2a (83%) or 3C.3a (17%)
- There are multiple subclades within the 3C.2a clade circulating
  - The majority belong to subclade 3C.2a1
- 3C.2a1 viruses predominated in Australia but 3C.3a viruses predominated among H3 viruses in South America
- 70% of antigenically characterized H3 viruses are similar to the cell-culture propagated 2019-20 Northern Hemisphere vaccine virus component (A/Kansas/14/2017 – 3C.3a)
- While ferret antisera clearly distinguish antigenic differences between 3C.2a and 3C.3a viruses, there is some cross reactivity

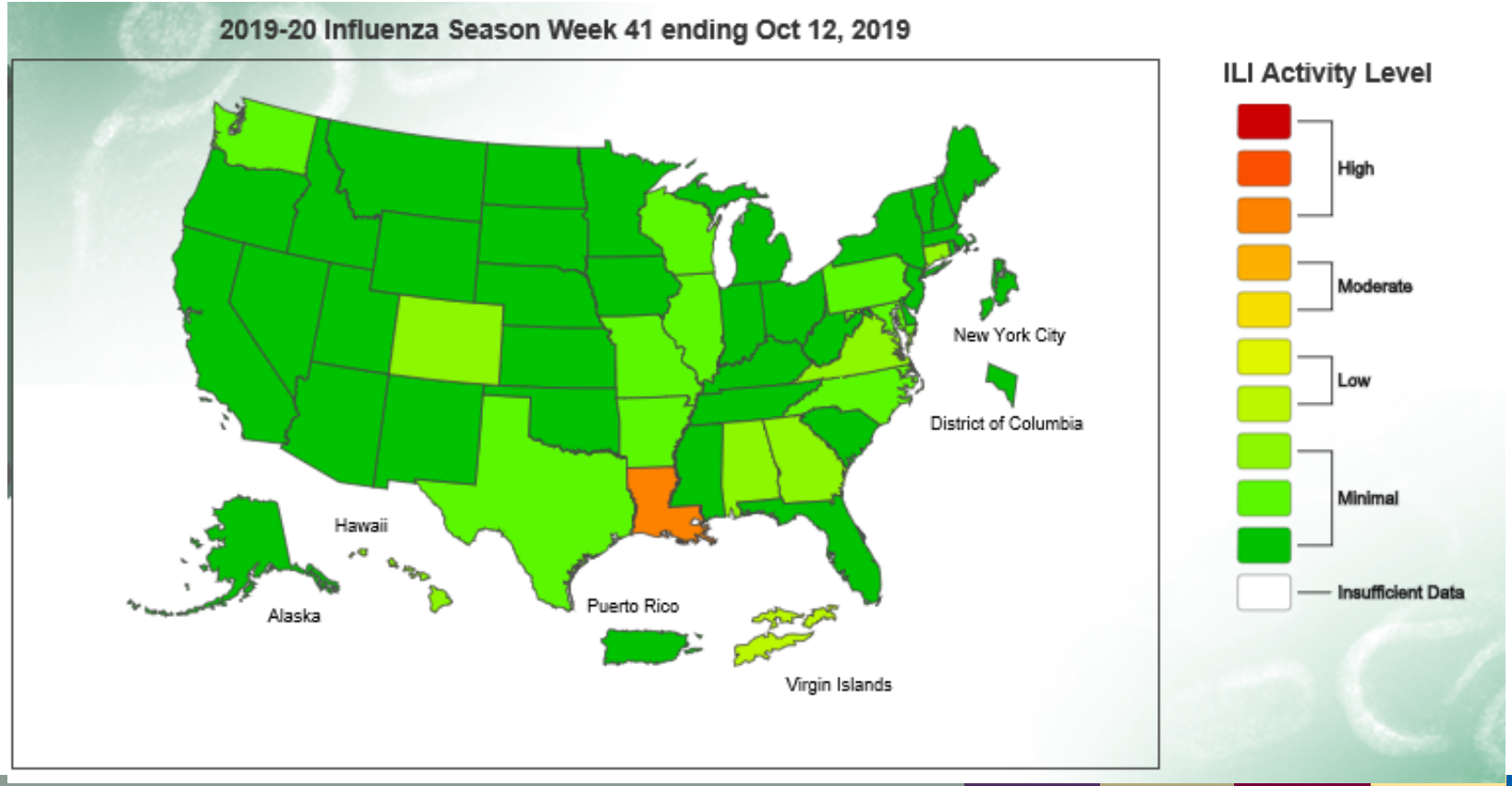
Genetic and Antigenic Characterization of Influenza B/Victoria Viruses Collected May 19 – September 28, 2019

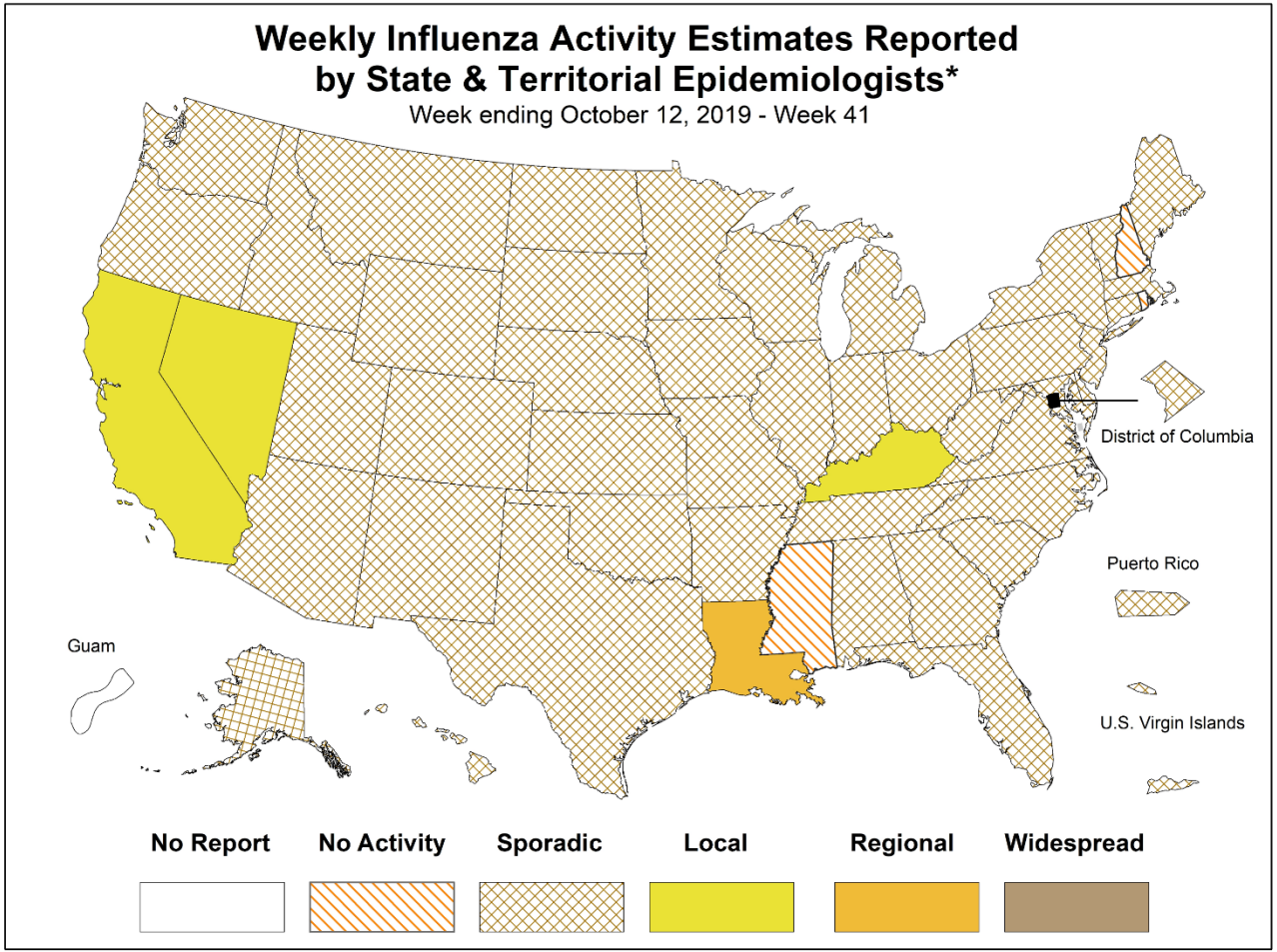
- B/Victoria lineage viruses belong to either clade V1A (4%), or subclades V1A.1 (24%) and V1A-3Del (72%)
- V1A.1 viruses antigenically characterized were similar to the cell culture-propagated 2019-20 Northern Hemisphere vaccine component (B/Colorado/06/2017)
- Ferret antisera raised against recent V1A.1 viruses had reduced reactivity with V1A and V1A-3Del viruses indicating some antigenic differences between the B/Victoria lineages subclades
  - However, sera from humans vaccinated with V1A.1 virus cross reacted well with V1A-3Del viruses

Percentage of Visits for Influenza-like Illness (ILI) Reported by
the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet),
Weekly National Summary, 2019-2020 and Selected Previous Seasons



ILI Activity Level Indicator Determined by Data Reported to ILINet

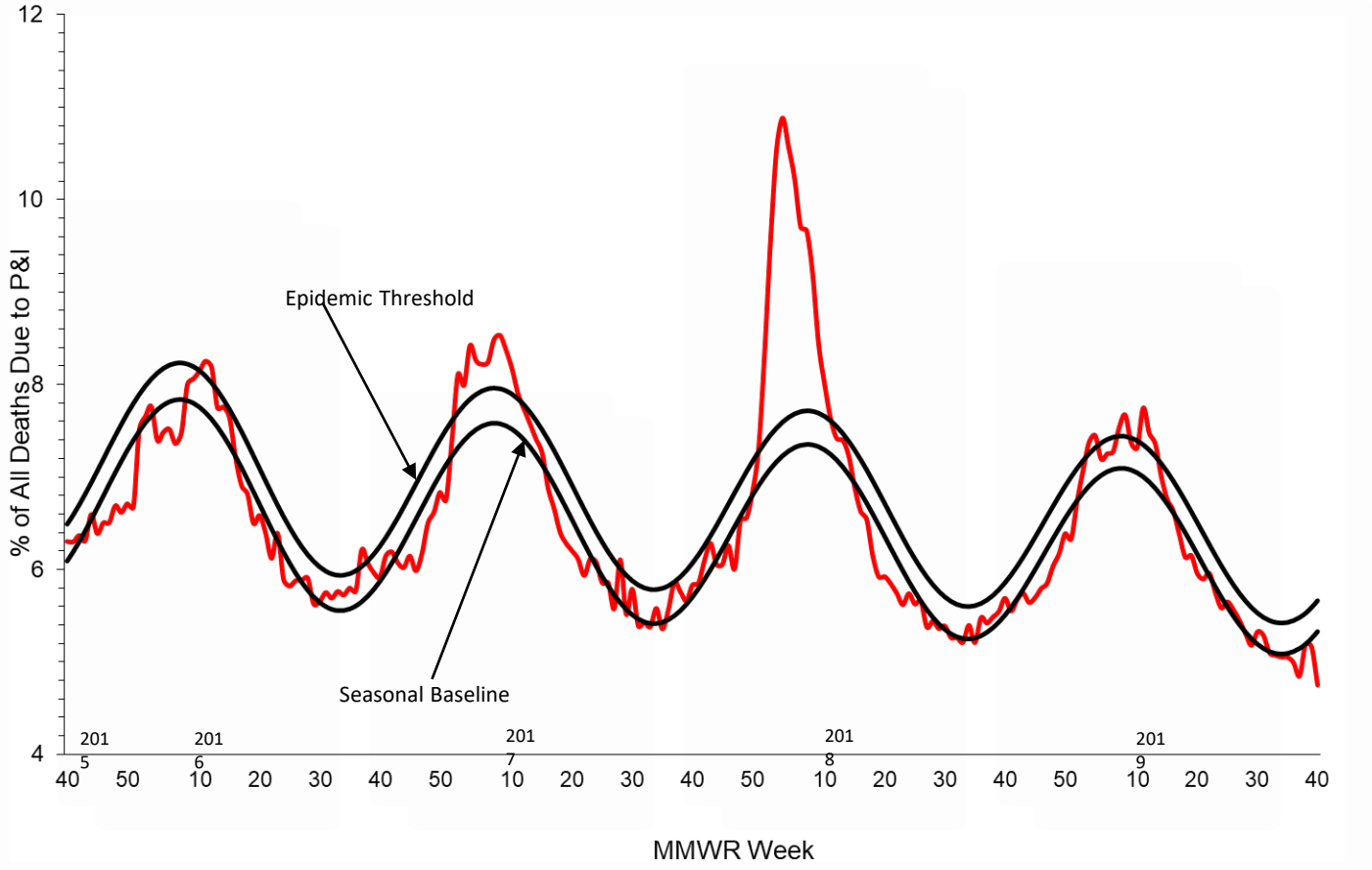




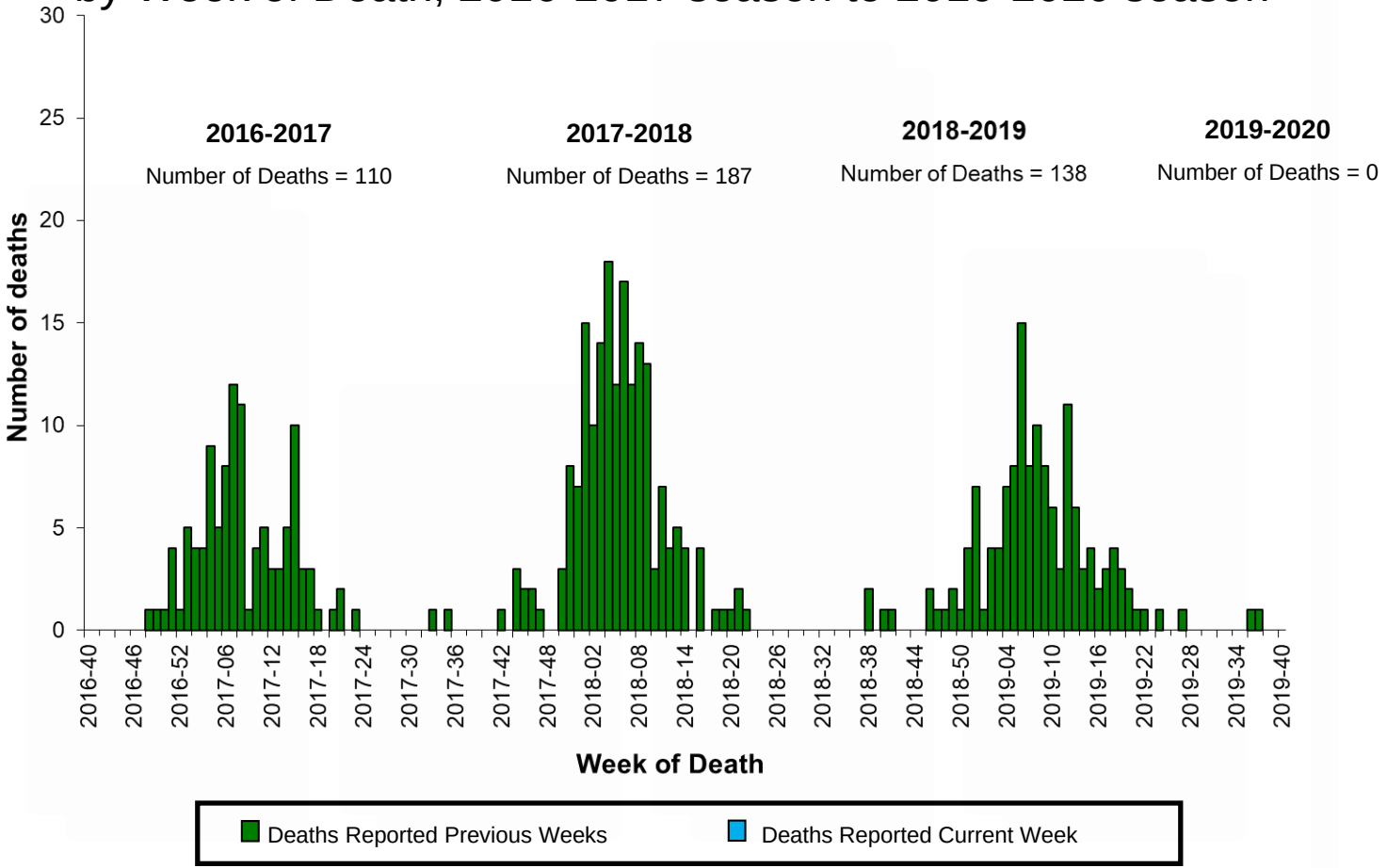
* This map indicates geographic spread & does not measure the severity of influenza activity

Pneumonia and Influenza Mortality from the National Center for Health Statistics Mortality Surveillance System

Data through the week ending October 5, 2019, as of October 17, 2019



Influenza-Associated Pediatric Deaths
by Week of Death, 2016-2017 season to 2019-2020 season



Recommendation for 2020 Southern Hemisphere Influenza Vaccine

- It is recommended that the following viruses be used for trivalent influenza vaccines in the 2020 Southern Hemisphere influenza season:
  - A/Brisbane/02/2018 (H1N1)pdm09-like virus
  - A/South Australia/34/2019 (H3N2)-like virus
  - B/Washington/02/2019-like virus (B/Victoria lineage)
- For quadrivalent vaccines containing 2 B components:
  - Above 3, plus B/Phuket/3073/2013-like virus (B/Yamagata lineage)

Summary

- Influenza activity remains low in the US overall
- Numbers are small, but so far, influenza A(H3N2) viruses are predominant in the US overall but this varies by region
  - Too early to tell what viruses will be predominant for the season
- While 2 of the 4 vaccine components were updated for the Southern Hemisphere, the components selected for the 2019-20 Northern Hemisphere vaccine, at this time, look appropriate for our season

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.