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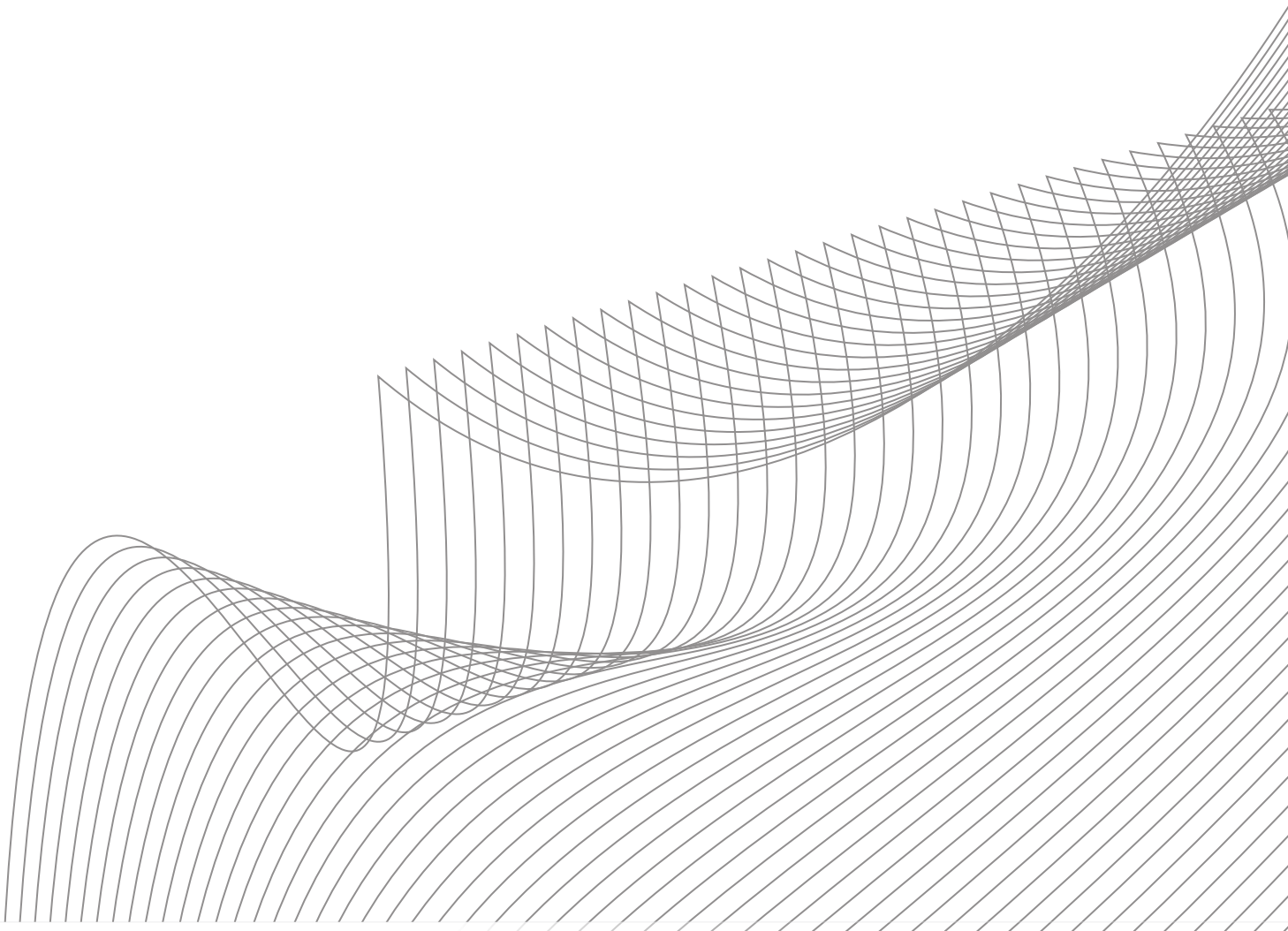

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Letter to the Editor

Public health response to a norovirus viral gastroenteritis outbreak in early childhood learning centres in Victoria, Australia, 2021

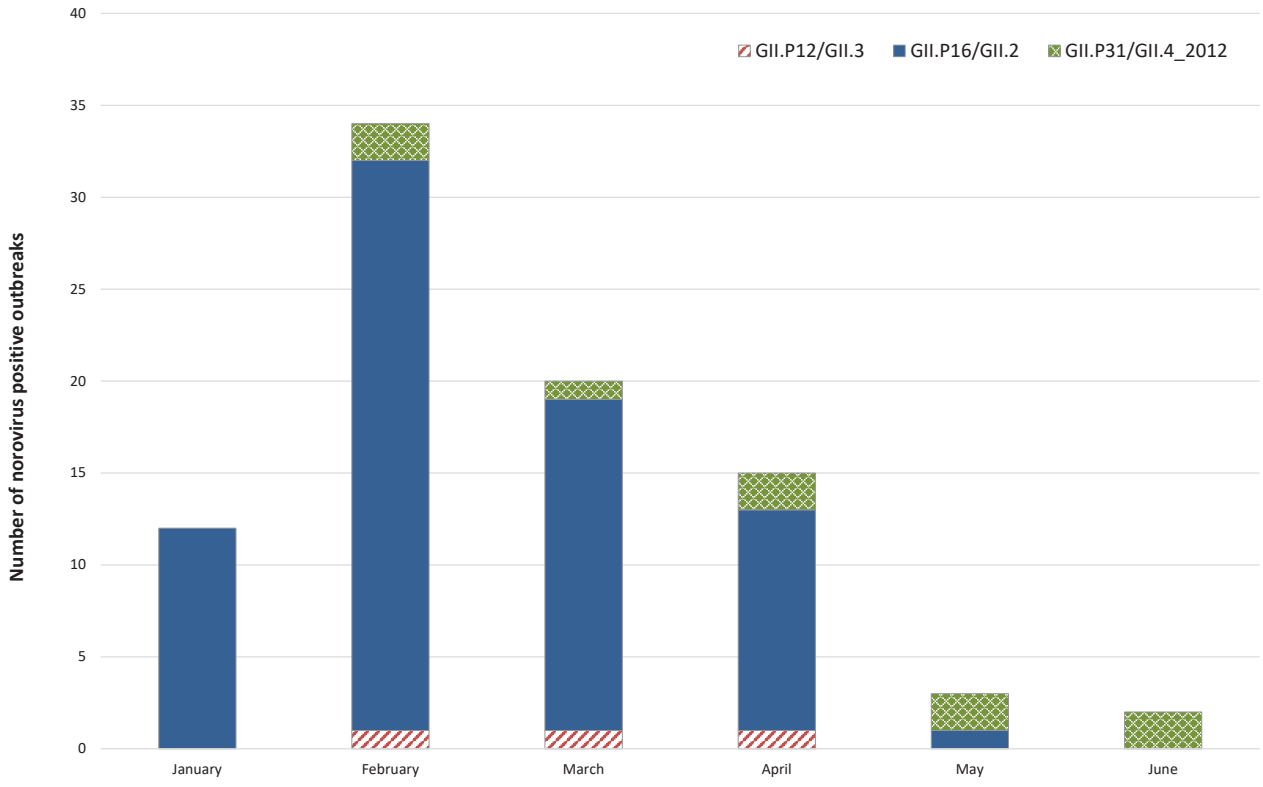
George P Drewett, Anna-Lena Arnold, Leesa Bruggink, Sarah Borg, Kaye Sturge, Bruce Bolam

Keywords: norovirus; alcohol-based hand sanitiser; soap and water handwashing; mass media; public health; GII.P16/GII.2

We report on the public health response to an outbreak of infectious viral gastroenteritis in early childhood learning centres (ECLC) in Victoria, Australia, during the first half of 2021. Viral gastroenteritis is a common cause of childhood diarrhoea,[1,2] and is frequently spread through high-risk environments such as ECLC.[3] Laboratory testing identified an international epidemic strain of norovirus, GII.P16/GII.2 (Figure 1), which had not previously caused epidemic norovirus outbreaks in Victoria, as the predominant infectious agent in this outbreak. Similar outbreaks of norovirus had been observed in other Australian jurisdictions recently prior to this outbreak.[4]

In Victoria, there is no requirement for residential facilities, health care facilities, children's services centres or camps to notify the department of an outbreak of gastroenteritis.[5] However, notification is strongly recommended, to allow the department to provide advice and support to facilities to manage the outbreak, in order to help minimise the severity of the illness and

Figure 1: Norovirus genotyping from gastroenteritis outbreaks in early childhood learning centres, Victoria, by month, January–June 2021

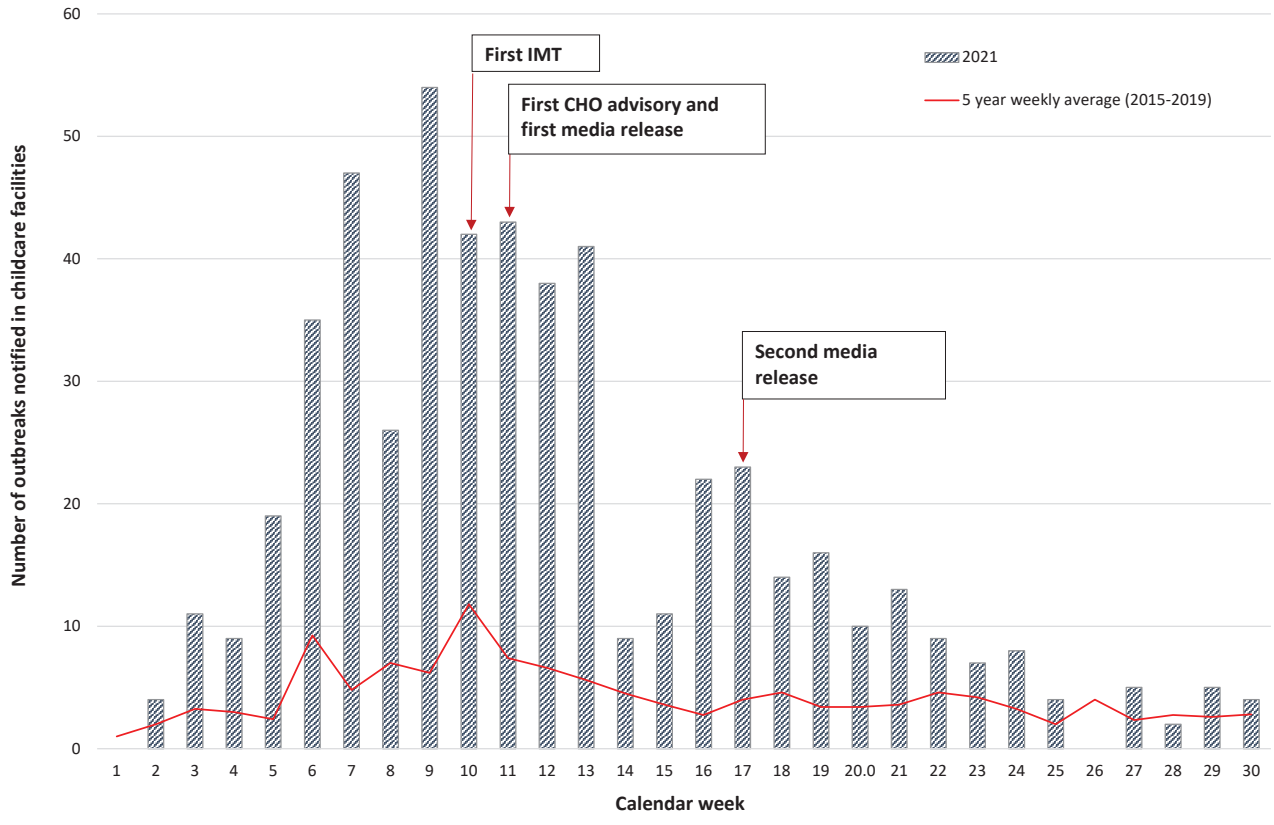


outbreak duration, particularly in vulnerable population groups. Suspected gastroenteritis outbreaks (two or more cases of vomiting and/or diarrhoea occurring among children and/or staff within 48 hours of each other), once notified, are recorded on the Department of Health's disease surveillance system.[5] Local council provides stool collection kits to affected individuals, which are then processed at the Microbiological Diagnostic Unit (MDU), Public Health Laboratory (PHL) at the University of Melbourne, which tests all samples received for norovirus.[6]

In early March 2021, a five-fold increase above the five-year average was detected in the number of notifications of viral gastroenteritis in ECLC (Figure 2). An incident management team (IMT) was assembled, with fortnightly meetings established. The purpose of these multidisciplinary meetings was to investigate the increase in the number of notifications, to discuss the epidemiology of the outbreaks using surveillance data, to decide on an appropriate intervention, and to coordinate the public health response.

We hypothesised that one possible driver of this outbreak was a change in community hand-hygiene practices observed since the start of the coronavirus disease 2019 (COVID-19) pandemic,[7] where an increase in the use of alcohol-based hand sanitisers (ABHS) in order to reduce transmission of the SARS-CoV-2 virus led to a relative reduction in the use of soap- and water-based handwashing practice. While ABHS are effective at inactivating SARS-CoV-2,[7] they are less effective against norovirus,[8,9] and hence at interrupting person-to-person transmission of norovirus, with Australian guidelines preferencing soap and water over ABHS.[10] Exclusion of symptomatic children until 48 hours post-resolution of symptoms likely also helped to interrupt the chain of transmission. Additional potential drivers included a return to increased numbers of children attending ECLC following a period of minimal attendance during the

Figure 2: Epicurve demonstrating number of outbreaks notified in early childhood learning centres by calendar week in Victoria in 2021, with public health interventions marked



July-November 2020 COVID-19 lockdown, a relatively norovirus-naïve population due to minimal circulating virus over preceding months, and the spread of gastroenteritis between ECLCs through children's transmission networks outside of ECLCs.

Accordingly, targeted media was developed, advocating the use of soap and handwashing, rather than relying on ABHS, as well as recommending a 48-hour exclusion period following resolution of symptoms. In week 11 (week ending 15 March 2021), a communication from the Victorian Chief Health Officer was formulated, translated into nine key languages, and distributed to 4,500 ECLCs. A newsletter to parents outlining key messages for gastroenteritis was also distributed to parents of children at these centres and at primary schools across the state.

Proactive media engagement was undertaken, conducting multiple interviews on high-audience public and private radio and television stations, as well as focused social media releases on government health communication channels and platforms, with excellent media uptake and reach, and an estimated advertising sales reach of $1.65 million (Appendix A: Figures A.1 and A.2), despite no purchased advertising. While it is not certain exactly what effect these communications had on hand washing practices, we suggest that, given the scale of the community reach, it is likely that there was some change to handwashing practices as a result.

After an initial slight increase in notifications following the first round of media engagement (Figure 2), the number of notifications decreased. Following a two-week period of school holidays where a reduced number of notifications occurred, a slight increase in notifications prompted a second round of media engagement, with a steady reduction in notifications and return to 5-year averages by week 22 of 2021. As Figure 1 also demonstrates, the epidemic GII.P16/GII.2 strain was no longer detected after May 2021, leaving only low levels of circulating endemic GII.P31/GII.4_2012 (Sydney) strain.

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Appendix A: Supplementary material

Figure A.1: Media mentions of viral gastroenteritis-related public health communications over time

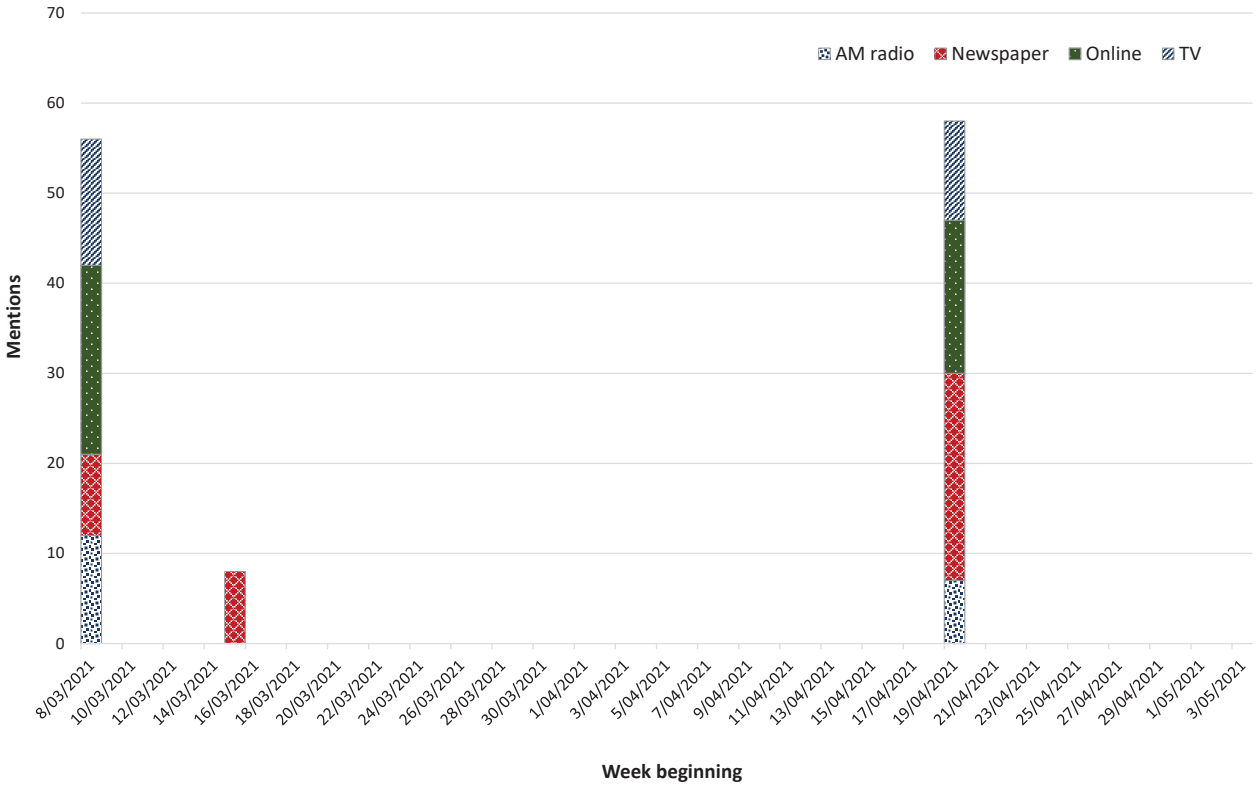

Figure A.2: Advertising sales reach (ASR) from public health communications over time