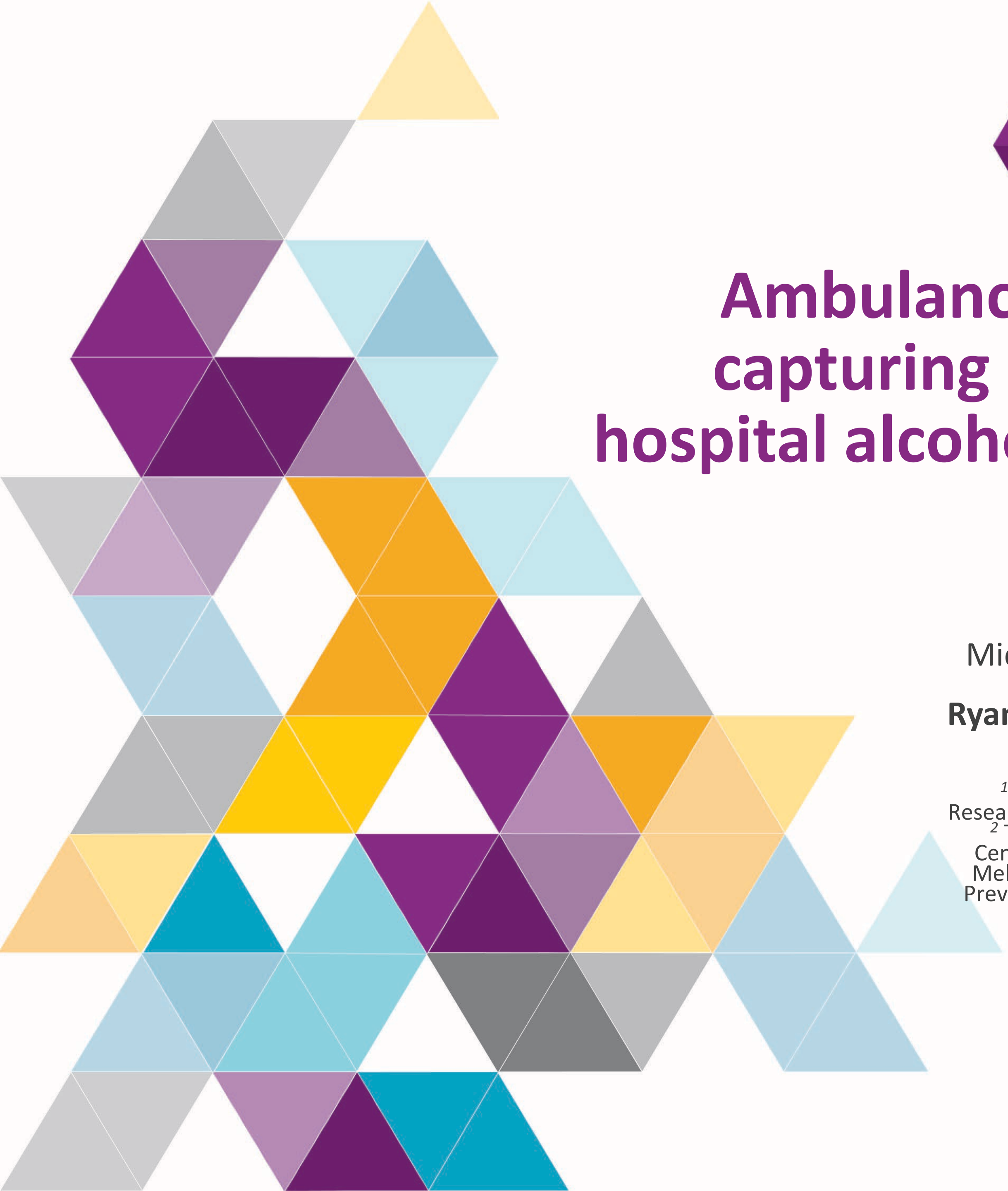

Turning Point
TREATMENT · RESEARCH · EDUCATION

Ambulance data: Crucial for capturing ‘hot-spots’ of pre-hospital alcohol and other drug-related harms

Rowan P. Ogeil [1,2], Naomi Beard [1,2], Michael McGrath [1,2], Jessica J. Killian [1,2], Kinjal Majumdar [1,2], Natasha Hall [1,2], **Ryan Baldwin** [1,2], Bosco Rowland [1,2], Ziad Nehme [3,4] & Dan I. Lubman [1,2]

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Eastern Health

MONASH
University

Disclosure of Interest

- **Funders**
    - AIHW
    - Department of Health (Victoria)

Background

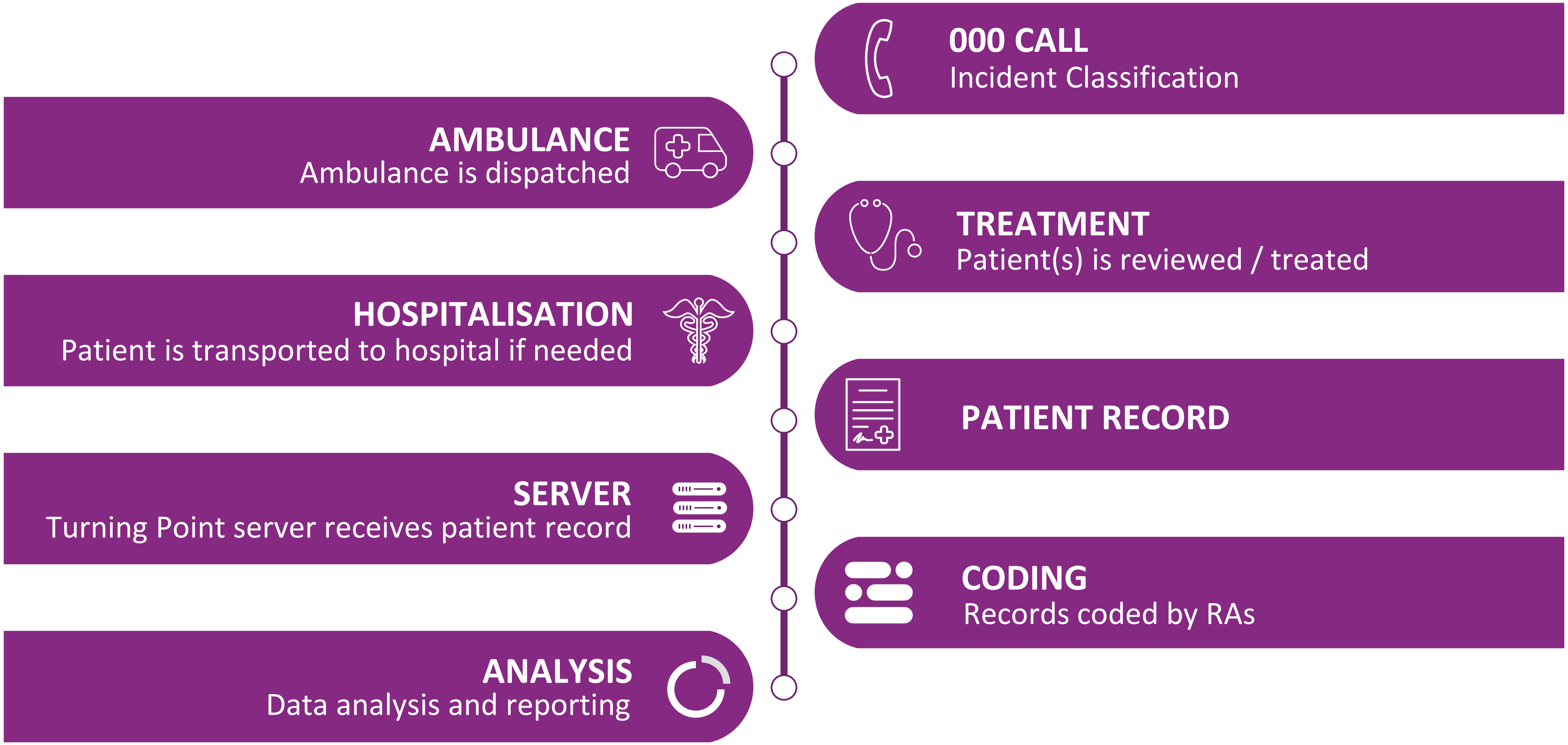
- Alcohol and other drug (AOD)-related harms contribute to substantial burden of harm [1]
- Emergency services, particularly ambulance services, are under significant strain due to AOD related incidents
- High quality, local level data often difficult to access for local policy makers

[1] Australian Institute of Health and Welfare. (2020). Australian Burden of Disease Study 2018: Interactive data on risk factor burden. *Canberra: AIHW*.

Hotspot analysis allows us to identify clustering of spatial phenomena in order to inform policy responses.

- Better understanding of the patterns and contexts of AOD-related harms
- Guide decision making in terms of resource allocation, service delivery and planning, and alcohol licensing.
- Exploring utility through two separate case studies
  - Alcohol intoxication related attendances
  - GHB related attendances

National Ambulance Surveillance System Record Creation



000 CALL
Incident Classification

AMBULANCE
Ambulance is dispatched

TREATMENT
Patient(s) is reviewed / treated

HOSPITALISATION
Patient is transported to hospital if needed

PATIENT RECORD

SERVER
Turning Point server receives patient record

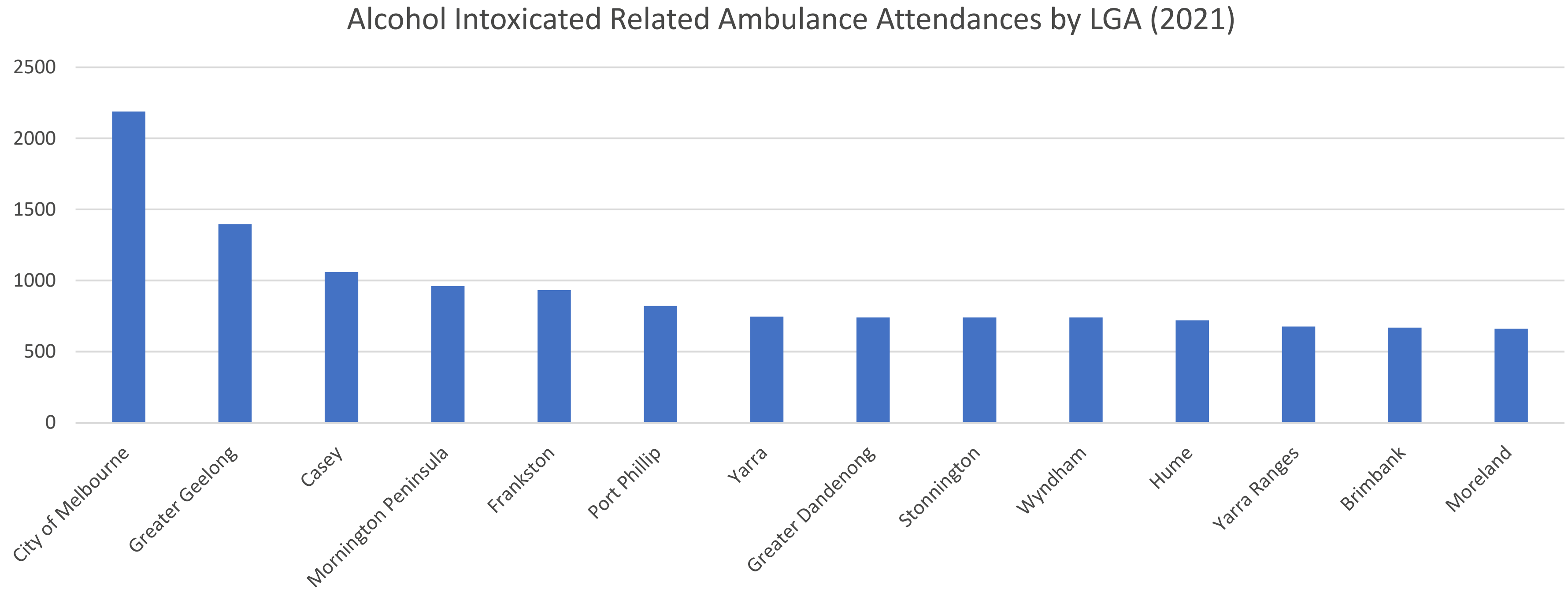
CODING
Records coded by RAs

ANALYSIS
Data analysis and reporting

Lubman, D. I., Matthews, S., Heilbronn, C., Killian, J. J., Ogeil, R. P., Lloyd, B., ... & Scott, D. (2020). The National Ambulance Surveillance System: A novel method for monitoring acute alcohol, illicit and pharmaceutical drug related-harms using coded Australian ambulance clinical records. *PLoS One*, *15*(1), e0228316.

Victorian LGA Alcohol Related Ambulance Attendances

- Using location of attendance can identify which LGAs contribute to highest burden of alcohol related ambulance attendances, but..



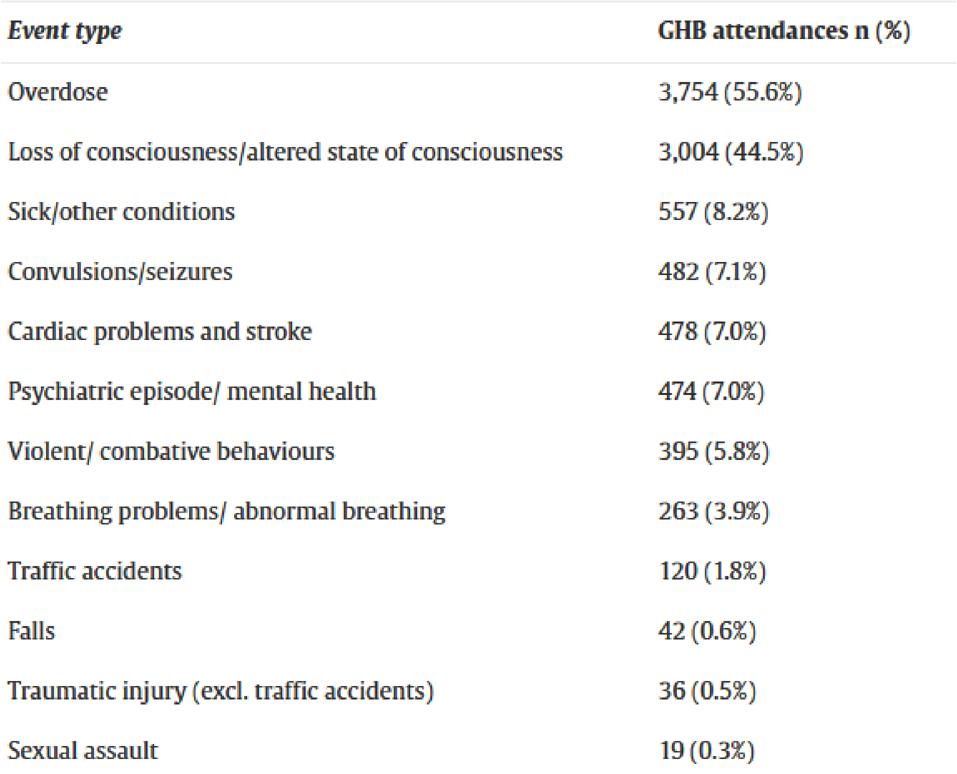
Identifying Hot (and Cold) Spots across Victoria

- Controlling for:
  - LGA population
  - Number of liquor licenses
  - SEIFA
  - Remoteness rating

Hotspots
1. Greater Dandenong
2. Maroondah
3. Latrobe
4. Casey
5. Frankston
Cold spots
80. Bayside
79. Port Phillip
78. Manningham
77. Queenscliffe
76. Brimbank

Case Study 2: GHB

- Unintentional GHB overdoses have been ***steadily rising*** since 2015.
- Seen a gradual shift from public consumption to private settings [1], and greater accessibility to ***GHB, or pre-cursors***[2].
- Ambulance ***data can track GHB harms*** – Studies in Norway [3] and Australia [4] have examined where these harms are occurring (geographic) and the severity of harm.
- Symptoms of coma, respiratory depression, respiratory arrest, vomiting or seizure.

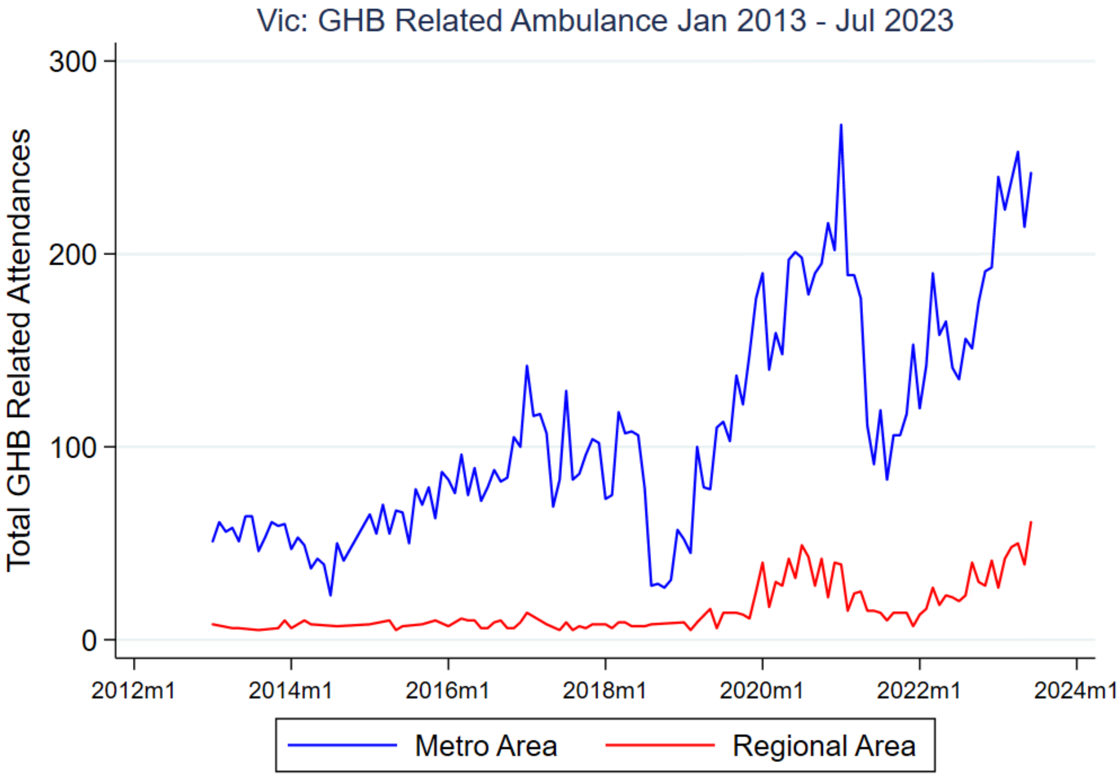


Event type	**GHB attendances n (%)**
Overdose	3,754 (55.6%)
Loss of consciousness/altered state of consciousness	3,004 (44.5%)
Sick/other conditions	557 (8.2%)
Convulsions/seizures	482 (7.1%)
Cardiac problems and stroke	478 (7.0%)
Psychiatric episode/ mental health	474 (7.0%)
Violent/ combative behaviours	395 (5.8%)
Breathing problems/ abnormal breathing	263 (3.9%)
Traffic accidents	120 (1.8%)
Falls	42 (0.6%)
Traumatic injury (excl. traffic accidents)	36 (0.5%)
Sexual assault	19 (0.3%)

1 Darke, S., Peacock, A., Duflou, J., Farrell, M., & Lappin, J. (2020). Characteristics and circumstances of death related to gamma hydroxybutyrate (GHB). *Clinical Toxicology*, *58*(11), 1028-1033.
2 Australian Criminal Intelligence Commission (ACIC). (2019). Illicit drug data report 2017-2018. Canberra, Australia.
3 Madah-Amiri, D., Myrmel, L., & Brattebø, G. (2017). Intoxication with GHB/GBL: characteristics and trends from ambulance-attended overdoses. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine*, *25*, 1-6.
4 Ogeil RP, Faulkner A, Beard N. et al. (2023). Adverse outcomes of GHB use: Analysis of ambulance attendances in metropolitan and regional Victoria. *Int J Drug Policy*. 2023 Jan;111:103932

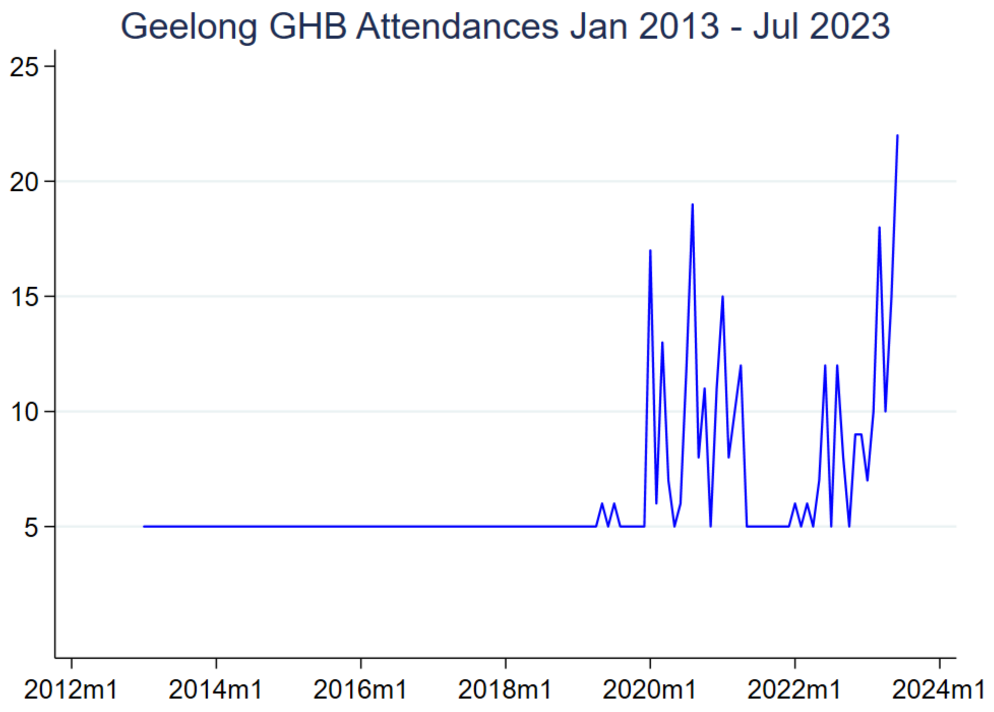
Victorian GHB Related Attendances

- Overall numbers of attendances have increased statewide
    - Growing concern in GHB in regional settings



Greater Geelong GHB Related Attendances

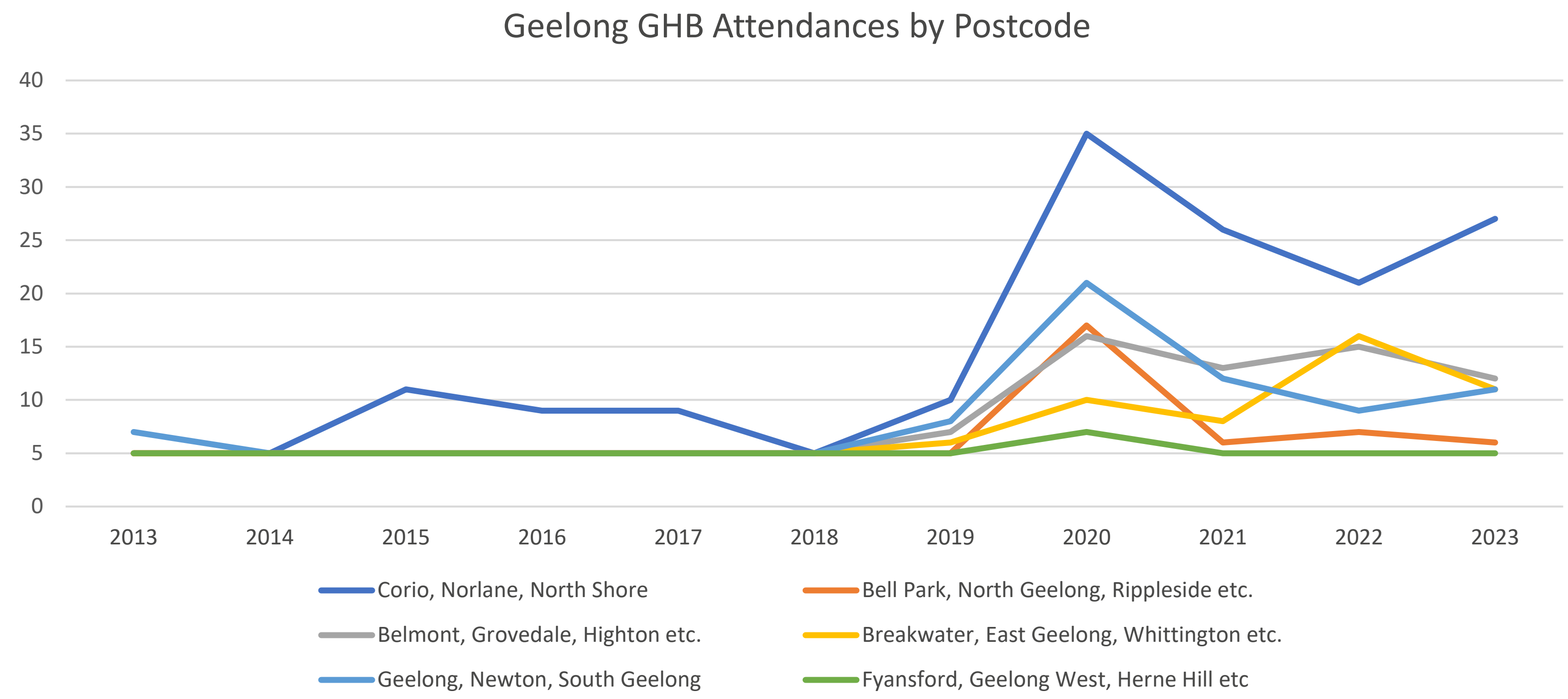
- Greater Geelong LGA identified as highest number of regional GHB related attendances



Note: months with < 5 cases have been obfuscated to 5 cases

Greater Geelong GHB Attendances by Postcode

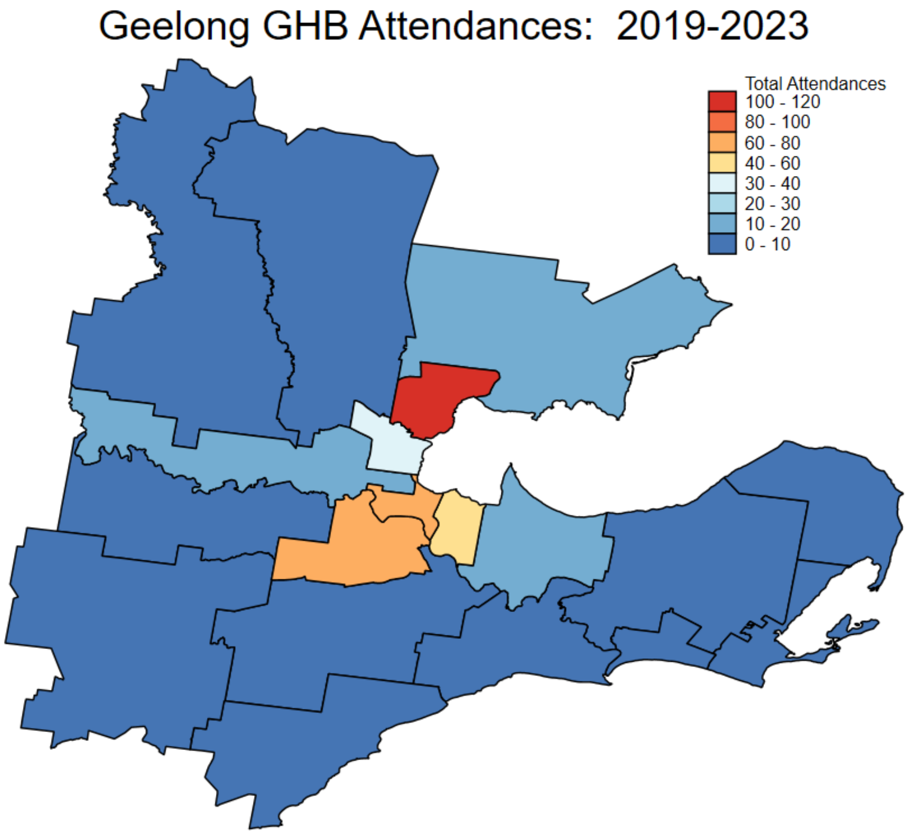
- Narrowing down the data to postcode level, there are clear drivers of LGA level trends


Geelong GHB Attendances by Postcode

Note: months with < 5 cases have be obfuscated to 5 cases

Mapping Greater Geelong GHB Attendances

- Hot (and cold) spots become clearer when mapped onto a correlogram


Geelong GHB Attendances: 2019-2023
Total Attendances
100 - 120
80 - 100
60 - 80
40 - 60
30 - 40
20 - 30
10 - 20
0 - 10

Discussion Points

- Clear utility in ambulance data identifying AOD harms at a local level
- Across Australia ***harms aren't distributed equally***, varying based on substance type
- Important to ***contextualise AOD harms***, as population, substance availability (i.e., alcohol outlets) and ***availability of services*** (i.e., remoteness) all influence the presence of identified harms
- While whole of population policies are integral for reducing harm***, local and targeted interventions are clearly needed***

Future Directions

- Local councils integral to liquor licensing, looking to map different ***types of licences across hotspots***
  - Ambulance data is already informing several Melbourne-based LGA specific *Alcohol Action Plans*

- Local councils could link ambulance data to better understand the impact of AOD on wider health services and local community more broadly

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Thank you

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