BC Centre for Disease Control
Provincial Health Services Authority

Respiratory Surveillance Bulletin:
Southern Hemisphere 2023 Respiratory Season

September 15, 2023

Key messages

- The 2023 respiratory season in the Southern Hemisphere was characterized by early influenza and respiratory syncytial virus (RSV) activity, and significant impact on children. Although influenza A predominated, there was a greater proportion of influenza B activity compared to 2022.

- The Southern Hemisphere experience, while not necessarily predictive of what will happen in the Northern Hemisphere, suggests a continued return to seasonal respiratory virus co-circulation patterns including pre-pandemic influenza activity and RSV seasonality, but with ongoing pronounced impact on children, in addition to older adults, individuals with chronic health conditions, and other groups considered to be at high risk.

- In BC, there has been a recent increase in COVID-19 indicators, notably infections among older adults, with the Omicron variants EG.5 and XBB.1.16 predominating and the recently detected BA.2.86 variant under close monitoring. Influenza cases detected in BC in recent weeks have been mostly of the A(H1) subtype. Indicators for influenza, RSV, and other respiratory virus activity continue to be closely monitored.

- Effective vaccinations for influenza and COVID-19, particularly in high-risk populations, will be an important component to a multi-layered approach to reduce the impact of the respiratory virus season. This includes pediatric influenza vaccination given observed impacts of influenza on children from the recent Southern Hemisphere experience.

Southern Hemisphere season summary

While geographic variability in flu transmission and immunity mean that the respiratory season in the Southern Hemisphere does not necessarily predict what will happen in the Northern Hemisphere, information regarding timing, incidence, severity, affected populations, and vaccine effectiveness in the Southern Hemisphere is nonetheless an important input in planning for the upcoming respiratory season.

Influenza, COVID-19, and RSV make up a significant burden of respiratory illnesses in BC and globally, and are therefore the focus of this bulletin. Surveillance outputs and reports from the World Health Organization, Australia and, to a lesser

degree, South Africa and Chile, were used, while other data sources from the Southern Hemisphere were excluded, given a lack of robust outputs. These outputs were compared to surveillance reports from BCCDC and Canada's FluWatch reports.

Southern Hemisphere: Influenza Surveillance

Australia	**Timing** • Weekly laboratory-confirmed influenza cases and hospitalizations, which historically tend to peak in August (with a range of July–September), peaked above historical averages in June/July and are now decreasing at or below historical trends.[1] • An early peak of influenza hospitalizations was observed in Australia which appeared similar in magnitude to the 2022 season; however, visits to community general practitioners for influenza-like illness appear to be consistent with historical seasonal averages.[1] **Severity** • The number of influenza-associated deaths in 2023 is comparable to the 2011–18 influenza seasons.[2] **Population affected** • Children less than 16 years old made up the majority of influenza-confirmed hospitalizations at sentinel hospitals in Australia during the 2023 respiratory season,[1] which was also observed to a lesser degree in 2022,[3] but not in 2019.[4] **Comparison to BC/Canada** • Overall, Australia's 2023 respiratory season to date, though peaking less rapidly and declining more gradually, has been similar to 2022 and comparable to BC[5] and Canada's[6] 2022–2023 respiratory season, with an early start, coinciding influenza, COVID-19 and RSV activity, and pronounced impact on the pediatric population.
South Africa	• Influenza activity, which historically tends to occur in July (with a range of June–August), peaked in early June and has since declined.[7] • This peak occurred slightly earlier than in 2019 but to a comparable level.[8]
Chile	• Influenza activity peaked above historical averages in mid-May, earlier than in 2019. • Recent small increases in influenza case rates dominated by type B following the type A-dominated peak suggest the beginning of a smaller wave of influenza B,[8] comparable to what Canada experienced in 2022–2023.[6]

Southern Hemisphere: Influenza Laboratory Surveillance

- Influenza A has been the most commonly reported type (over 60%), followed by influenza B, although there has been regional variation.[8,9]
    - Among influenza A isolates for which subtype was determined, influenza A(H1N1) was most frequently reported overall.[8]
    - Among influenza B isolates for which lineage was determined, the Victoria lineage was most frequently reported.[8]
    - In Australia, 58% of notifications were influenza A, of which 95% were not subtyped, 5% were influenza A(H1N1), and 0.6% were influenza A(H3N2). Influenza B accounted for 40% of notifications, which is a proportional increase relative to 2022.[1]
    - In South Africa, 98% of isolates with subtype information were Influenza A(H3N2).[7]

- **Considerations for BC and Canada**
    - In BC and Canada, a substantial portion of the general population, especially children younger than four years old, has not been exposed to influenza A(H1N1), since extensive circulation of this subtype has not been observed since the 2019–2020 season.[6,10]
    - In BC and Canada, the majority of historical cases of influenza B/Victoria have been less than 45 years of age (*unpublished data*), consistent with historical cases in many other countries globally.[11]

Vaccine Effectiveness and Matching

- In Australia, out of the 2,678 samples that were assessed thus far in 2023, 98% of influenza A(H1N1) isolates, 84% of influenza A(H3N2) isolates, and 99% of influenza B/Victoria isolates characterized were antigenically similar to the corresponding vaccine components.[1]
- This suggests a good match between circulating influenza viruses and vaccine components in the Southern Hemisphere. However, vaccine match in the Southern Hemisphere is not necessarily predictive of vaccine match in the Northern Hemisphere, given different circulating strains and differences in decisions around vaccine composition.
- Based on data provided through the Network for the Evaluation of Vaccine Effectiveness in Latin America and the Caribbean—influenza (REVELAC-i) by Argentina, Brazil, Chile, Paraguay and Uruguay on 2,780 influenza-associated hospitalizations, the vaccine effectiveness against influenza-associated hospitalization was approximately 52%.[12]

Southern Hemisphere: COVID-19 Surveillance

Australia	• Overall, daily reported COVID-19 cases, hospital/ICU admissions and deaths have decreased since February 2023.[13] • From February to late May / early June, daily reported indicators increased, peaking at a lower level than prior peaks in 2022 and 2023. • From early June to late August, daily reported indicators have decreased to the lowest reported levels since January 2022.
Chile	• Overall, counts for cases and deaths have decreased since February 2023.[14] • From February to mid-March, weekly reported cases increased, peaking at a level lower than prior peaks in 2022 and 2023. • Since mid-March, weekly reported cases have decreased to the lowest reported levels since January 2022.

Data caveats:

- *Surveillance activity has decreased for COVID-19 globally in 2023, impacting interpretability of surveillance data.*
- *The seasonality of COVID-19 has not been fully established; COVID-19 activity in the Southern Hemisphere was examined relative to the seasonality of other respiratory viruses.*

Southern Hemisphere: RSV Surveillance

Australia	• RSV confirmed cases began to increase in March, peaked in June, and are currently decreasing.[15] • The start and peak of this year's RSV season has occurred earlier compared to 2022. • This year's peak is similar in magnitude to the 2022 season, but the cumulative number of confirmed cases this year is already higher than 2022, with over 3 months remaining in the year. • Cases are predominantly in children (<5 years old).[16]
South Africa	• RSV activity peaked in March, but detections have since decreased. • In children (<5 years old), RSV detection reached a high threshold in late March, and has since declined.[7]

Data caveat: Surveillance data for RSV is relatively new and remains limited in the Southern Hemisphere due to limited notification and data collection of RSV across jurisdictions.

References

1. Department of Health and Aged Care. (2023). *Australian Influenza Surveillance Report*. Report no. 11, 2023. Australian Government. Available at: https://www.health.gov.au/sites/default/files/2023-09/aisr-fortnightly-report-no-11---21-august-to-03-september-2023.pdf
2. Department of Health. (2022). Report of the National Influenza Surveillance Scheme, 2011 to 2018. *Communicable Diseases Intelligence*. 2022;46. Australian Government. Available at: https://www1.health.gov.au/internet/main/publishing.nsf/Content/2A15CD097063EF40CA2587CE008354F1/$File/report_of_the_national_influenza_surveillance_scheme_2011_to_2018.pdf
3. Department of Health and Aged Care. (2022). *National 2022 Influenza Season Summary.* Australian Government. Available at: https://www.health.gov.au/sites/default/files/2022-12/aisr-2022-national-influenza-season-summary.pdf
4. Department of Health and Aged Care. (2019). *Australian Influenza Surveillance Report*. Report no. 12, 2019. Australian Government. Available at: https://www.health.gov.au/sites/default/files/documents/2022/10/aisr-fortnightly-report-no-12-23-september-to-6-october-2019.pdf
5. British Columbia Centre for Disease Control. (2023). *2022/2023 Respiratory Virus Season Summary*. Available at: http://www.bccdc.ca/Health-Info-Site/Documents/Respiratory_data/2022-23_respiratory_season_summary.pdf
6. Government of Canada. (2023). *Influenza weekly reports 2022-23 season*. Available at: https://www.canada.ca/en/public-health/services/diseases/flu-influenza/influenza-surveillance/weekly-reports-2022-2023-season.html
7. Republic of South Africa, National Institute for Communicable Diseases. (2023). *Weekly respiratory pathogens report*. Week 34 of 2023. Available at: https://www.nicd.ac.za/wp-content/uploads/2023/09/Weekly-RPSR-FluRSVSARSCoV2Pertussis-Week-34-Final.pdf
8. World Health Organization, Global Influenza Programme. (2023). *Influenza Laboratory Surveillance Information: Virus detections by subtype reported to FluNet*. Available at: https://app.powerbi.com/view?r=eyJrIjoiZTkyODcyOTEtZjA5YS00ZmI0LWFkZGUtODIxNGI5OTE3YjM0IiwidCI6ImY2MTBjMGI3LWJkMjQtNGIzOS04MTBiLTNkYzI4MGFmYjU5MCIsImMiOjh9
9. Centers for Disease Control and Prevention. (2023). CDC Tracks Ongoing Flu Activity in the Southern Hemisphere. U.S. Department of Health & Human Services. Available at: https://www.cdc.gov/flu/spotlights/2022-2023/ongoing-flu-southern-hemisphere.htm
10. Buckrell, S., Ben Moussa, M., Bui, T., Rahal, A., Schmidt, K., Lee, L., Bastien, N., & Bancej, C. National Influenza Annual Report, Canada, 2021–2022: A brief, late influenza epidemic. *Can Commun Dis Rep 2022;48*(10), 473–83. https://doi.org/10.14745/ccdr.v48i10a07
11. Caini, S., Kusznierz, G., Garate, V.V., et al. The epidemiological signature of influenza B virus and its B/Victoria and B/Yamagata lineages in the 21st century. *PLoS One 2019;14*(9):e0222381. https://doi.org/10.1371/journal.pone.0222381
12. Fowlkes, A.L., Nogareda, F., Regan, A., et al. Interim Effectiveness Estimates of 2023 Southern Hemisphere Influenza Vaccines in Preventing Influenza-Associated Hospitalizations — REVELAC-i Network, March–July 2023. *MMWR Morb Mortal Wkly Rep*. ePub: 8 September 2023. DOI: http://dx.doi.org/10.15585/mmwr.mm7237e1
13. Department of Health and Aged Care. (2023). Weekly COVID-19 reporting. Australian Government. Available at: https://www.health.gov.au/health-alerts/covid-19/weekly-reporting?language=und
14. World Health Organization, Global Influenza Programme. (2023). *Integrated surveillance dashboard*. Available at: https://covid19.who.int/region/amro/country/cl
15. Immunisation Coalition. (2023). Respiratory Syncytial Virus (RSV) Statistics. Available at: https://www.immunisationcoalition.org.au/news-data/respiratory-syncytial-virus-rsv-statistics/
16. Department of Health and Aged Care. (2023). *National Communicable Disease Surveillance Dashboard*. Australian Government. Available at: https://nindss.health.gov.au/pbi-dashboard/