

Review of the 2020 influenza “season” in Australia and what to expect in 2021

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www.influenzacentre.org



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Government Department of Health



What a difference a year makes!



Sections

The Washington Post
Democracy Dies in Darkness

Save 50% today

Sign in

Get a grippe, America. The flu is a much bigger threat than coronavirus, for now.



By Lenny Bernstein

Feb. 2, 2020 at 12:00 a.m. GMT+11

The rapidly spreading virus has closed schools in Knoxville, Tenn., cut blood donations to dangerous levels in Cleveland and prompted limits on hospital visitors in Wilson, N.C. More ominously, it has [infected as many as 26 million people in the United States](#) in just four months, killing up to 25,000 so far.

In other words, a difficult but not extraordinary flu season in the United States, the kind most people shrug off each winter or handle with rest, fluids and pain relievers if they contract the illness.

But this year, a new coronavirus from China has focused attention on diseases that can sweep through an entire population, rattling the public despite the current magnitude of the threat. Clearly, the flu poses the bigger and more pressing peril; a handful of cases of the new respiratory illness have been reported in the United States, none of them fatal or apparently even life-threatening.

https://www.washingtonpost.com/health/time-for-a-reality-check-america-the-flu-is-a-much-bigger-threat-than-coronavirus-for-now/2020/01/31/46a15166-4444-11ea-b5fc-eefa848cde99_story.html

How was the 2020 SH influenza season for you?

- Normal season – nothing much different from any other
- Low season – similar to 2010, 2018
- Medium season – similar to 2011, 2013
- Big season – similar to 2012, 2014, 2015, 2016
- Massive season – Once in every decade or two
 - Pandemic of 2009
 - Flumageddon 2017
 - Flunami of 2019
- **COVID-19 impacted season – little or NO influenza!!**
 - **2020; A new low for influenza seasons?**

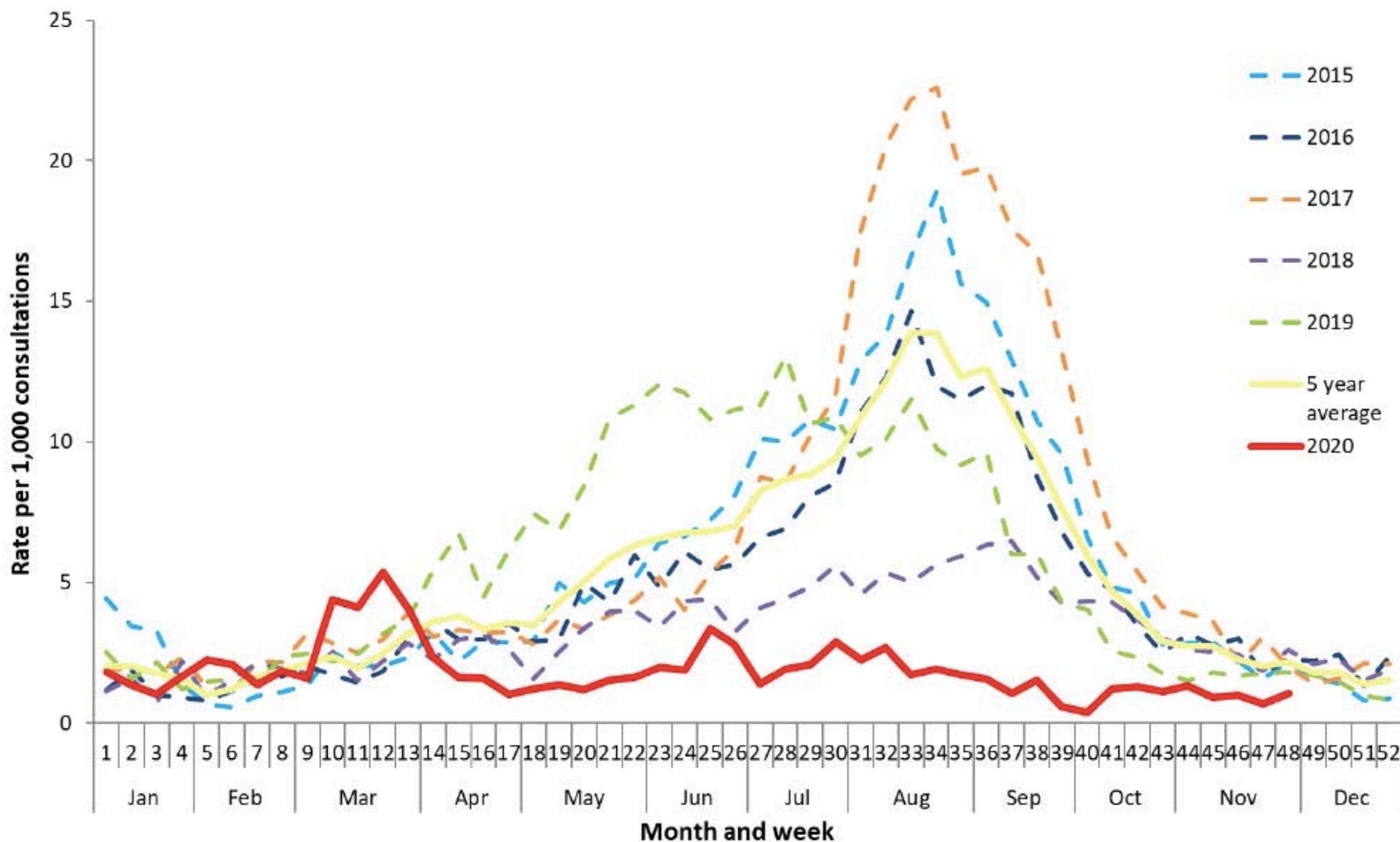


Summary of the 2020 Australian Influenza “season”

- A non “Influenza” season by most measures
 - NNDSS Lab confirmed influenza data
 - Lowest detections post-2009 pandemic since 2010
 - In 2020 only 6.8% of cases reported in 2019 (21,355 vs 313,458)
 - 94% of cases reported from Jan-March
 - ASPREN-GP ILI data – Above average Jan-March then flatline
 - Flutracking – started early (late Feb: usual Apr) ?high March then flatline
- Characteristics of season
 - As typed by WHO CC 91.5% influenza A (87.9% A(H1N1)pdm09 and 12.1% A(H3N2)), 8.2% B/Victoria lineage, 0.3% B/Yamagata-lineage
 - FluCan data
 - Virtually flatline
 - Only 15 hospital admissions from late March to late November 2020
 - Influenza deaths (NNDSS) in 2020: 37 (2019: 902) median age=78y



Influenza-like illness (ILI) 2015-20 in Australia

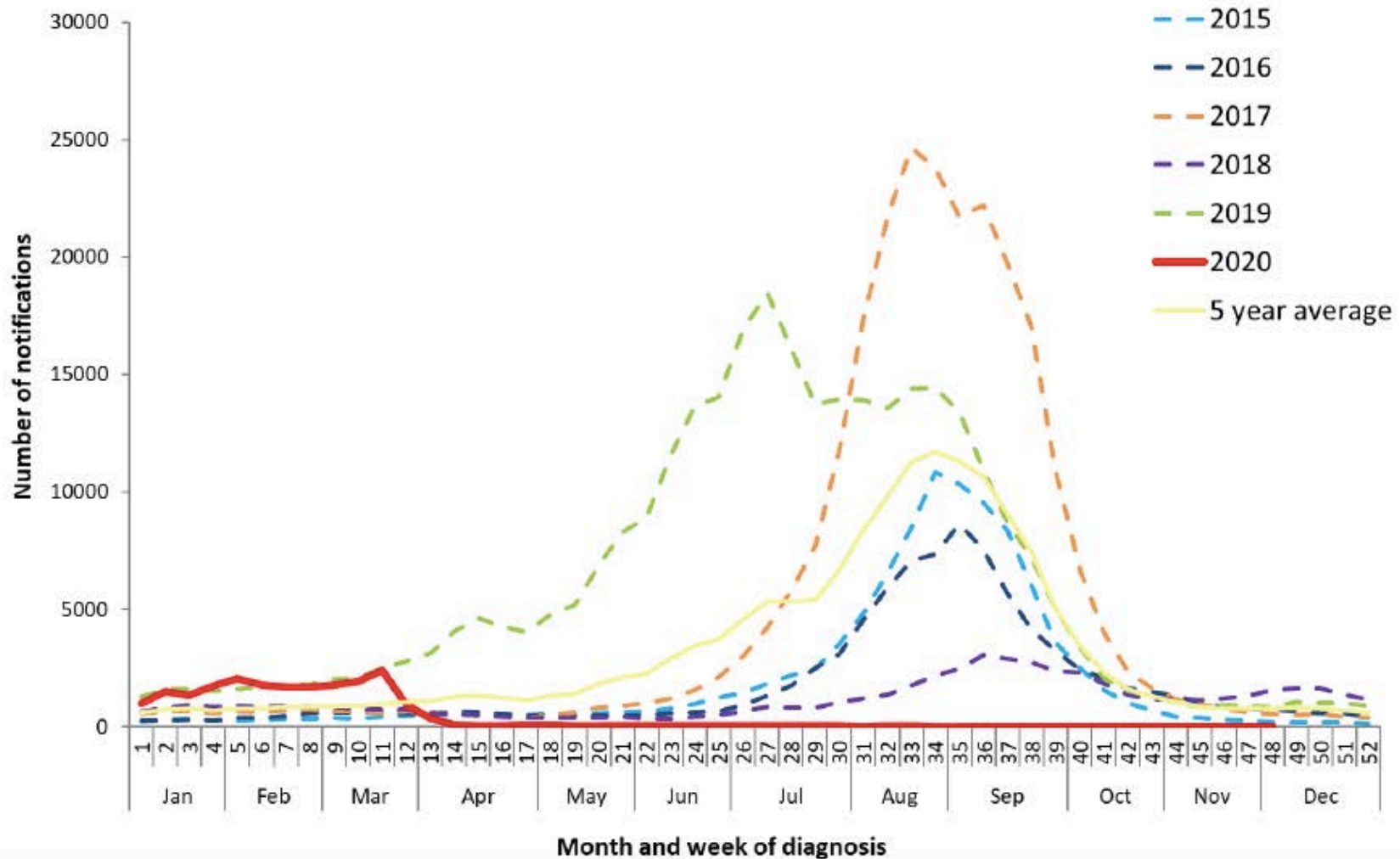


Source: ASPREN

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Lab confirmed influenza in Australia 2015-20(NNDSS)

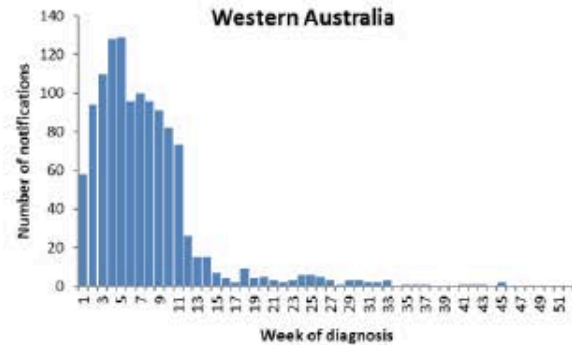
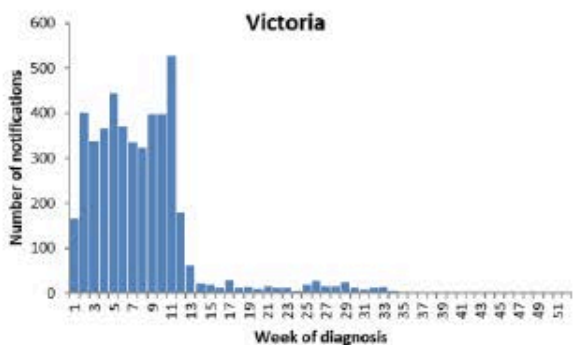
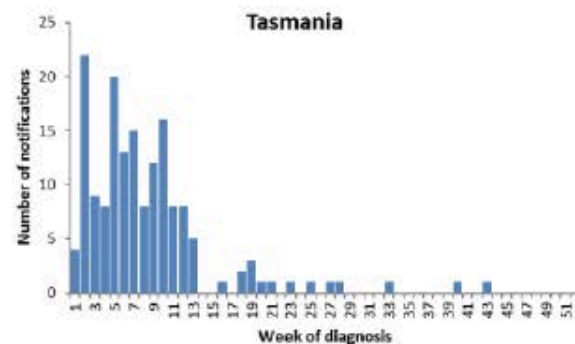
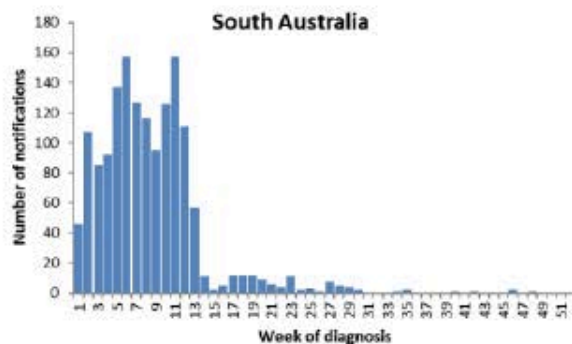
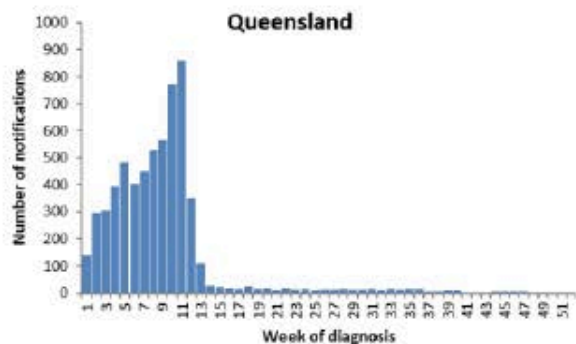
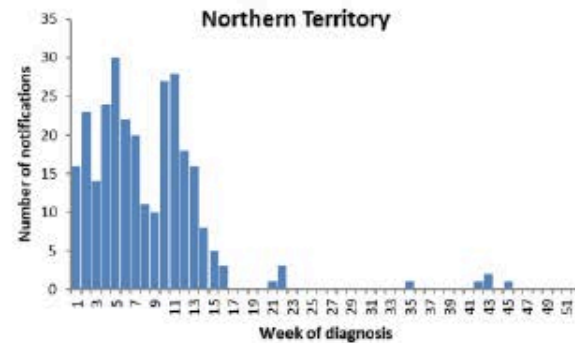
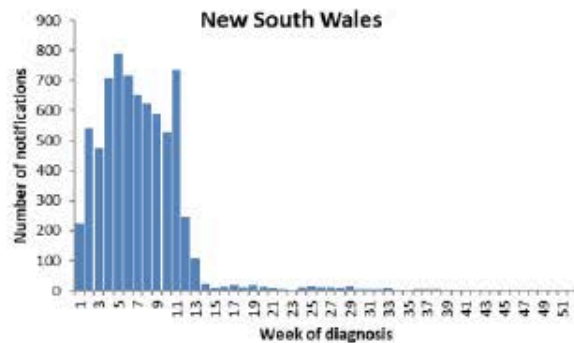
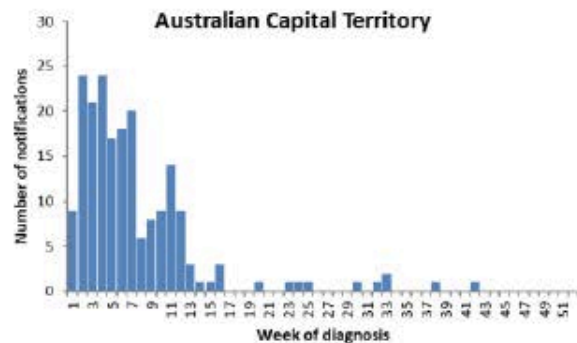


Source: NNDSS

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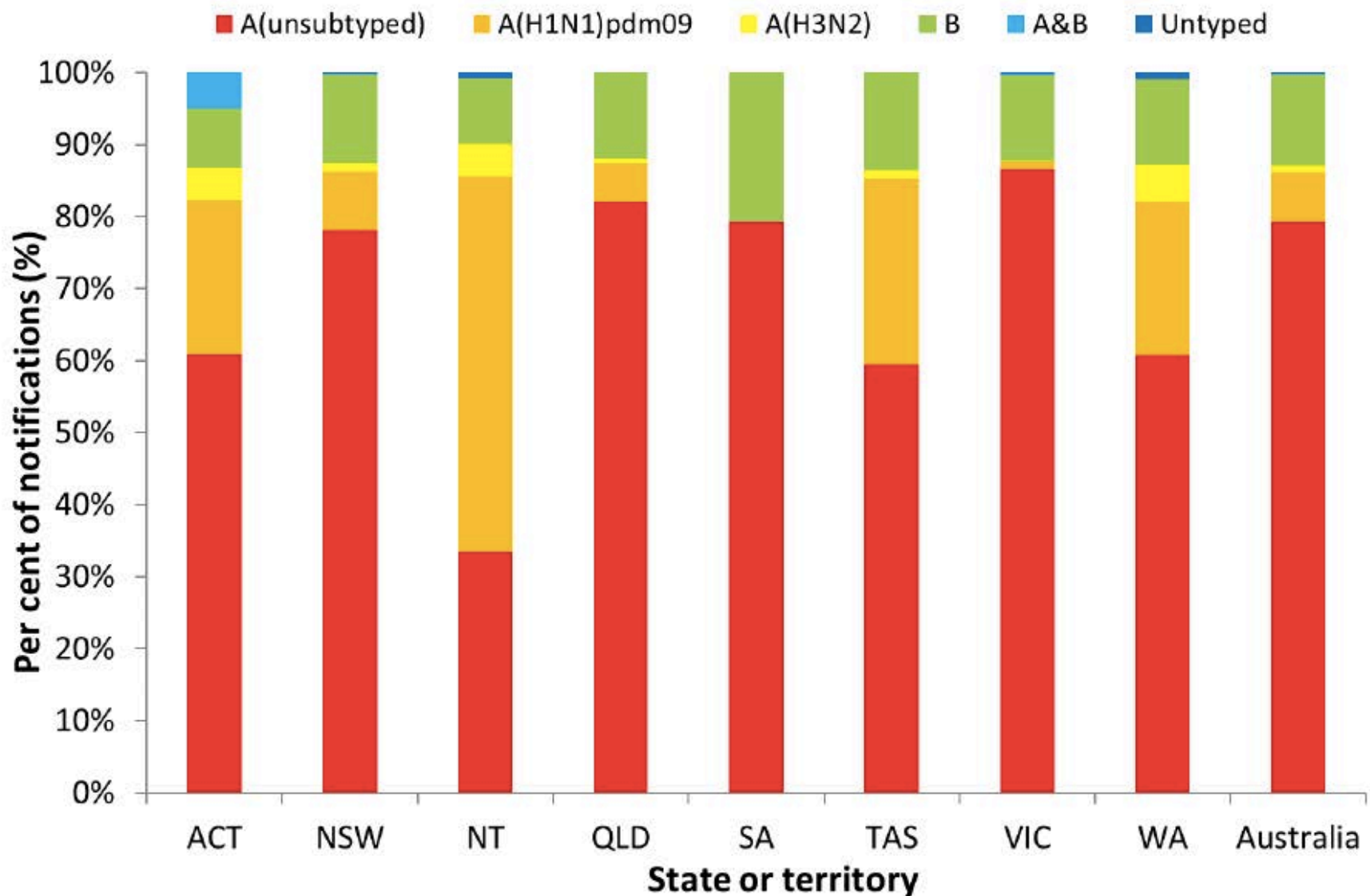
Lab confirmed influenza in Australia 2020 by State



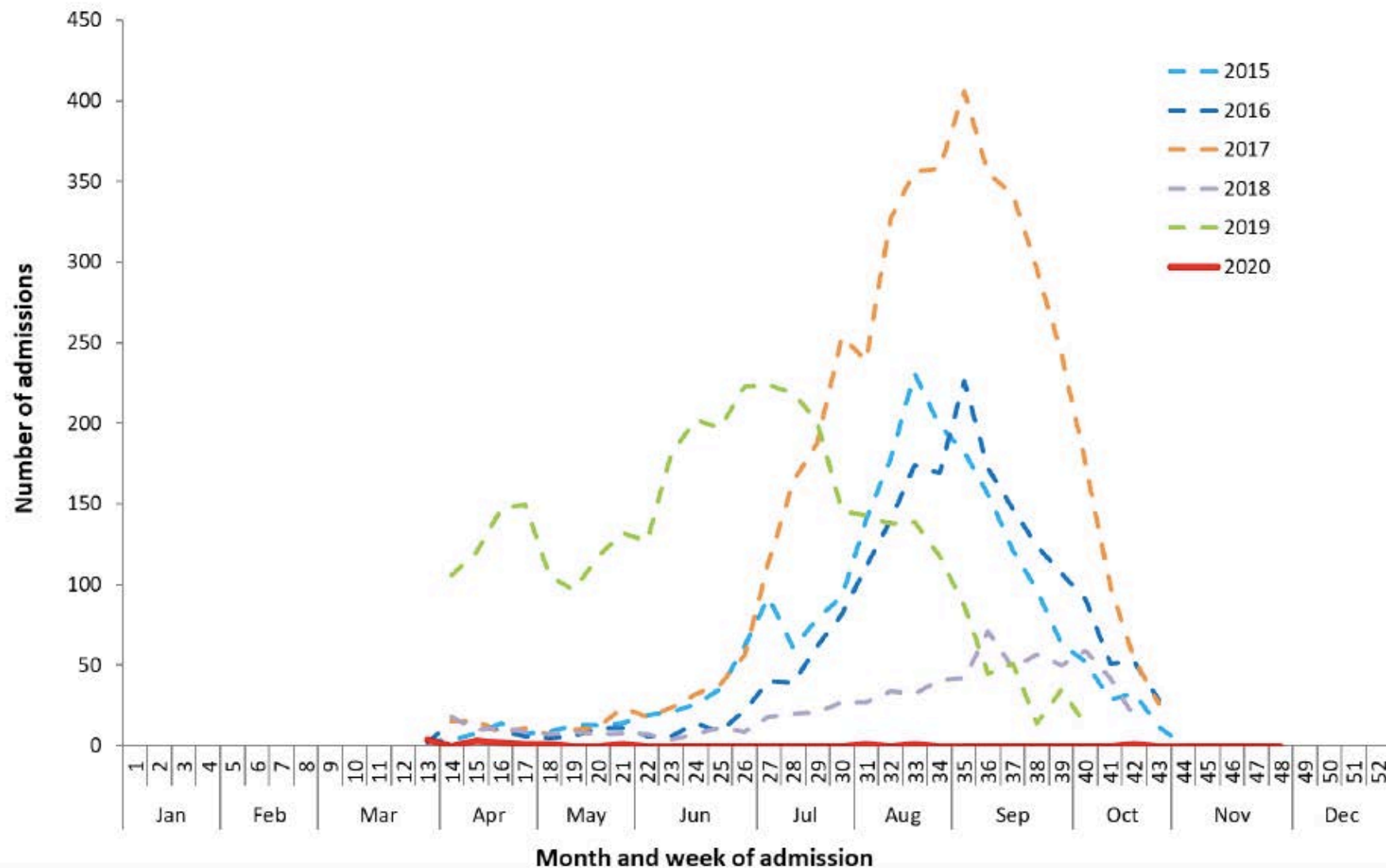
Source: NNDSS



Typing of influenza viruses in Australia 2020



FluCAN hospitalisation data 2020



Source: FluCAN
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Australian Government
Department of Health

SURVEILLANCE REPORT

No. 12, 2017
14 – 27 October 2017

NNDSS reported influenza associated deaths in Australia

1 January to 31 December							
	2014	2015	2016	2017	2018	2019	2020*
Notifications ^{*†}	67,670	100,556	90,858	251,151	58,858	307,907	21,266
Deaths [§]	189	222	273	1181	148	902	37
Case Fatality Rate	0.28%	0.22%	0.30%	0.47%	0.25%	0.29%	0.17%

•Data on 'Deaths' should always be used with extreme caution as clinical information is not always collected across the various jurisdictions and timely mortality data is not available. These notification data are based on data extracted from the NNDSS on the date indicated above. Due to the dynamic nature of the NNDSS, data on this extract are subject to retrospective revision and may vary from data reported in published NNDSS reports and reports of notification data by states and territories. In general notification data represent only a proportion of the total cases occurring in the community, that is, only those cases for which health care was sought, a test conducted and a diagnosis made, followed by a notification to health authorities. The degree of under-representation of all cases is unknown and is most likely variable by disease and jurisdiction. In interpreting these data it is important to note that changes in notifications over time may not solely reflect changes in disease prevalence or incidence. Depending on the disease changes in testing policies; screening programs including the preferential testing of high risk populations; the use of less invasive and more sensitive diagnostic tests; and periodic awareness campaigns, may influence the number of notifications that occur annually.

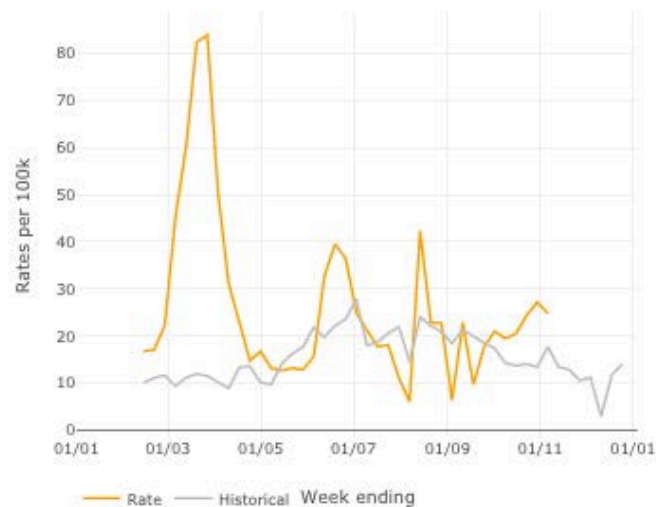
*Up to 29.11.20
Data kindly supplied by OHP, DoH

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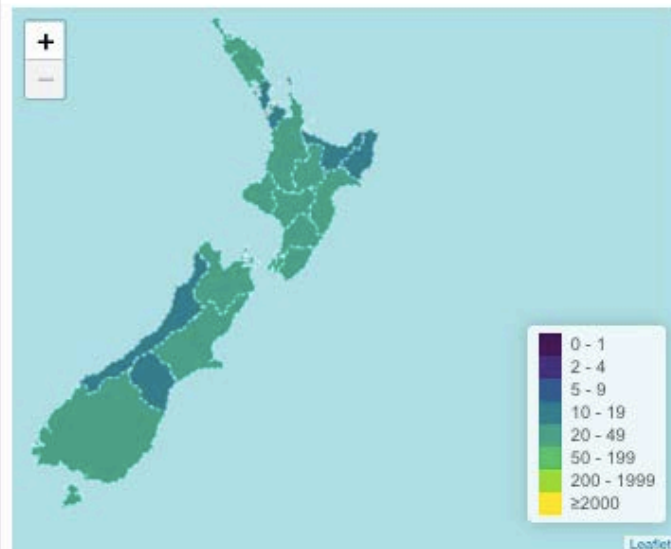
NZ ILI dashboard 2020-1

HealthLine National ILI rate (per 100,000)

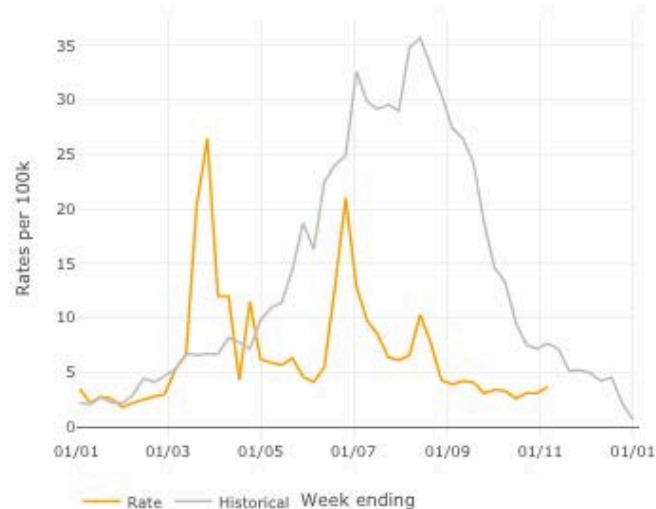


[Download data](#) · [Chrome or Firefox only](#)

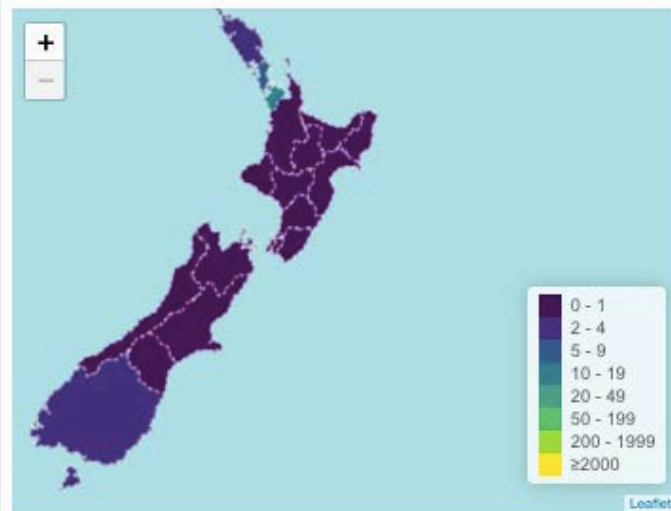
HealthLine DHB ILI Rate



HealthStat National ILI rate (per 100,000)



HealthStat DHB ILI Rate



*Follows the same methodology as the national ILI rate for HealthStat version 2020-1

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E/S/R

Science for Communities



**Its been a quiet year for human influenza in Aus but
its been a busy one for avian influenza in Victoria!**



LIVE BLOG Follow our live coverage for the latest news on the coronavirus pandemic

Bird flu spreads to eastern Victoria, with cases in Geelong and Bairnsdale

ABC Gippsland / By Peter Somerville

Posted Tue 11 Aug 2020 at 6:17pm



Bird flu has been detected in turkey flocks at Lethbridge near Geelong and near Bairnsdale to Victoria's east. (ABC Gippsland, Peter Somerville)

ABC NEWS

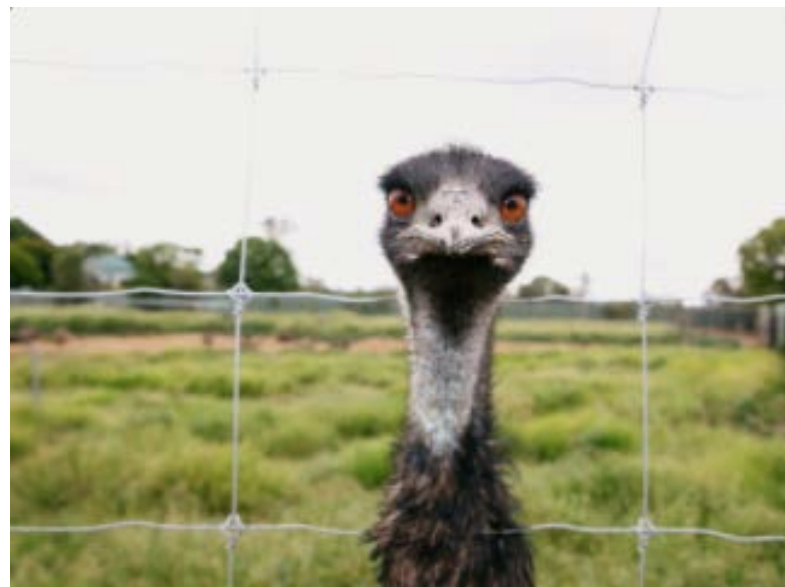
World Business Analysis Sport Science Health Arts Fact Check Other

LIVE BLOG Follow our live coverage for the latest news on the coronavirus pandemic

Victoria's worst outbreak of avian influenza is raising questions about the rapid rise of free-range farming

Landline / By national regional and rural reporter Jess Davis

Posted Fri 18 Sep 2020 at 6:02am



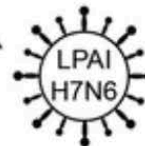
FIRST 3000 ADULT EMUS TO BE KILLED AFTER AI OUTBREAK

At least another 3000 adult emus will be killed at Kerang, after 2000 chicks were destroyed by veterinary authorities last week following an avian influenza outbreak.

Nearly half a million poultry deaths: there are 3 avian influenza outbreaks in Victoria. Should we be worried?

October 7, 2020 2.07pm AEDT

Avian influenza viruses currently causing outbreaks in Victoria



Article by Michelle Wille
& Stacey Lynch

October 7 2020

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There are currently three outbreaks of avian influenza in Victoria, high pathogenic H7N7 in chickens, low pathogenic H5N2 in turkeys and low pathogenic H7N6 in emus. [Michelle Wille](#)

Five separate outbreaks of avian influenza in Victoria during August 2020



Details of Victorian avian influenza outbreaks

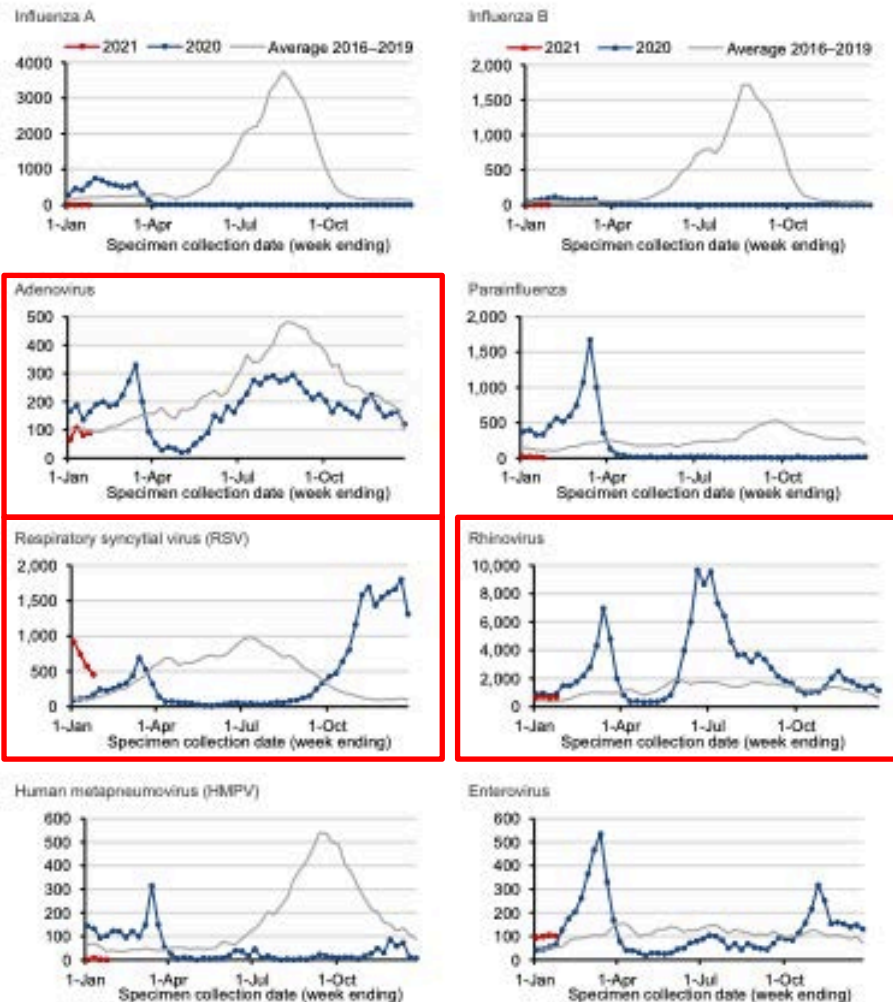
- Between 31 July and 25 August 2020; 3 different strains of avian influenza detected across 6 infected farms in Victoria.
- 3 egg farms with highly pathogenic H7N7 avian influenza.
- Two turkey farms with low pathogenic H5N2 avian influenza.
- One emu farm diagnosed with low pathogenic H7N6 avian influenza
- Over 460,000 birds culled (440,000 chickens, 16,500 turkeys, 5,000 emus)
- Huge cleanup operation (many weeks) with dozens of workers
- No confirmed human infections with any of avian influenza viruses
- Outbreaks identified some problems with One Health Concept/operation
 - Initial H7N7 outbreak first noticed by WHO CC staff on Promed posting
 - Unable to transfer HPAI/LPAI viruses from AAHL to WHO CC (still ongoing)
- Previous outbreaks of avian influenza in Australia (Scott A et al. 2020)
 - Victoria – Bendigo; July 1992, H7N3 HPAI; 17,000 chickens culled
 - NSW – Young; Oct 2014; H7N2 HPAI; 160,000 chickens culled
 - NSW – Maitland; Nov 2012; H7N7 HPAI; 50,000 chickens culled



So what's happened with other respiratory viruses during 2020?

APPENDIX C: NUMBER OF POSITIVE PCR TEST RESULTS FOR INFLUENZA AND OTHER RESPIRATORY VIRUSES AT SENTINEL NSW LABORATORIES, January 2020 to 24 January 2021

Not all samples are tested for all of the other respiratory viruses. Therefore, data presented may tend to under-represent current respiratory virus activity in NSW.



Note: Preliminary laboratory data is provided by participating sentinel laboratories on a weekly basis and are subject to change. Serological diagnoses are not included.

In NSW in 2020;

- No influenza post April
- Adenoviruses circulated
- No parainfluenza
- RSV low during normal season has now rebounded (also seen in WA Nov-Jan)
- Rhinoviruses circulated
- Little HMPV
- Some Enterovirus



www.health.nsw.gov.au/coronavirus

COVID-19 WEEKLY SURVEILLANCE IN NSW

EPIDEMIOLOGICAL WEEK 4, ENDING 30 JANUARY 2021

Published 4 February 2021



Influenza vaccines for Australia and NZ in 2021

- H1N1pdm – **A/Victoria/2570/2019-like***
- H3 – **A/Hong Kong/2671/2019-like**

Trivalent vaccine:

- B – B/Washington/02/2019-like (B/Vic)

Quadrivalent vaccine:

- B – B/Phuket/3073/2013-like (B/Yam)*
- B – B/Washington/02/2019-like (B/Vic)

Changes to 2020 recommendations

*Isolated at the WHO CC Melbourne



Influenza vaccines available in Australia in 2021

- Egg-based influenza vaccines
 - Quadrivalent inactivated influenza vaccines (Ages vary with brand)
 - Adjuvanted Quadrivalent inactivated influenza vaccine ($\geq 65y$)
 - ?? High dose Quadrivalent inactivated influenza vaccine ($\geq 65y$)
- Cell-based influenza vaccine
 - Quadrivalent inactivated influenza vaccine (Flucelvax QUAD) ($\geq 9y$)
New for Australia in 2021
- Still waiting???
 - LAIV (Astra-Zeneca)
 - Recombinant protein - HA (Baculovirus; Protein Sciences/Sanofi)
 - ?????mRNA



ATAGI Guidelines: Influenza and SARS-CoV-2 vaccinations in 2021

- Routine scheduling and giving an influenza vaccine with a COVID-19 vaccine on the same day is not recommended
- The preferred minimum interval between a dose of seasonal influenza vaccine and a dose of BNT162b2 or ChAdOx1-S is 14 days
- There is no particular requirement regarding the order of receiving a dose of influenza vaccine and either the first or second dose of a COVID-19 vaccine

And also covers ...

- Considerations for shortening the interval between or same-day administration of a dose of influenza vaccine and COVID-19 vaccine
- Management of inadvertent co-administration of influenza vaccine with a COVID-19 vaccine



<https://www.health.gov.au/resources/publications/atagi-advice-on-influenza-and-covid-19-vaccines>



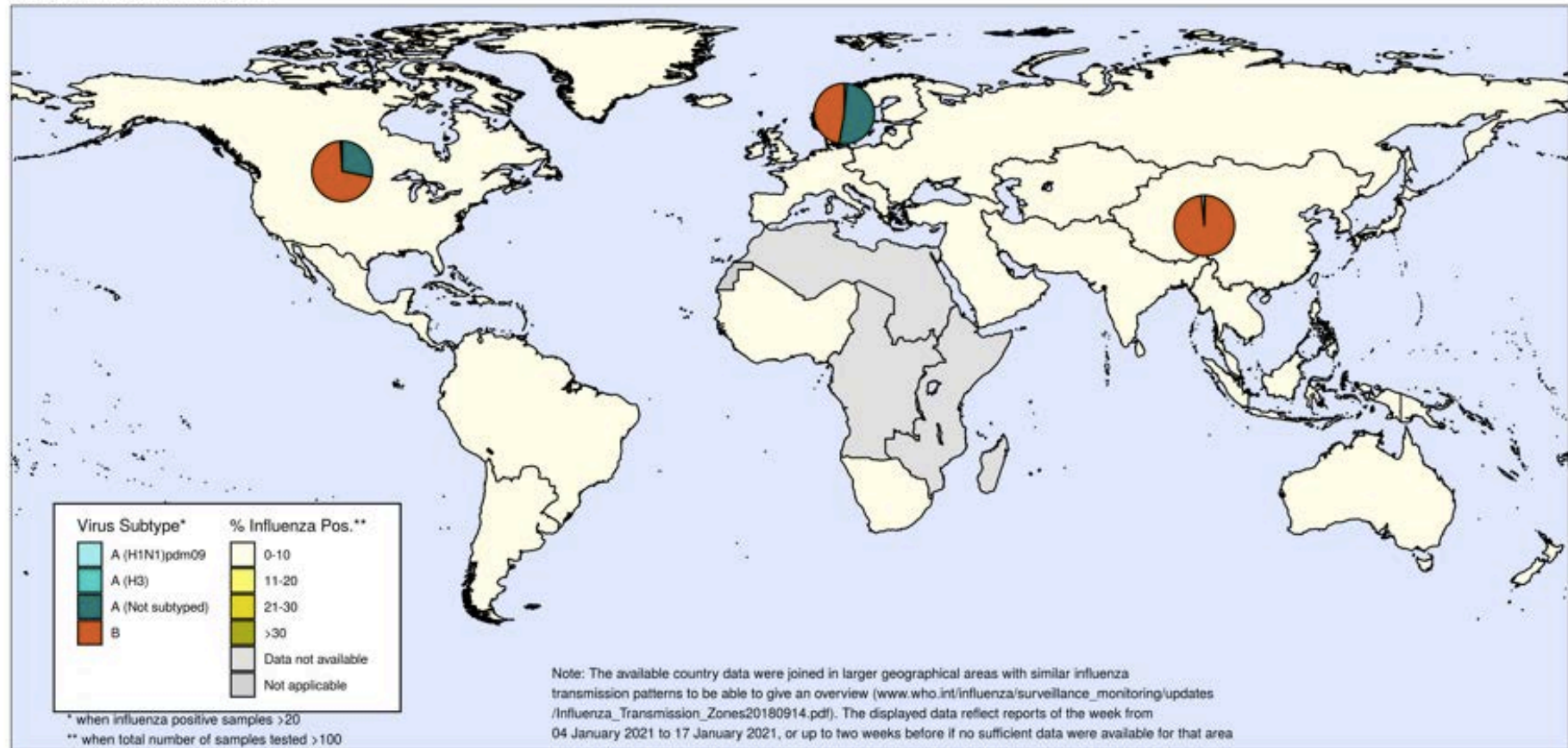
The NH 2020-21 influenza season (so far)



WHO influenza activity map 3-17 Jan 2021

Percentage of respiratory specimens that tested positive for influenza
By influenza transmission zone

Map generated on 29 January 2021



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

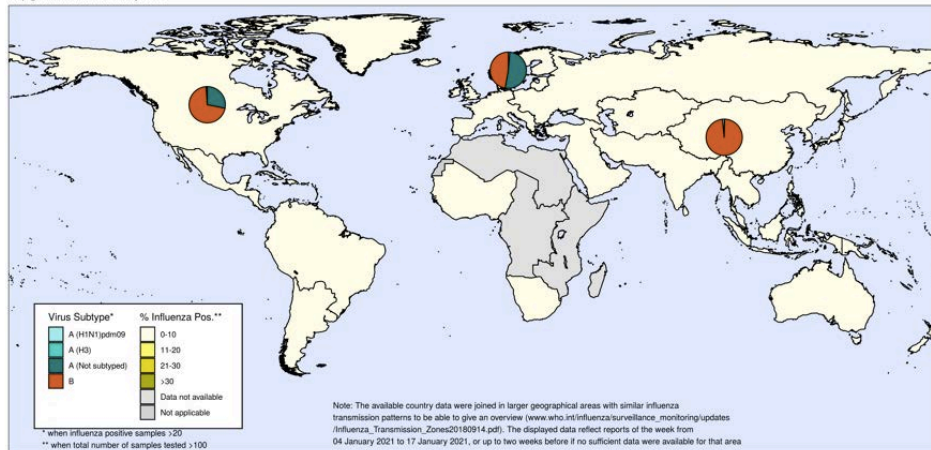
Data source: Global Influenza Surveillance and Response System (GISRS), FluNet (www.who.int/fluNet)
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2021 vs 2020 at the same time (Jan)



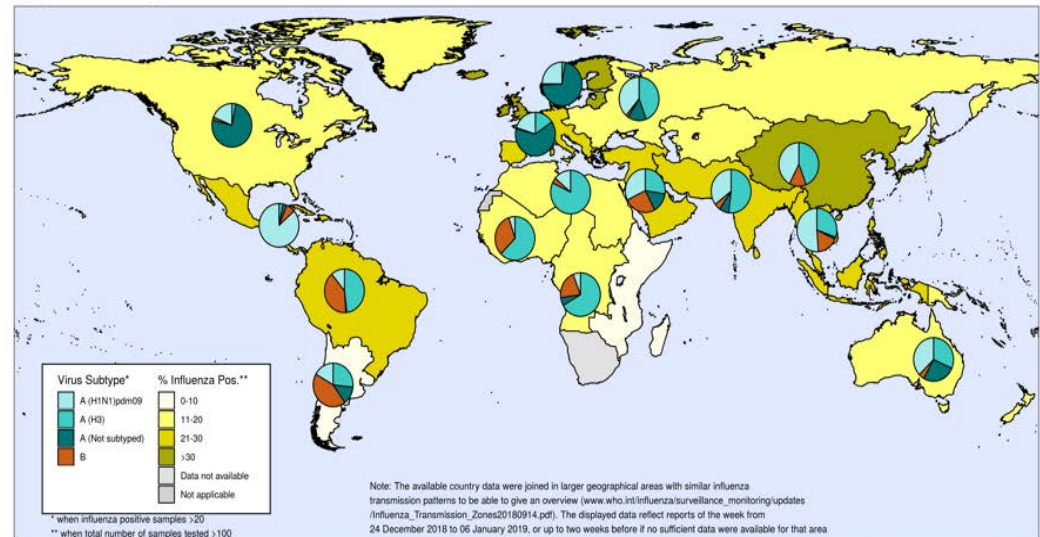
Jan 2021

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Data source: Global Influenza Surveillance and Response System (GISRS), FluNet (www.who.int/flu-net)
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Jan 2020



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Data source: Global Influenza Surveillance and Response System (GISRS), FluNet (www.who.int/flu-net)
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Influenza viruses detected in NH 2020-1

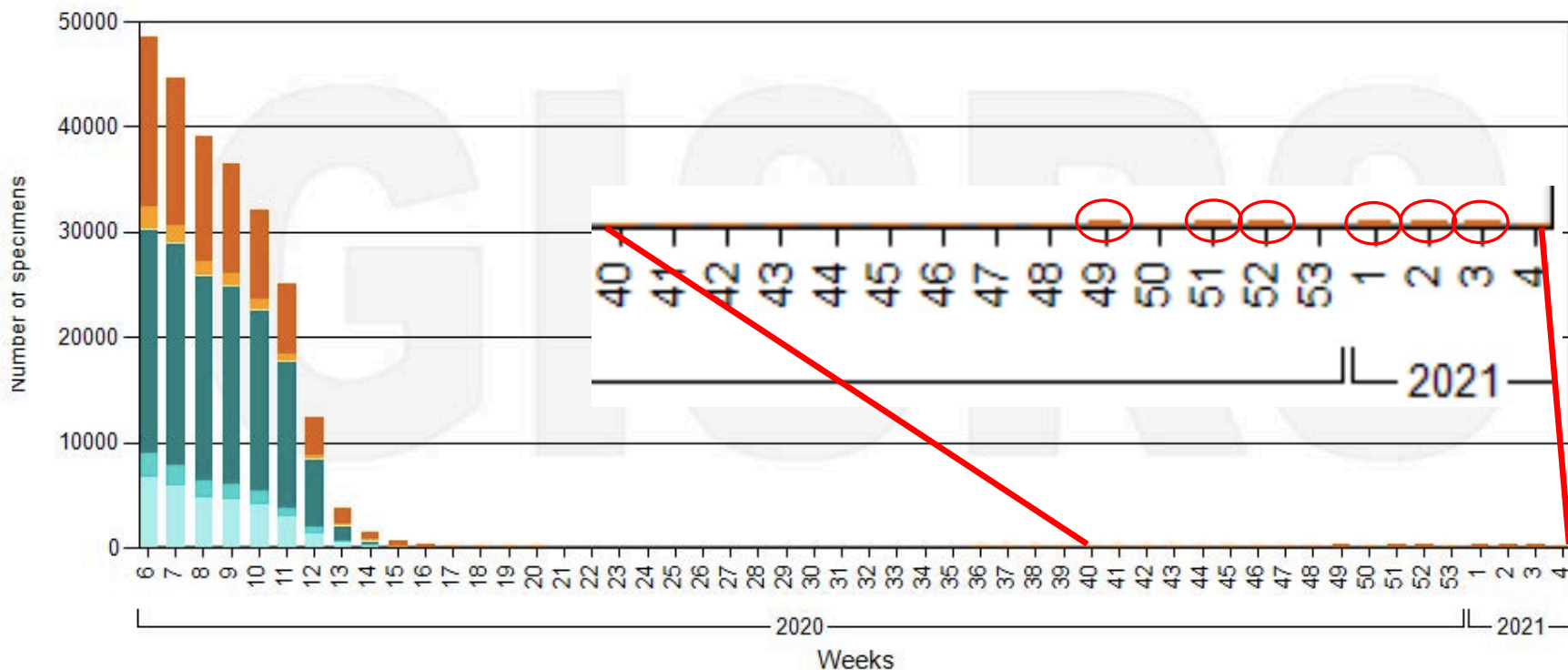
Influenza Laboratory Surveillance Information

generated on 06/02/2021 04:21:43 UTC

by the Global Influenza Surveillance and Response System (GISRS)

Northern hemisphere

Number of specimens positive for influenza by subtype



Data from: All sites

CDC data on influenza in USA IN 2020-21

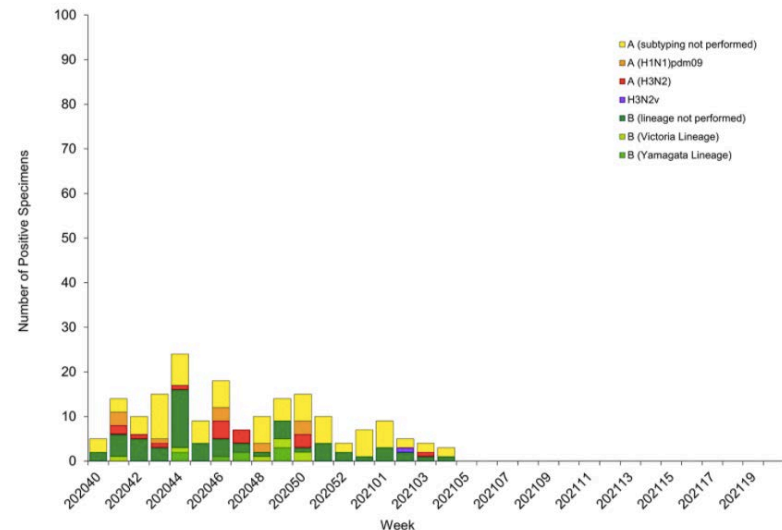
Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet

2020-21 Influenza Season Week 4 ending Jan 30, 2021

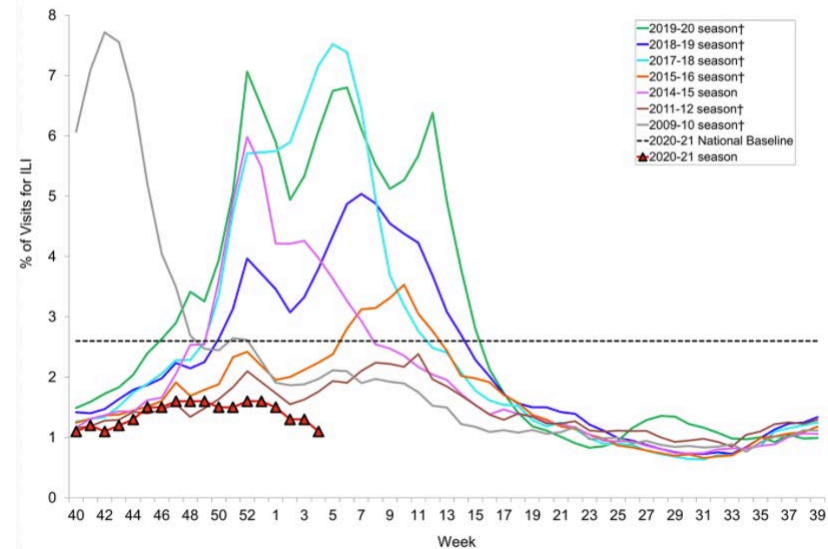


*This map uses the proportion of outpatient visits to healthcare providers for influenza-like illness to measure the ILI activity level within a state. It

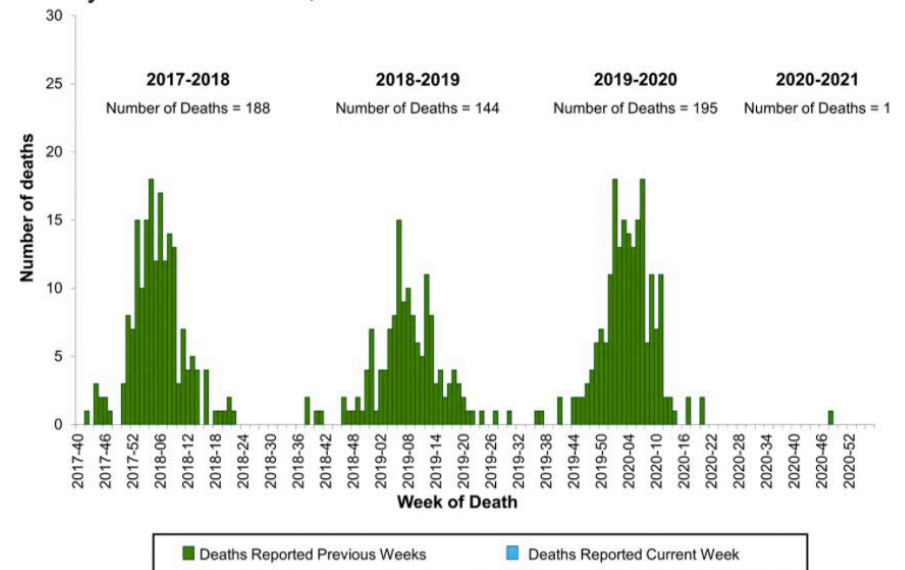
Influenza Positive Tests Reported to CDC by U.S. Public Health Laboratories, National Summary, September 27, 2020 – January 30, 2021



Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), Weekly National Summary, 2020-2021 and Selected Previous Seasons



Influenza-Associated Pediatric Deaths by Week of Death, 2017-2018 season to 2020-2021 season



And in the EU & UK

Geographic spread of influenza activity (EU layout map), 2021-W04



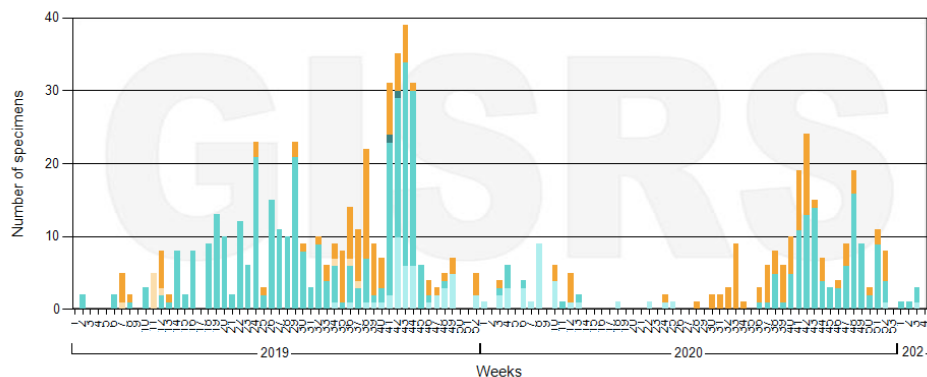
Intensity of influenza activity (EU layout map), 2021-W04



So where has there been recent influenza activity?

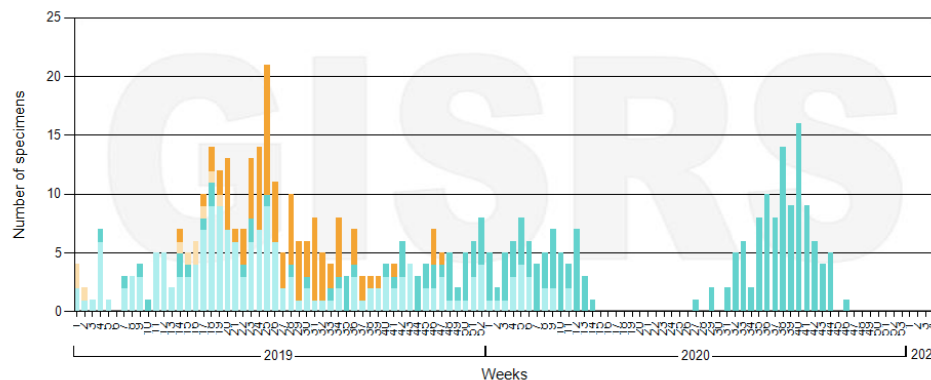
Côte d'Ivoire

Number of specimens positive for influenza by subtype



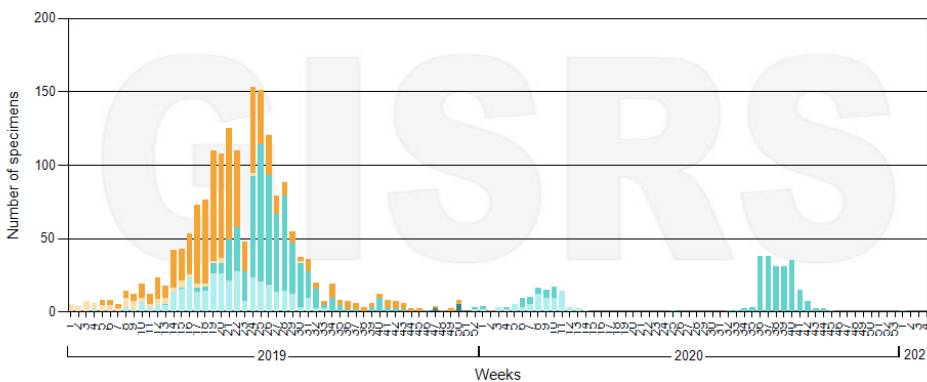
Cambodia

Number of specimens positive for influenza by subtype



Bangladesh

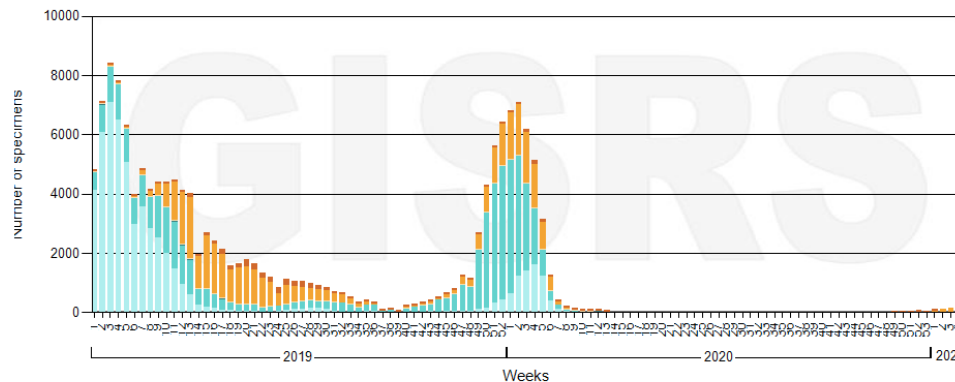
Number of specimens positive for influenza by subtype



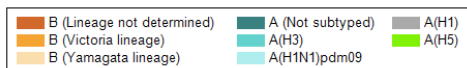
Data from: All sites

China

Number of specimens positive for influenza by subtype



Data from: All sites



Summary

- Record number of vaccines distributed in Australia in 2020 –15.7 M doses (63% pop)
- 2020 an historically low influenza season in Australia
- 2020 even lower incidence of influenza in NZ in 2020
- Influenza A(H1N1) predominated in Aus but very few cases after April 2020
- Vaccine match – too few viruses for good analysis
- Very few oseltamivir/zanamivir resistant viruses detected; No baloxavir marboxil resistance
- Hospital admissions & deaths in Australia due to influenza at record lows
- Vaccine Effectiveness: Australia; ??? Too few viruses in post vaccination period to calculate!
- Dramatic effect on many respiratory viruses due to COVID-19 measures
- Rhinoviruses and to lesser extent adenoviruses still circulating; RSV on the comeback!!
- Influenza activity 2020-1 in Nth Hemisphere; record lows in USA, EU, Japan, China
- H3N2 + H1N1pdm components of Australian/NZ 2021 vaccine updated from 2020
- Challenges for influenza vaccinations in 2021 – low flu circulation & COVID-19 vaccination
- Prediction for 2018; A quiet year with B's and H1N1pdm's predominating!! ✓ ✓
- Prediction for 2019: A moderate year with mixed viruses and more H3N2!! ✗ ✓
- Prediction for 2020: A quiet year with H1pdm viruses predominating!! ✓ ✓

Prediction for 2021: A very quiet year with H3 viruses predominating!!



Acknowledgments

- Various influenza reports
 - Australian influenza surveillance report
 - NSW COVID-19 weekly report
 - ESR Influenza weekly update
 - CDC Fluview
 - ECDC Influenza report
 - WHO reports
- NICs and labs that have sent us samples
- Staff at Melbourne WHO CC
- Sheena Sullivan for VE data
- Other WHO CC's
- Surveillance Division of OHP, Commonwealth DoH
- WPRO and WHO HQ Geneva

