



Health

Hunter New England
Local Health District

HNE Public Health Update on Japanese Encephalitis & COVID-19

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Presentation Outline



Japanese Encephalitis

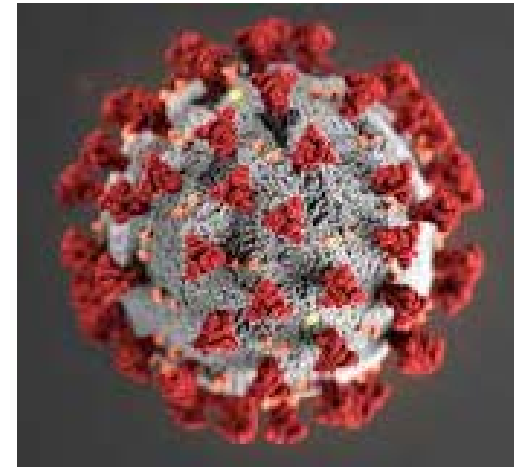
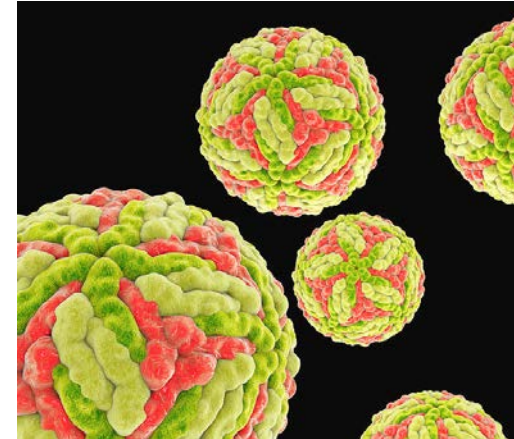
- Disease
- Epidemiology
- Investigation & Management
- Prevention

COVID-19

- New Variants
- Recent Epidemiology

Holiday Travel

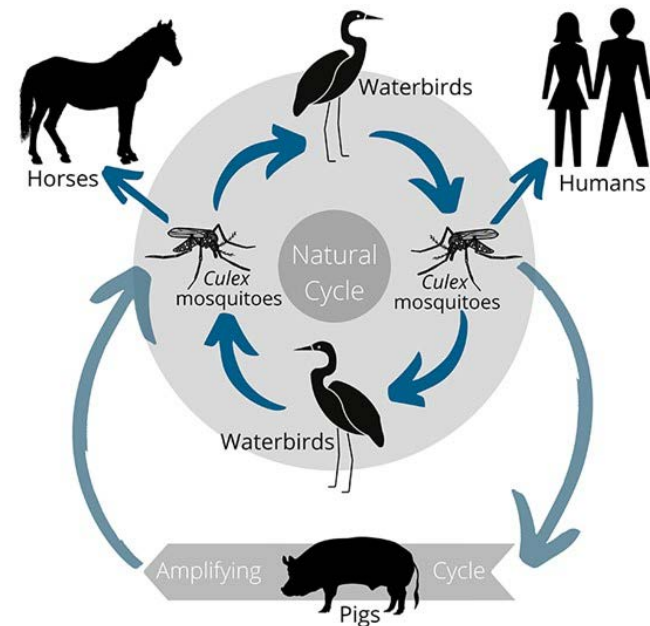
Other Public Health Issues



Japanese Encephalitis Virus (JEV)



- Mosquito-borne flavivirus
- Related to dengue, yellow fever, West Nile viruses
- *Culex* species (*C. annulirostris* in Australia)
- Transmission cycle between mosquitoes, pigs and/or water birds
- Humans and horses are “dead-end” hosts



JEV Globally



- Endemic in 24 countries in South-East Asia and Western Pacific
- Disease predominantly rural and peri-urban areas
- Temperate areas: mainly during warm season
- Tropical regions transmission may occur year-round



JEV in Australia



Feb 2022: JEV detected in piggeries in Vic, Qld, NSW, SA

Mar 2022: detected in feral pigs in Northern Territory

85 infected piggeries and 55 detections in feral pigs to date

Since Jan 2021:

32 confirmed (and 10 probable) human cases

- NSW 13
- Victoria 10 (3)
- SA 5 (4)
- QLD 2 (3)
- Northern Territory 2

7 people have died





NSW Arbovirus Surveillance and Mosquito Monitoring Program (ASMMP)

- Mosquito trapping
- Sentinel chickens
- Environmental conditions
- Human arbovirus notifications

NSW Arbovirus Surveillance & Mosquito Monitoring 2022-2023

Weekly Update: Week ending 26 November 2022

(Report Number 7)





Summary

Arbovirus Detections

- **Sentinel Chickens:** There were no arbovirus detections in sentinel chickens.
- **Mosquito Isolates:** Barmah Forest virus was detected at Griffith.

Mosquito Abundance

- **Inland:** LOW at Bourke, Corowa, Forbes, Mathoura, Moama, Temora and West Wyalong. MEDIUM at Albury and Balranald. HIGH at Cootamundra, Deniliquin, Grong Grong, Leeton, Macquarie Marshes, Moree, Wagga Wagga and Wilcannia. VERY HIGH at Walgett. EXTREME at Griffith.
- **Coast:** LOW at Byron Bay, Coffs Harbour, Kempsey, Lismore, Millbank, Mullumbimby, Murwillumbah, Port Macquarie and Wauchope. MEDIUM at Gosford. HIGH at Ballina, Lake Cathie, Newcastle, Tweed Heads and Wyong.
- **Sydney:** LOW at Blacktown, Camden, Georges River, Hills Shire, Parramatta and Sydney Olympic Park. MEDIUM at Bankstown, Hawkesbury, Northern Beaches and Penrith. HIGH at Earlwood and Liverpool.

Environmental Conditions

- **Climate:** In the week ending 26 November 2022, there was moderate rainfall in parts of southern NSW along the Victorian border. Rainfall totals were low for the rest of NSW especially in the northern half of the state. Above average rainfall is predicted for NSW in December. Minimum temperatures are predicted to be about average for December in NSW. Maximum temperatures are likely to be lower than usual throughout NSW.
- **Tides:** High tides over 1.8 metres are predicted for 23-28 November and 22-28 December, which could trigger hatching of *Aedes vigilax*.

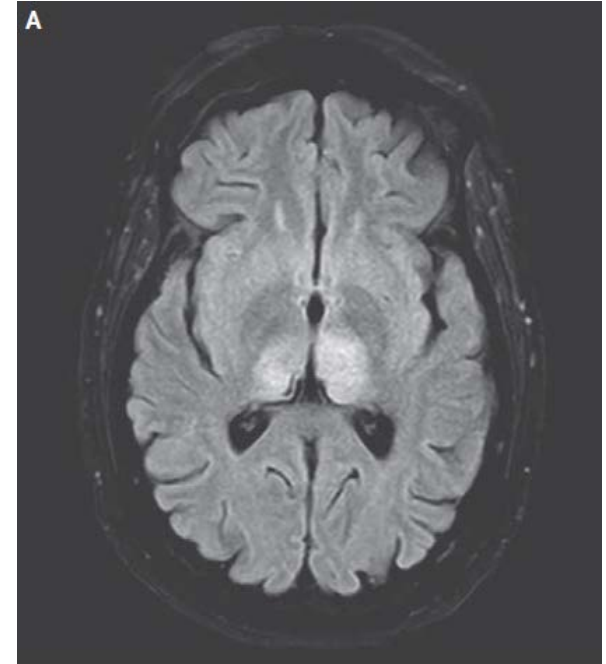
Human Arboviral Disease Notifications

- **Ross River Virus:** 3 cases were notified in the week ending 29 October 2022.
- **Barmah Forest Virus:** 0 cases were notified in the week ending 29 October 2022.

JEV Clinical Presentation



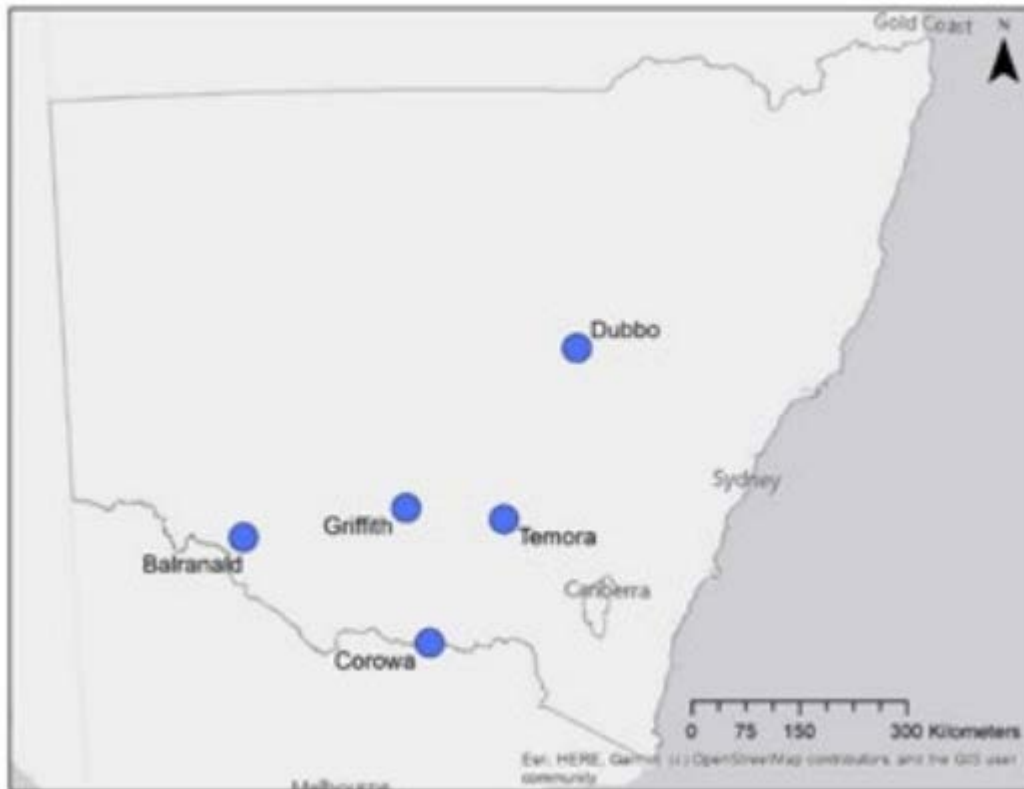
- Incubation period is usually 6-16 days
- >90% JEV infections are asymptomatic
- <1% infected with JEV develop clinical disease such as encephalitis or meningoencephalitis
 - Sudden onset fever, headache, vomiting
 - Progressive neurological changes (confusion, focal deficits, seizure, coma)
- 30% case fatality ratio for severe infection
- **JEV encephalitis can't be distinguished clinically from other CNS infections**



JEV Serosurvey in NSW



Figure 1. JEV serosurvey locations in NSW, June-July 2022



1,048 people gave a blood sample & completed a questionnaire



1 in 11 participants had evidence of JEV infection



Participants aged between **20 – 87** years had evidence of JEV infection



More participants **> 50** years had evidence of JEV infection



Participants from all **5** towns had evidence of JEV infection



Managing Possible JE Cases



Investigations for JEV:

1. Blood

- Serum – (2-5mls from children, 5-8mls from adults) for acute and convalescent (3-4 weeks post onset) for flavivirus and JEV IgG, IgM and Total Ab
- Whole blood (EDTA tube) for Culture/PCR on acute sample - **AND**

2. CSF (at least 1ml)

- Flavi/JEV PCR and culture
- Flavi/JEV IgG, IgM and Total Ab - **AND**

3. Urine (2-5 mls in sterile urine jar)

- Flavi/JEV PCR and culture

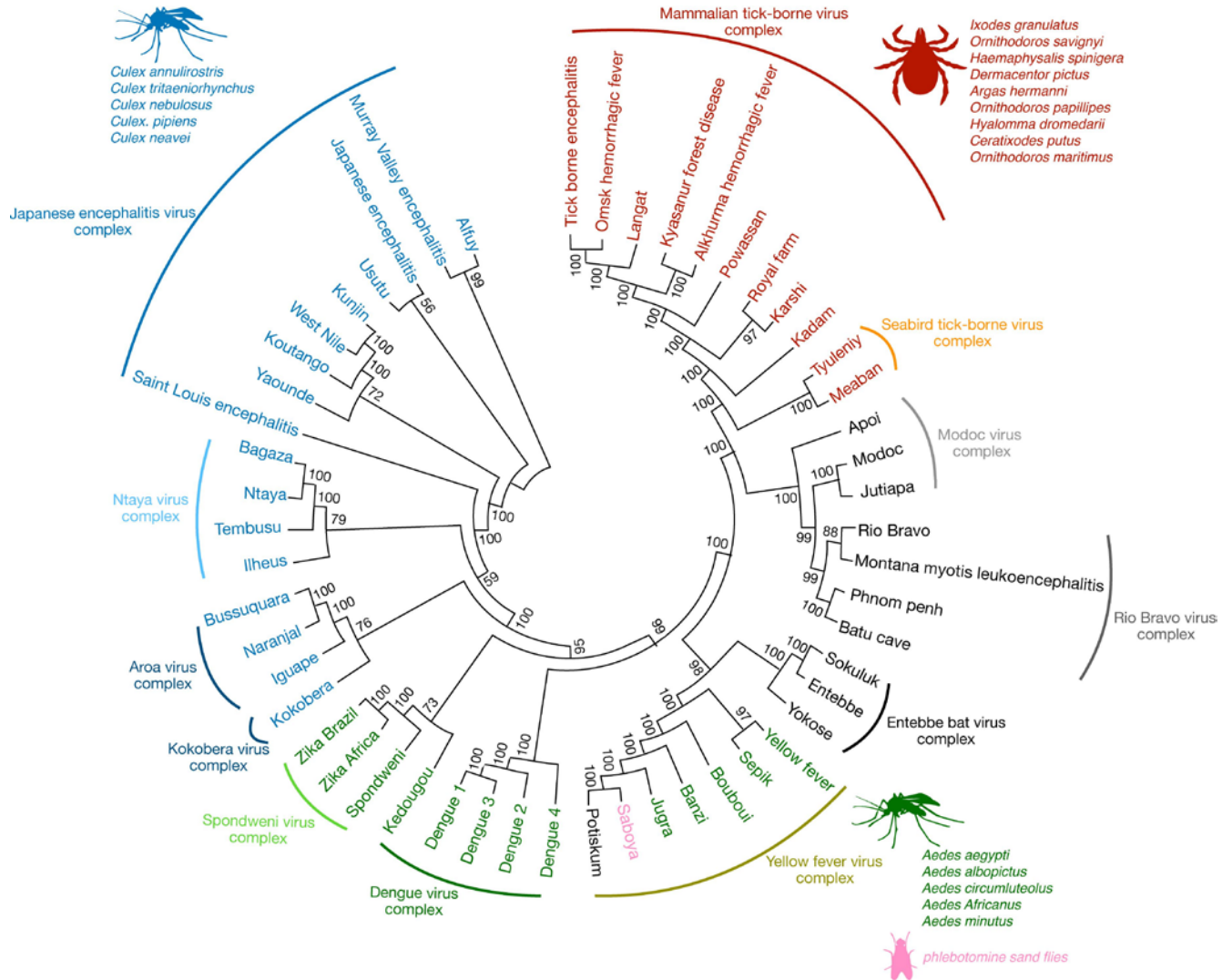
In addition to usual investigations e.g. HSV, enterovirus, VZV PCR on CSF plus serology

Important to exclude bacterial meningitis and HSV as they are treatable

Seek clinical advice from Infectious Diseases service



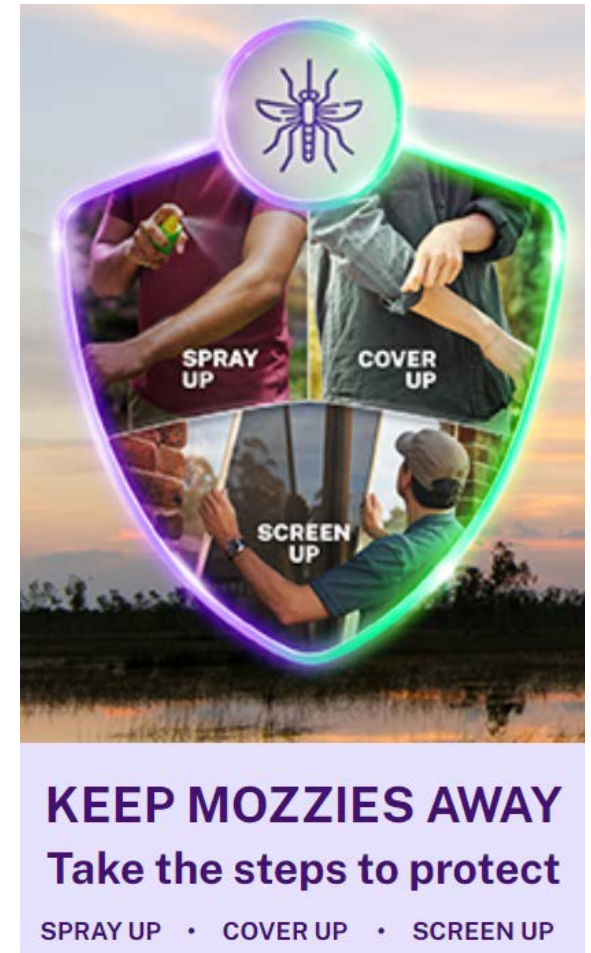
Serological Challenges



Preventing JEV & other arboviruses



- Avoid mosquito bites
 - Mosquito repellent
 - Wear loose, long-sleeved clothing
 - Remove stagnant water
 - Screens on windows & doors
- Vaccination if eligible
- Models used to determine



COVID-19 Epidemiology



3,464 reported cases in HNELHD in past 7 days

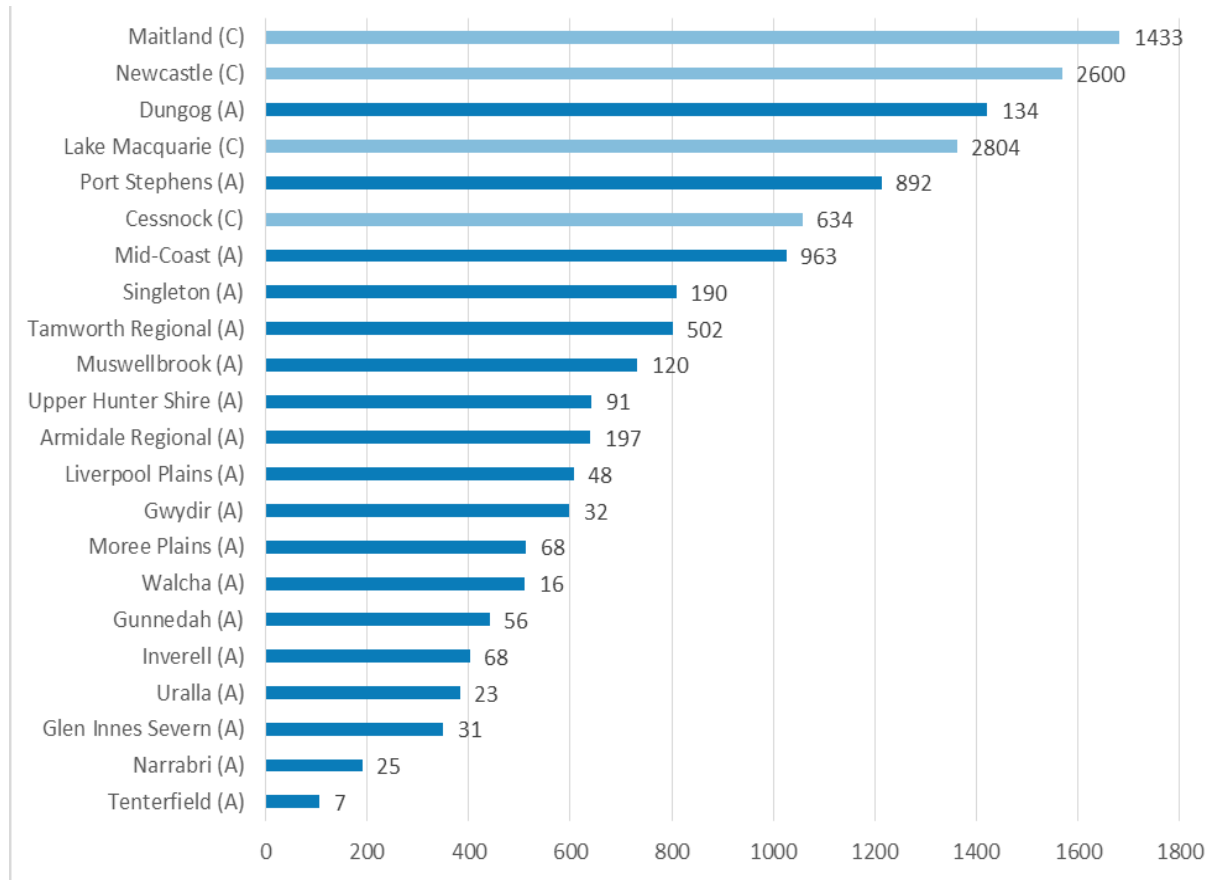
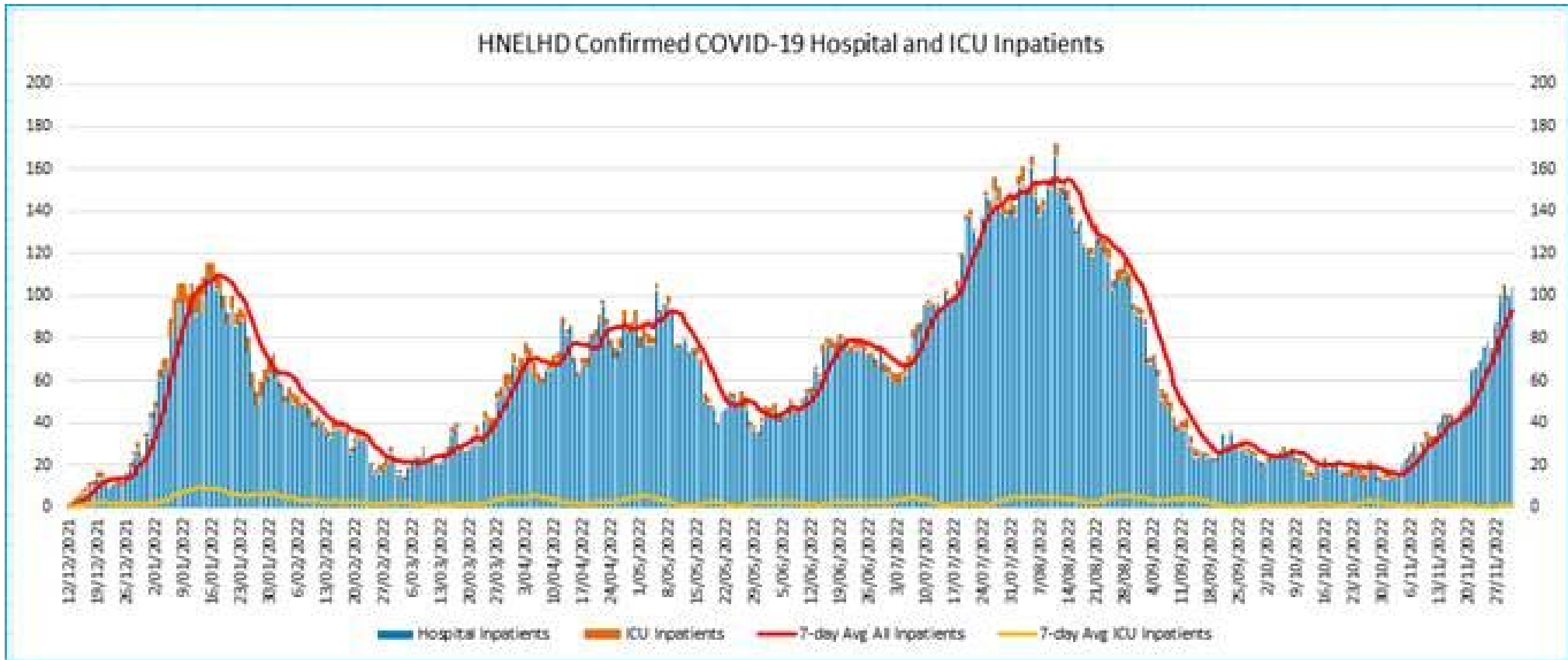


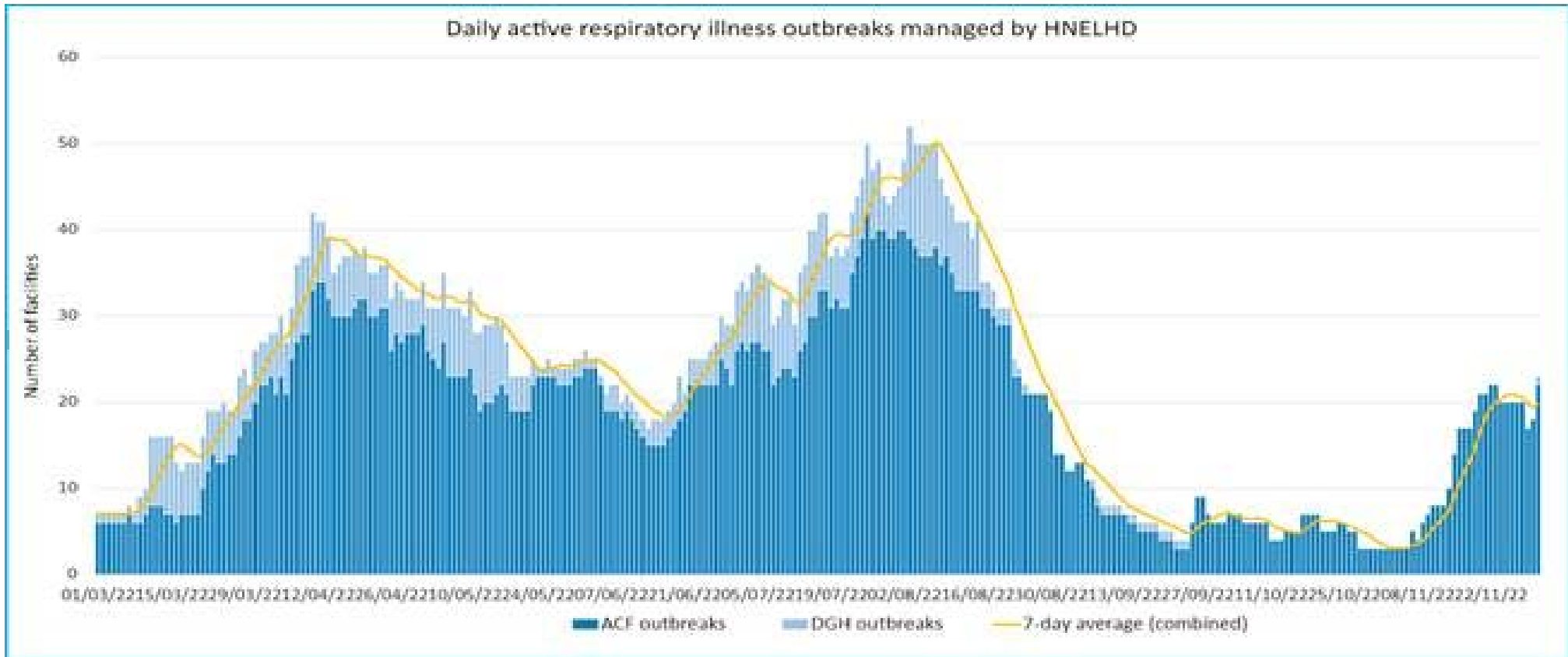
Figure: COVID-19 rates (per 100,000 pop.) by LGA, November 2022



HNELHD COVID-19 Hospital & ICU Admissions



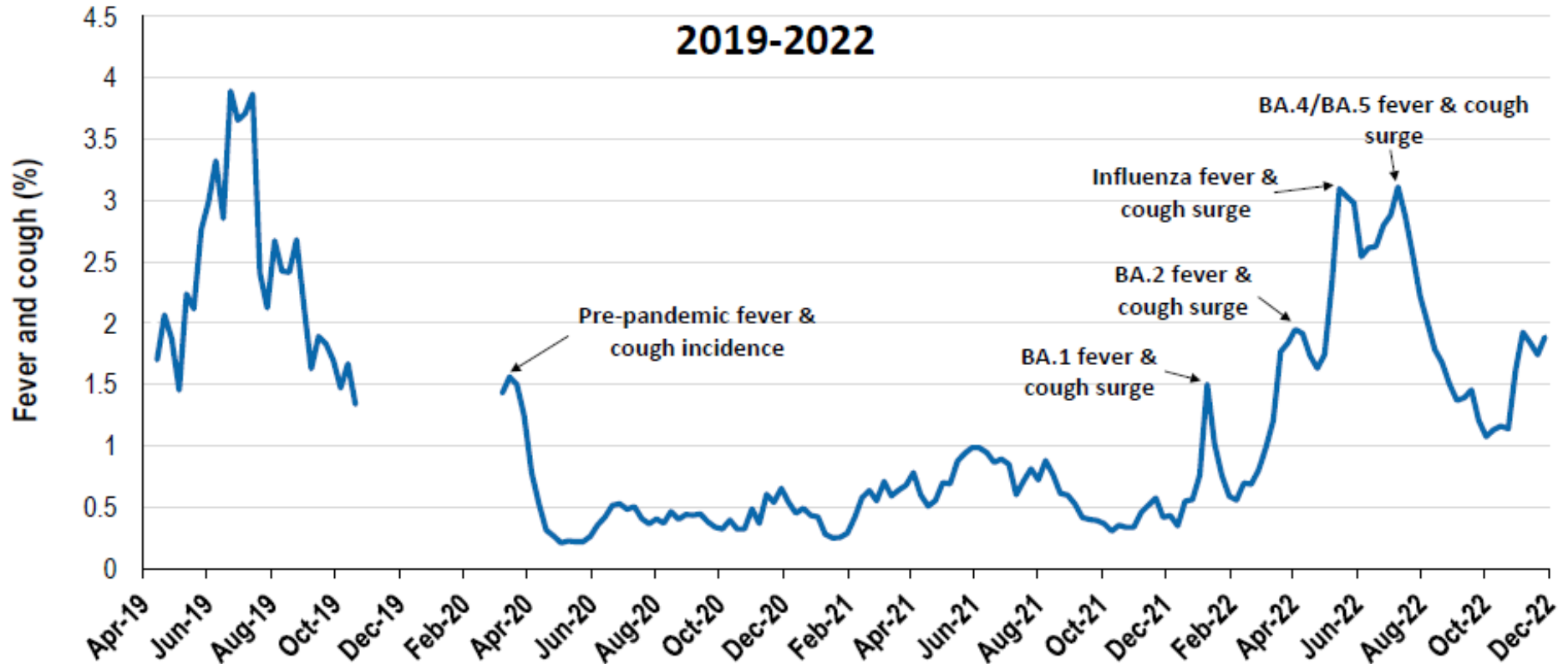
HNELHD Aged Care Facility COVID-19 Outbreaks



FluTracking Surveillance Australia



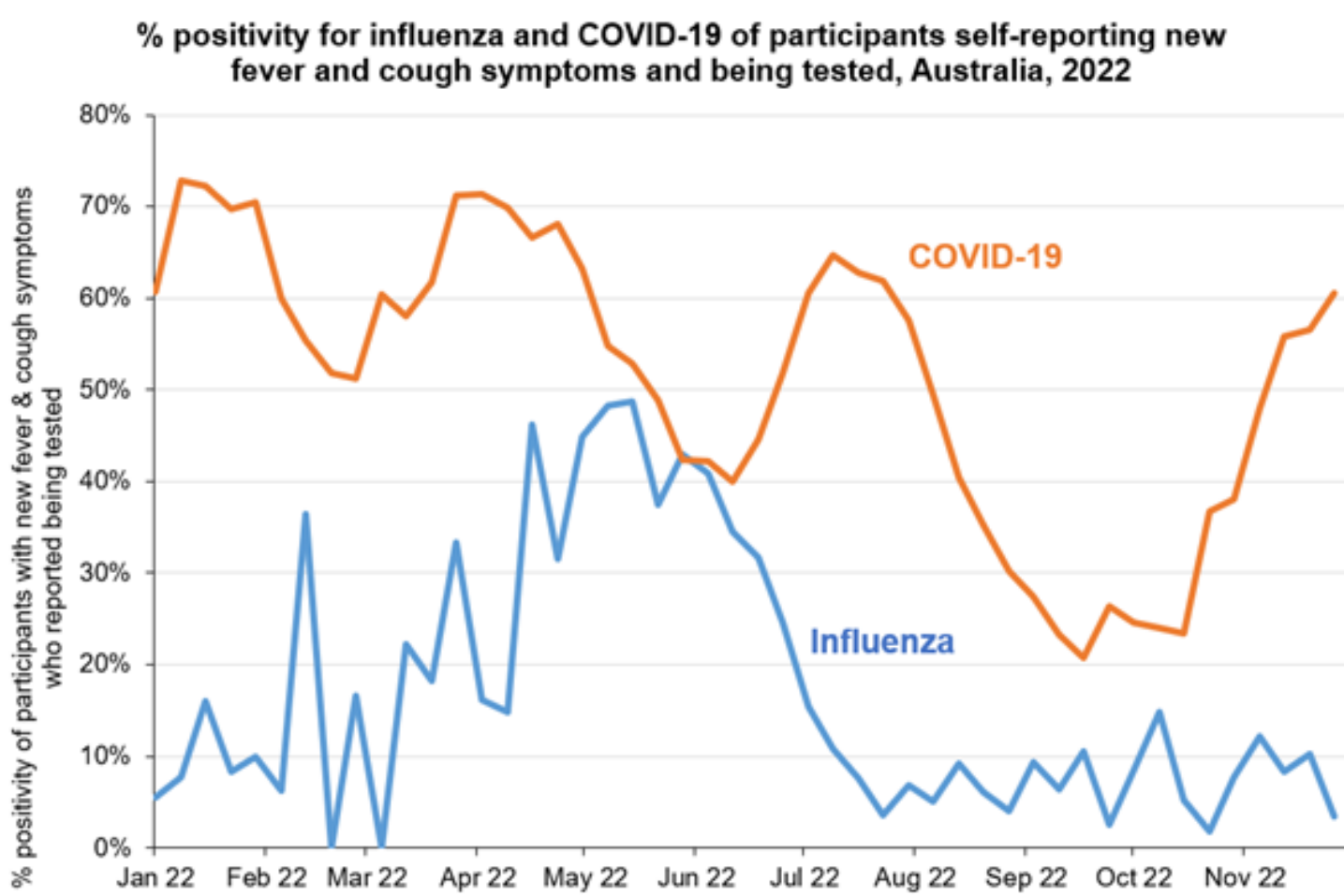
Respiratory illness (fever & cough) activity



^ Data are age standardised in this graph



FluTracking Surveillance Australia



COVID-19 Sewage Surveillance



Location	Population	Local Health District	Week 44 5 November 2022	Week 45 12 November 2022	Week 46 19 November 2022	Week 47 26 November 2022
Armidale	24,000	Hunter New England	⬇️	⬆️	⬇️	⬆️
Tamworth	45,000	Hunter New England	⬇️	⬆️		⊖
Taree	26,394	Hunter New England	⬆️	⬇️	⬆️	⊖
Hunter-Burwood Beach	225,834	Hunter New England	⬆️	⬆️	⬇️	⊖
Hunter-Boulder Bay	58,300	Hunter New England	⬆️	⬆️	⬆️	⬆️



COVID-19 Management



Encourage pts up-to-date with vaccination

Prepare COVID-19 plan for pts at-risk

General measures:

- Hand hygiene
- Socialise outdoors
- Mask if indoors & can't physically distance
- Stay home and test if unwell



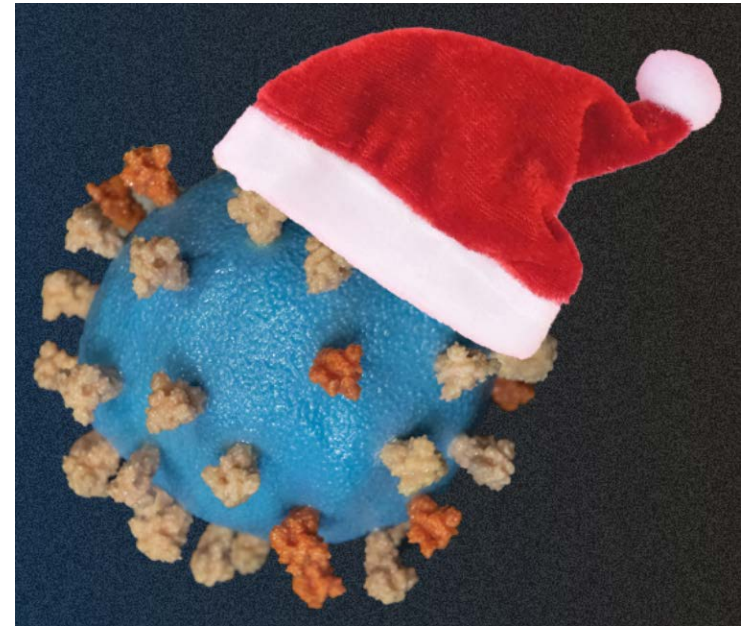


Tis the season!

Remind pts travel vaccines

- Measles
- Typhoid (XDR)
- Tetanus

High index of suspicion in returned travellers



Other Public Health Issues



- Gastroenteritis
- Bat bites
- Meningococcal
- Zoonoses
 - Q fever
 - Leptospirosis
 - Brucellosis

