

# Child health and wellbeing during the pandemic

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THE UNIVERSITY OF  
**AUCKLAND**  
Te Whare Wānanga o Tamaki Makaurau  
NEW ZEALAND

**MEDICAL AND  
HEALTH SCIENCES**

# Presentation summary

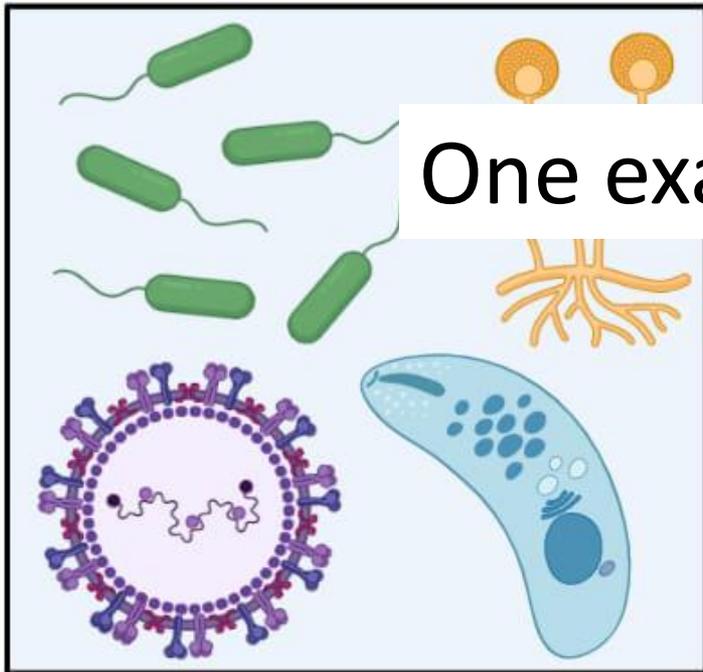
1. Child physical health
2. Child mental health
3. Delivering child health



# Child physical health

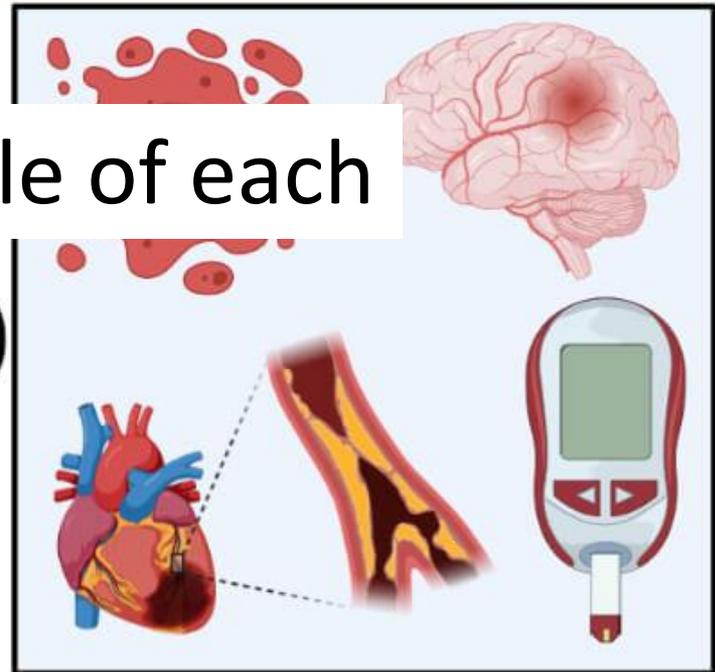


## Communicable and Non-Communicable Diseases

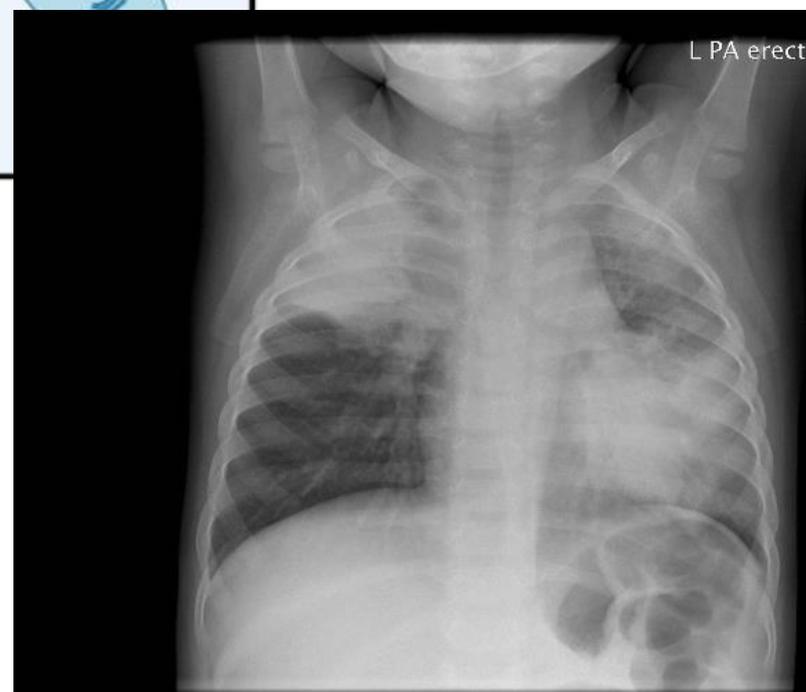
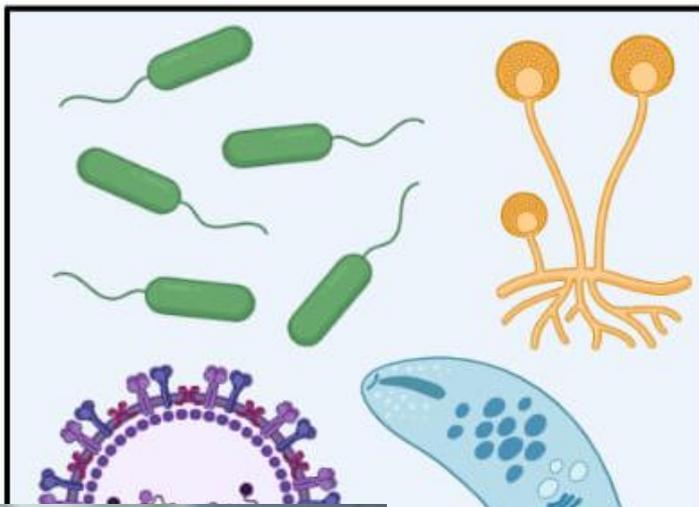


One example of each

VS

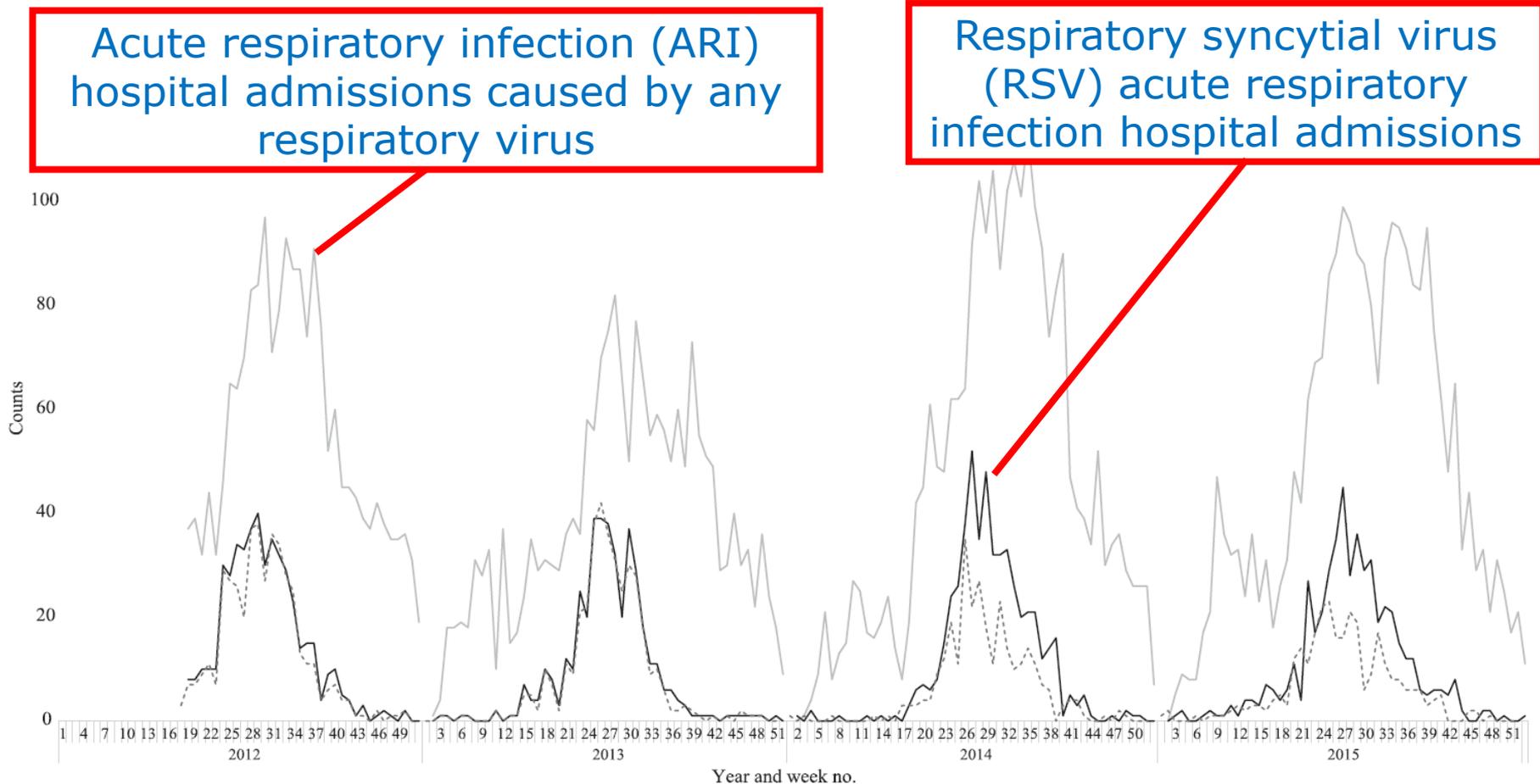


# Acute respiratory infections as an example of communicable diseases



# Child health in NZ each winter is dominated by illnesses caused by respiratory viruses

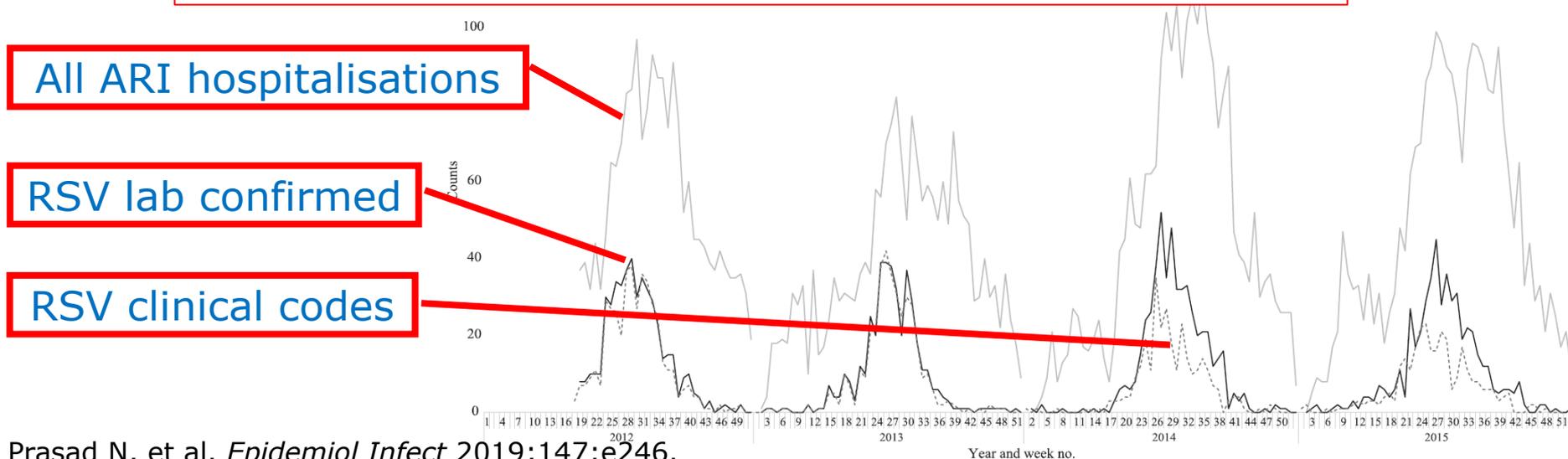
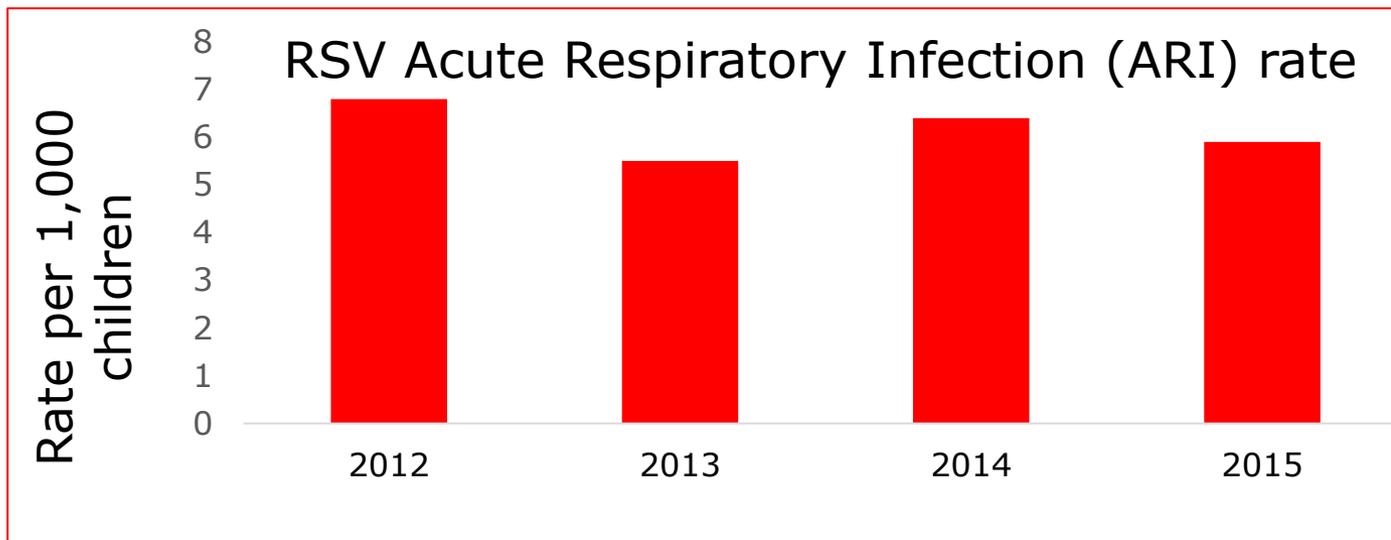
- Southern Hemisphere Influenza Vaccine Effectiveness Research and Surveillance (The SHIVERS project).
- Starship & Kidz First Children's Hospitals, 2012-2015.



# Variance in disease caused by respiratory syncytial virus (RSV): year to year

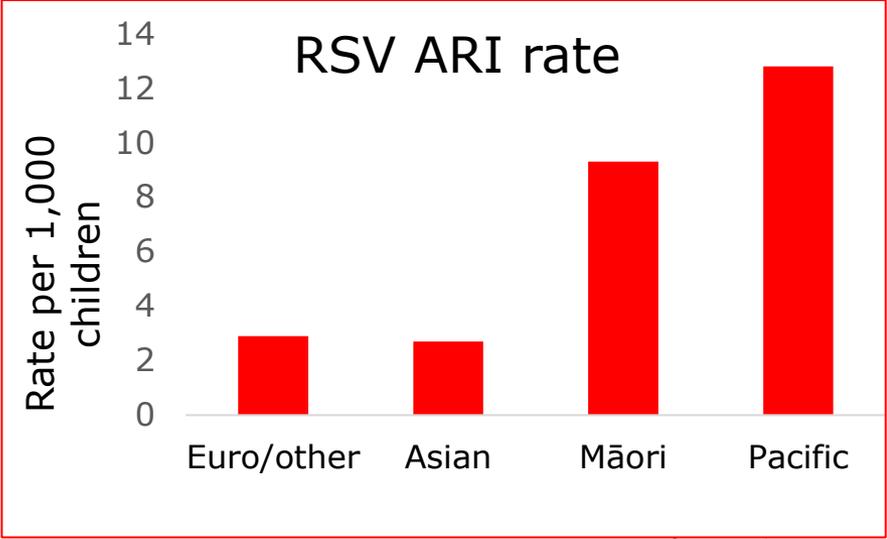
IN CONFIDENCE

Year-to-year variance 24%

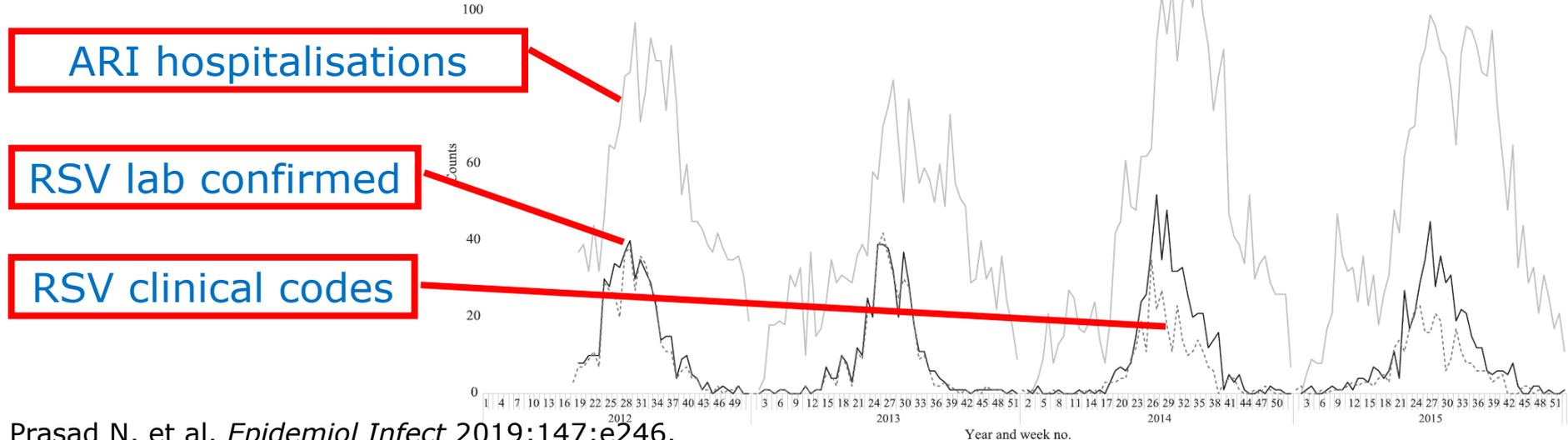
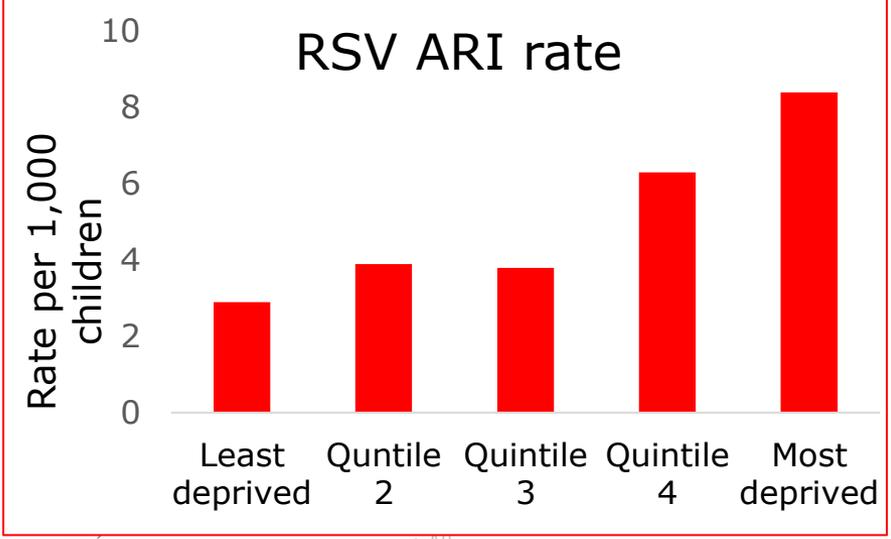


# Variance in disease caused by respiratory syncytial virus (RSV): ethnic group and area level deprivation

Ethnic group variance 470%



Deprivation variance 290%

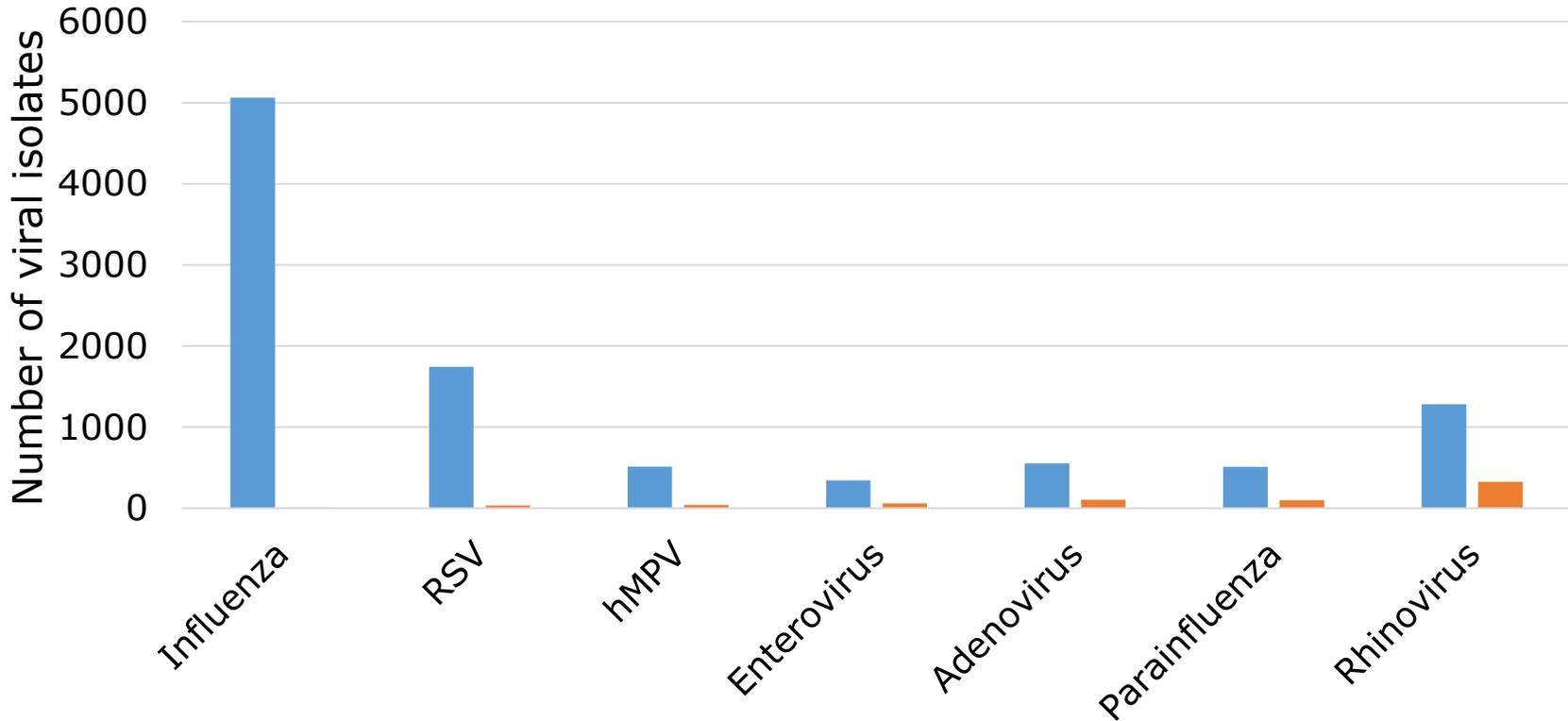


# During 2020, the circulation in NZ of most respiratory viruses was interrupted



# Number of isolates of influenza, RSV and other respiratory viruses in New Zealand 2015-2020

■ Median 2015-19    ■ Post-lockdown 2020



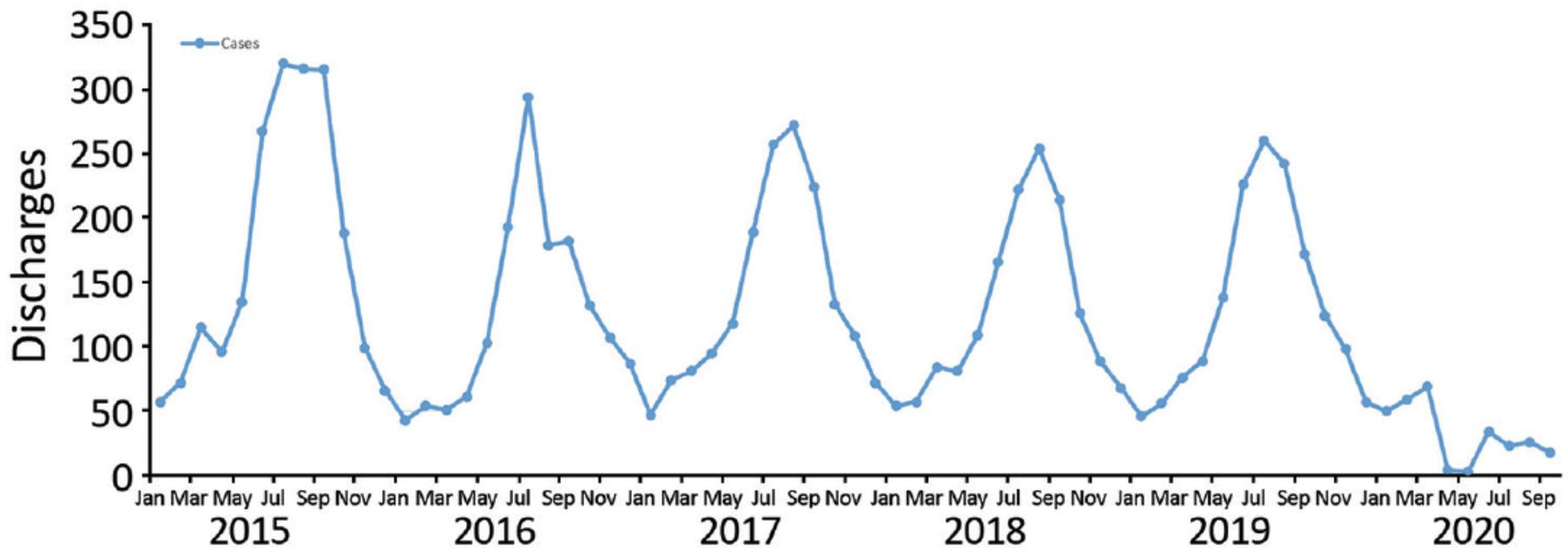
## Percentage reductions: 2020 versus 2015-19

Influenza (99.9%)	Enterovirus (82.2%)
RSV (98.0%)	Adenovirus (81.4%)
Human metapneumovirus (92.2%)	Parainfluenza virus (80.1%)
	Rhinovirus (74.6%)

Huang QS, et al. *Nat Commun* 2021;12(1):1001.

# Early childhood acute respiratory infection hospital admissions decreased dramatically in the post-lockdown period

**Hospital discharges among children <2 years old with lower respiratory tract infection, South Auckland, 2015–2020**

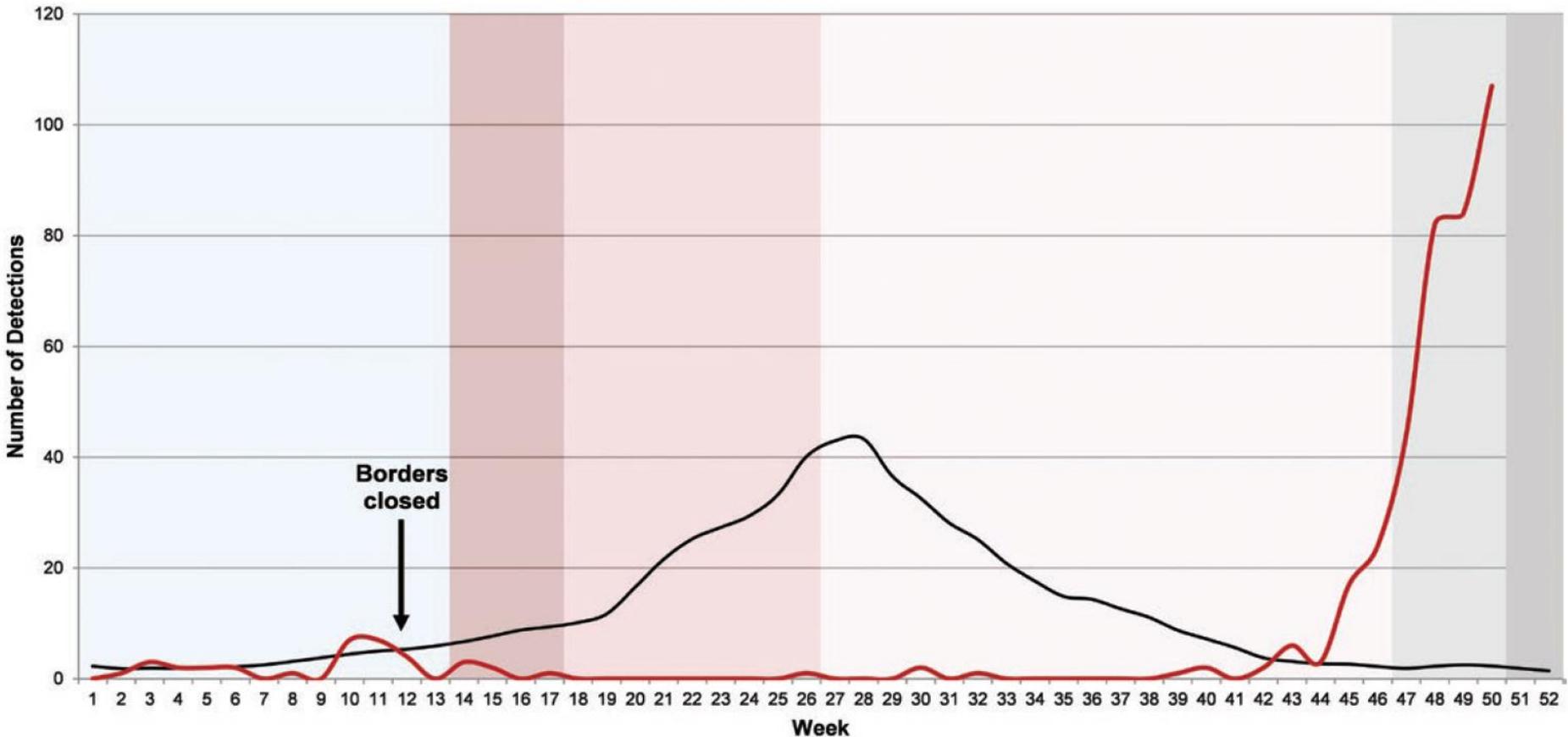


Trenholme A, et al. Emerging Infect Dis 2021;27(2):641-43.

# Increase in RSV detections, Australia late 2020

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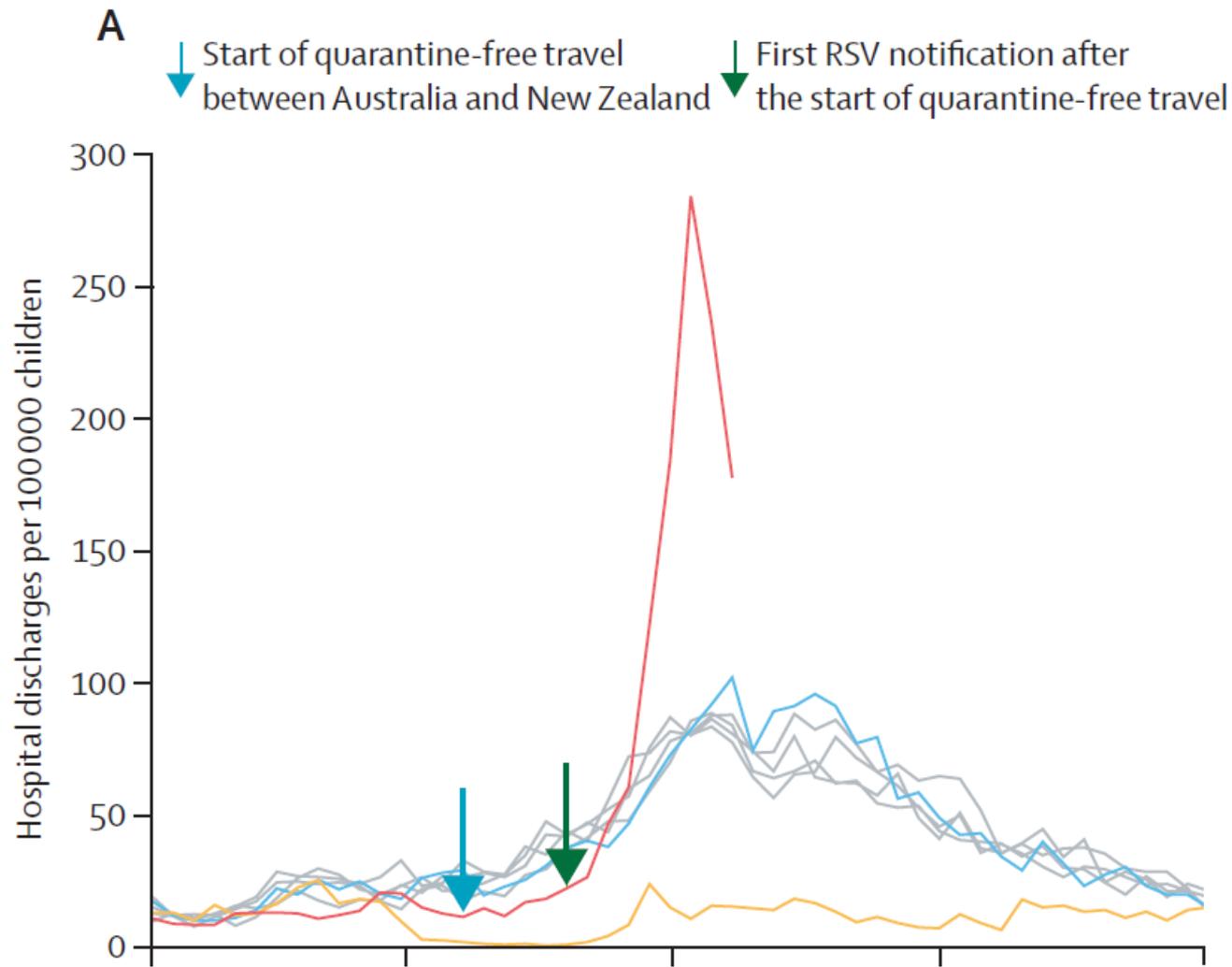
Respiratory syncytial virus detections in children from metropolitan Western Australian increased from September 2020



**Median age of children in whom RSV was detected in 2020**

- Higher than the annual upper range from 2012–2019
- 18.4 months versus 7.3–12.5 months.

# Weekly New Zealand hospital discharge data for children aged 0–4 years with bronchiolitis

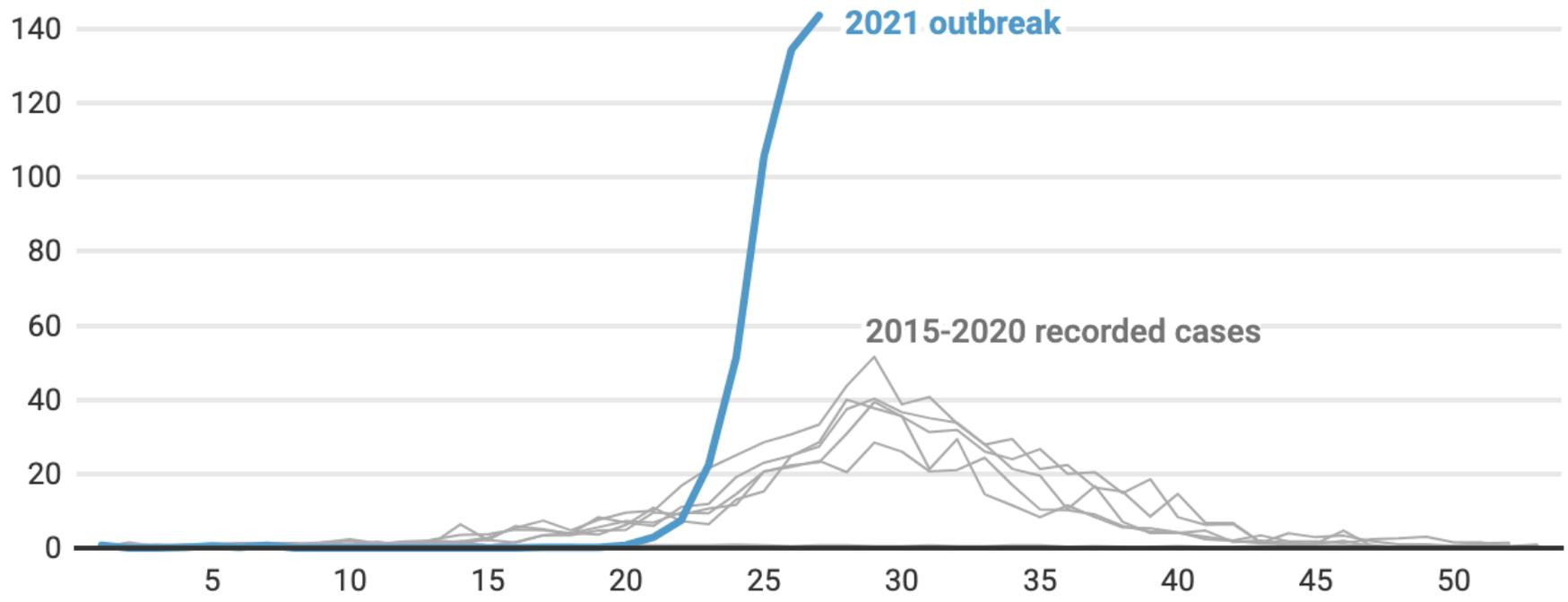


Bronchiolitis is the acute respiratory infection that is the most frequent cause of hospital admission among young children in NZ

2021: Red  
 2020: Yellow  
 2019: Blue  
 2015-18: Grey

# Laboratory based surveillance: ESR and six hospital laboratories in Auckland (two hospital laboratories), Waikato, Wellington, Christchurch and Dunedin

## Weekly RSV cases reported per 1 million, 2015-2021



Data normalised with Stats NZ yearly population estimates.

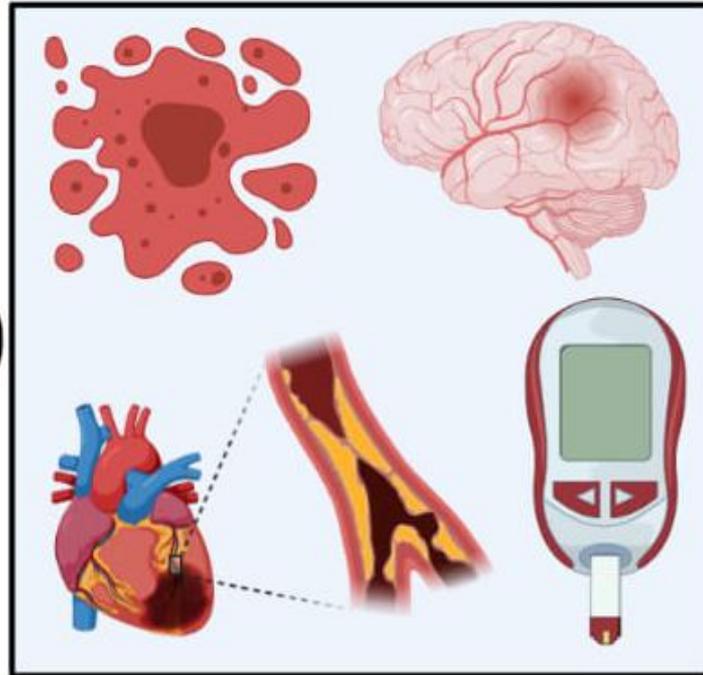
Chart: Brittney Deguara and Felipe Rodrigues • Source: [ESR](#)



# What did this mean for those working in hospitals in New Zealand?

- All elective admissions cancelled.
- Surgical wards converted into medical wards.
- Staffing directed towards caring for young children hospitalised with acute respiratory infections.
- Sick children being grouped together in multi-bed rooms.
- Intense pressure on intensive care unit beds.
- Intense pressure on transfer of patients between hospitals.
- Staff sickness.
- Fear.

# Overweight and obesity as an example of a non-communicable disease

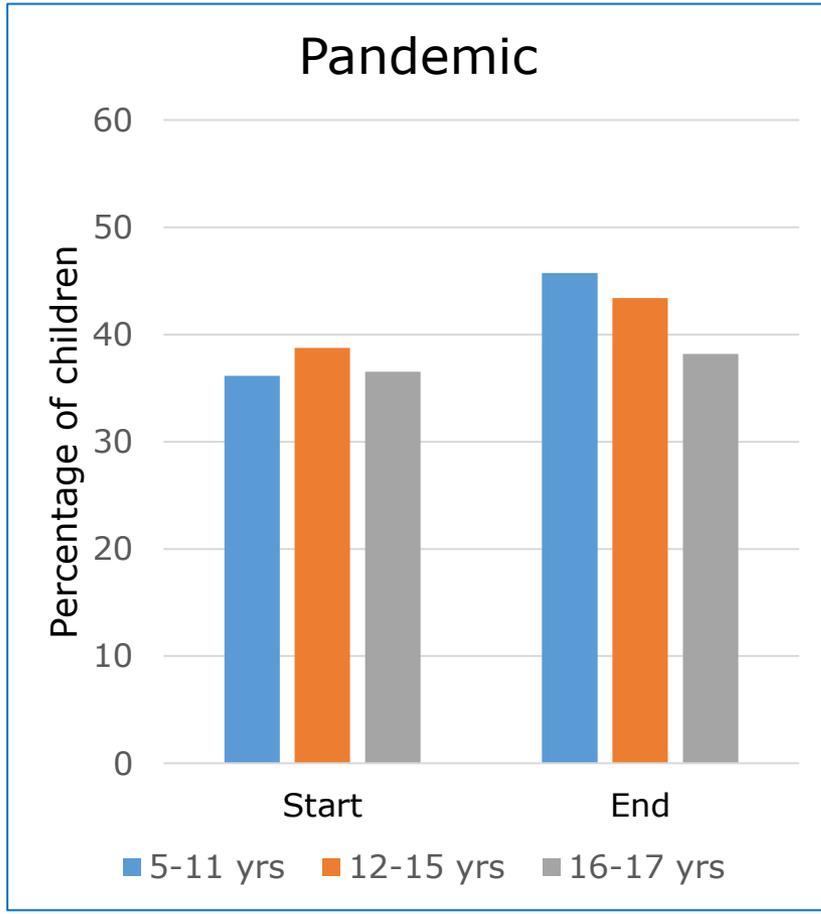
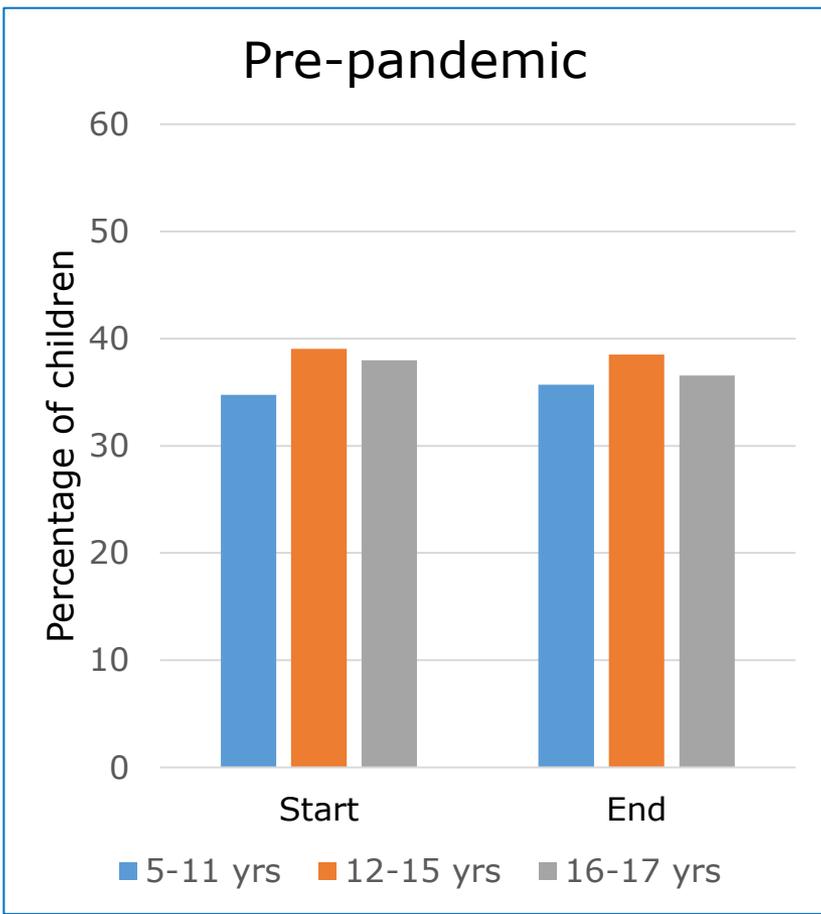


## Non-communicable diseases

- Cardiovascular diseases
  - Hypertension, heart attacks, stroke
- Cancers
- Chronic respiratory diseases
  - Asthma, chronic obstructive pulmonary disease
- Diabetes

# Changes in % overweight & obese during COVID-19 Pandemic children & adolescents – United States

- Retrospective cohort study using Kaiser Permanente Southern California health record data.
- Each child: an in-person visit with at least 1 BMI measurement before & during pandemic.
- More weight gain occurred during pandemic; largest changes seen in the youngest children.

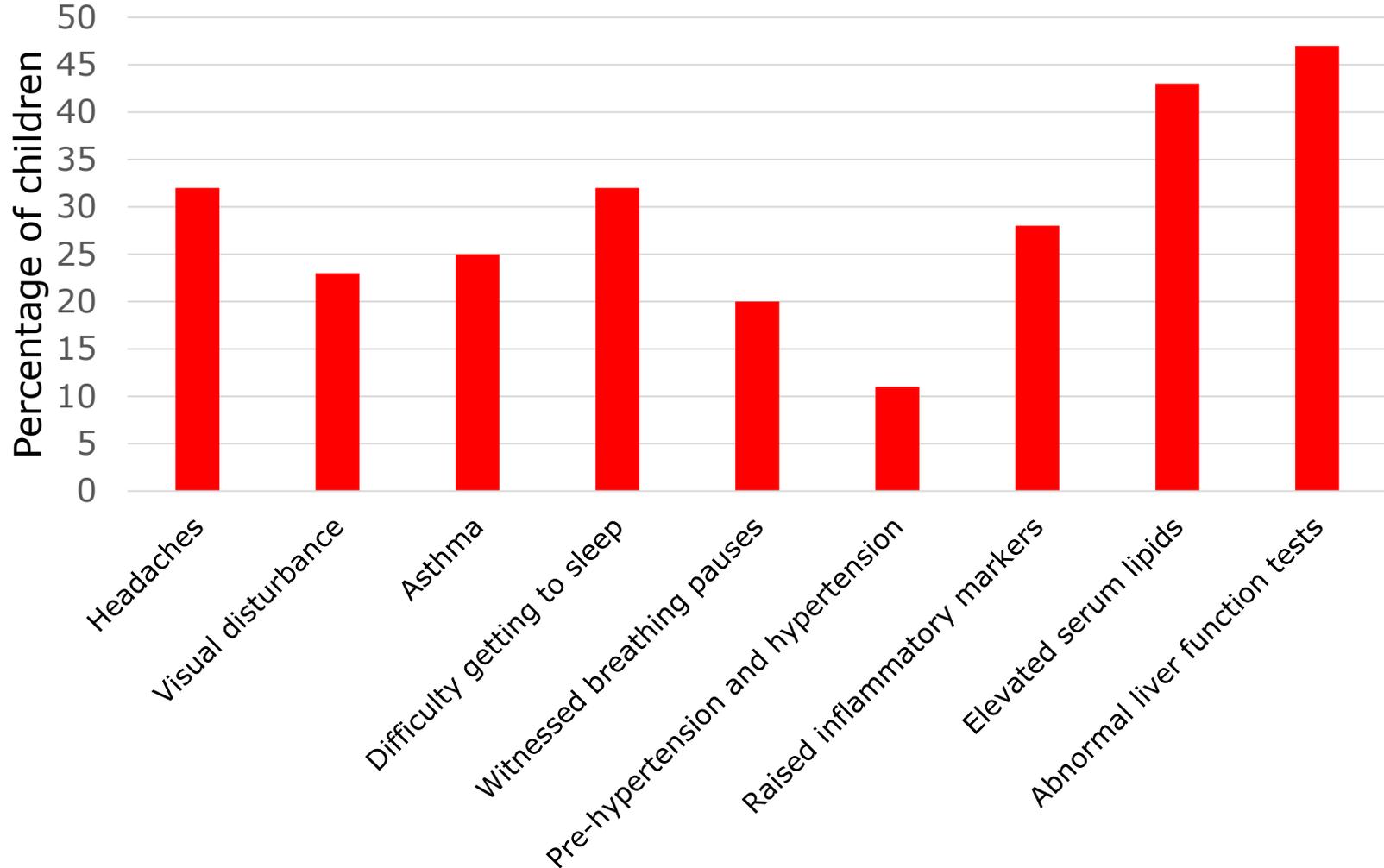


Woolford SJ, Sidell M, Li X, et al. Changes in Body Mass Index Among Children and Adolescents During the COVID-19 Pandemic. *JAMA* 2021; **27**: 27.

# Prevalence of comorbidities in obese New Zealand children and adolescents

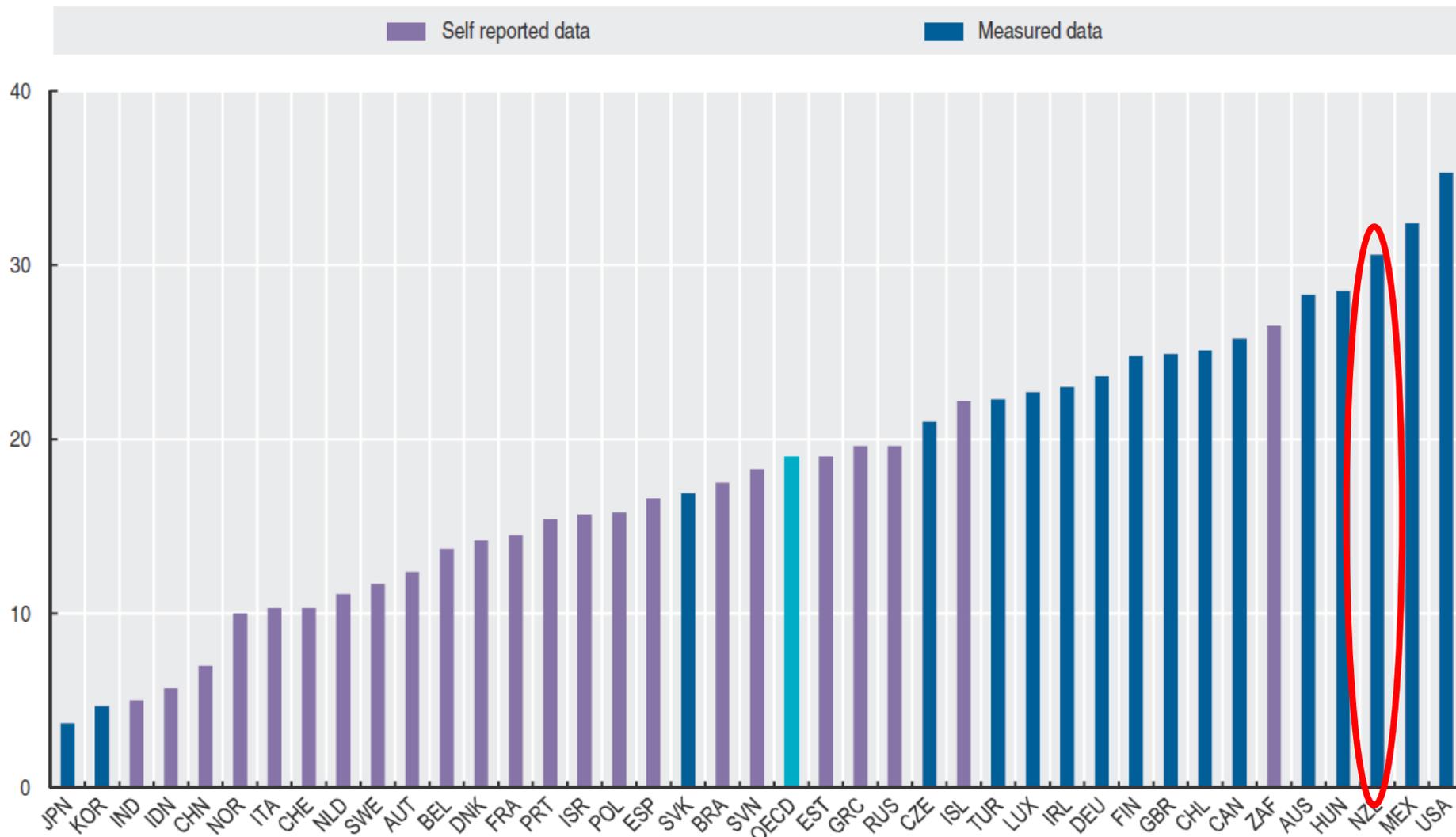
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239 children aged 5-17 years referred to Whānau Pakari – a community based healthy lifestyles programme



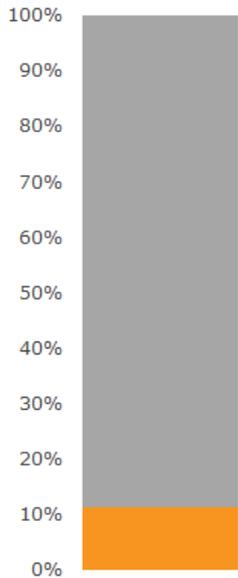
# Global ranking of obesity rates in adults 15 years and older 2013 or latest available data

Global obesity prevalence NZ 3<sup>rd</sup> highest after USA and Mexico

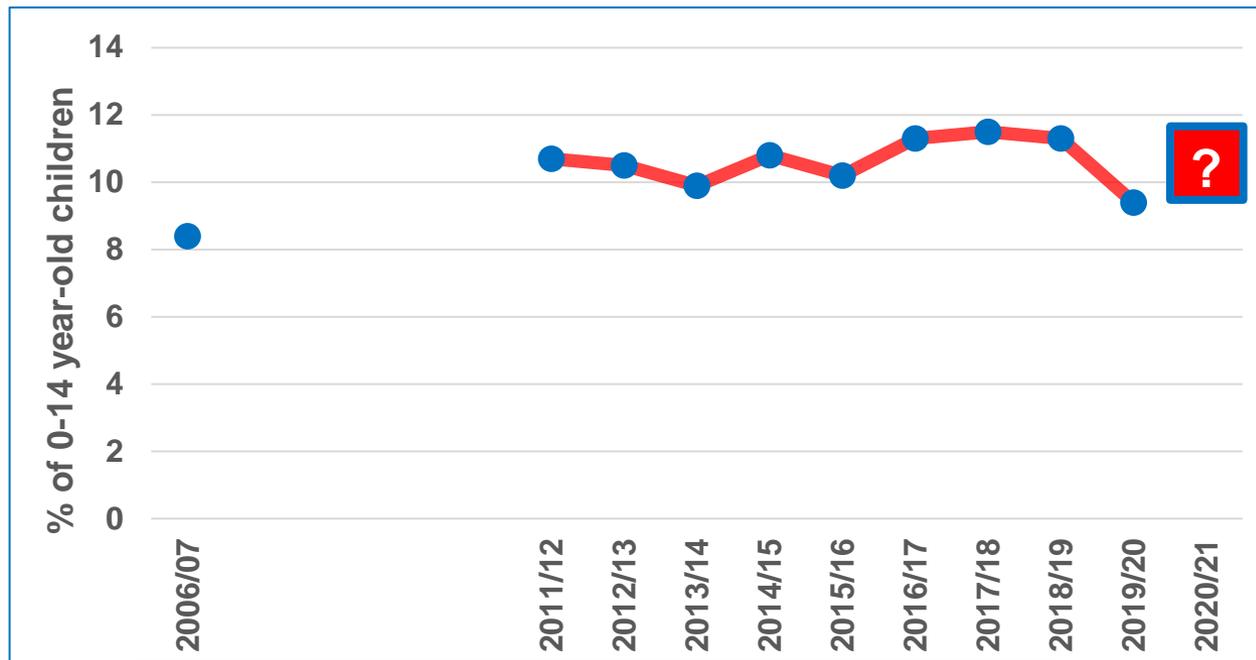


# Childhood obesity in New Zealand

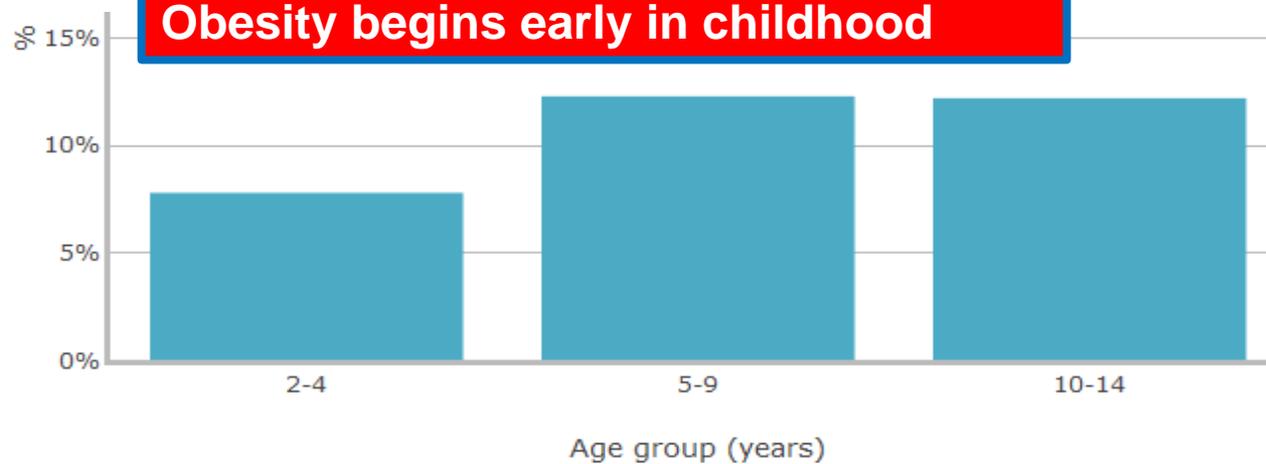
2018/19



The prevalence was  
**11.3%**  
 which is an estimated  
**94,000**  
**children**



**Obesity begins early in childhood**



Ministry of Health. Annual Update of Key Results 2018/19: New Zealand Health Survey Wellington: Ministry of Health; 2019.

# Child mental health



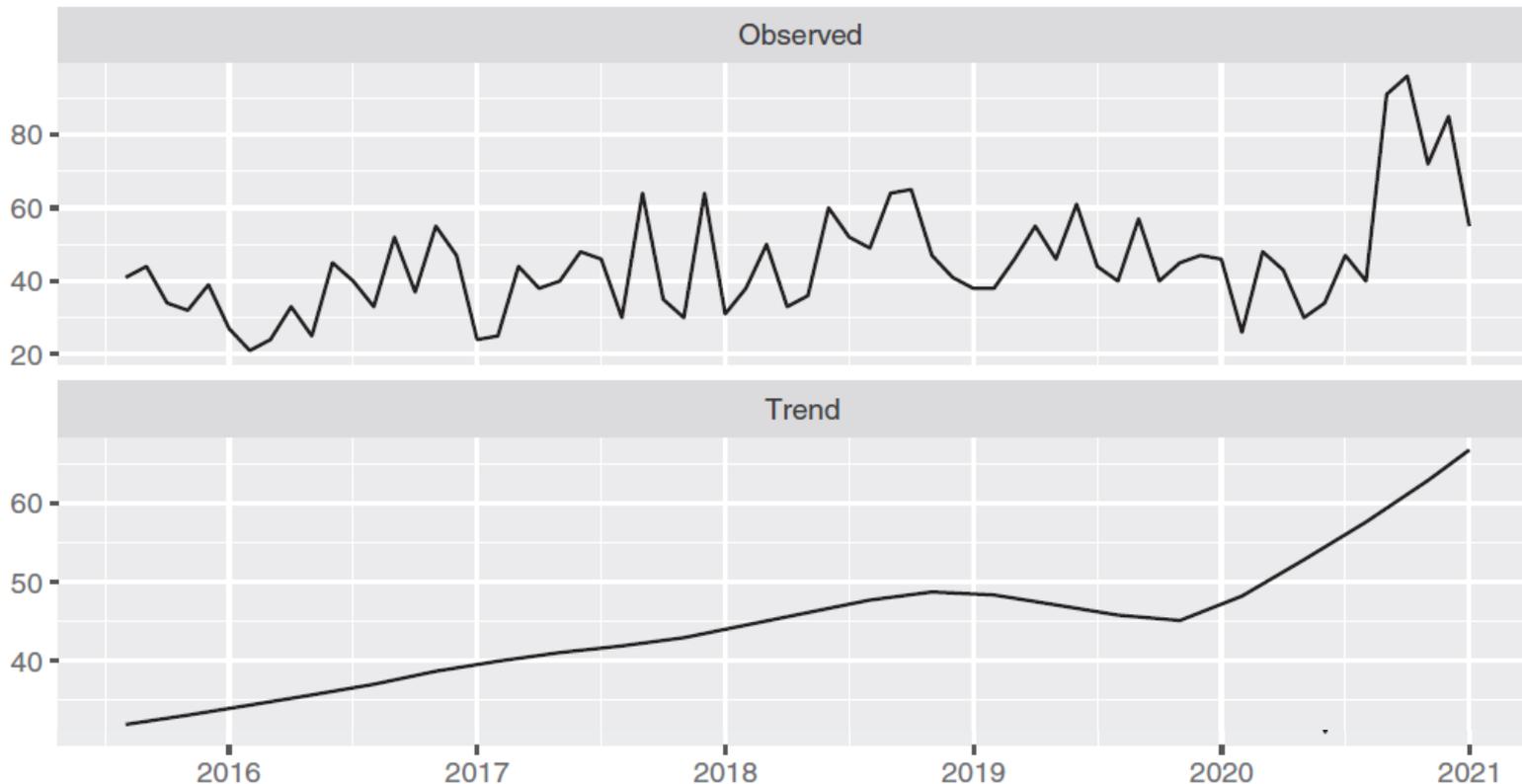
# The Impact of Social Isolation and Loneliness on the Mental Health of Children and Adolescents in the Context of COVID-19

Among children  $\leq 11$  yrs old & adolescents 12-18 yrs old

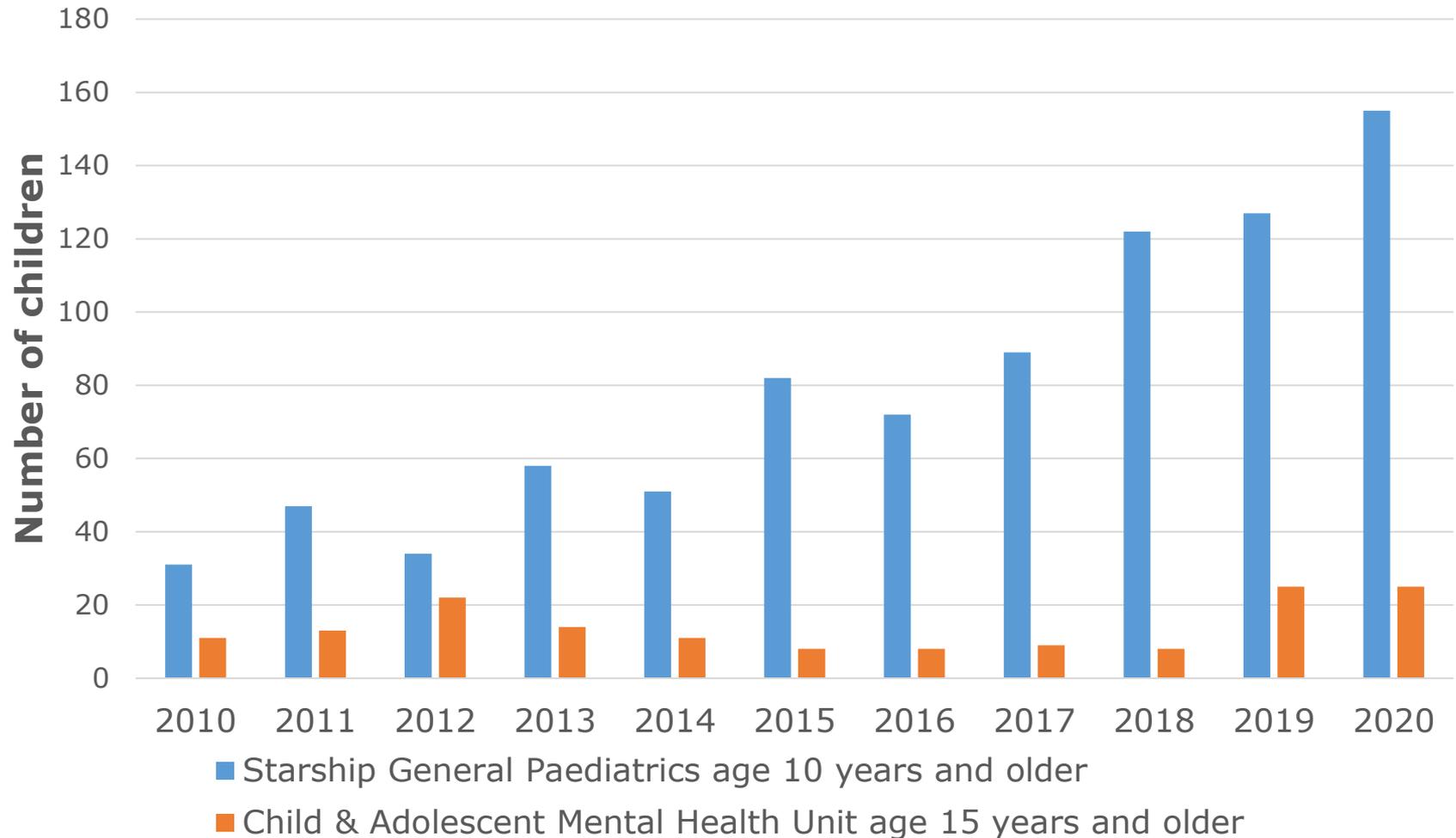
- Social isolation and loneliness increased the risk of depression, and possibly anxiety at the time at which loneliness was measured and between 0.25 and 9 years later.
- Duration of loneliness more strongly correlated with mental health symptoms than intensity of loneliness.
- Children and adolescents are probably more likely to experience high rates of depression and most likely anxiety during and after enforced isolation ends.

# Monthly counts children 10-14 yrs old hospital discharge diagnosis of parasuicide New Zealand 2016-21

- Suicide and self-inflicted poisoning by solid or liquid substances, gases in domestic use, poisoning by other gases and vapors.
- Suicide and self-inflicted injury by hanging strangulation and suffocation, submersion [drowning]; firearms air guns and explosives; cutting and piercing instrument; jumping from high place; other and unspecified means.



# Child and youth eating disorder admissions Auckland region 2010-2020



# Delivering child health



# Delivering child health whilst wearing personal protective equipment



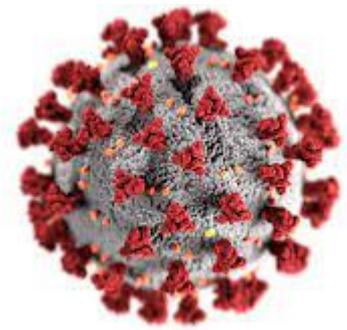
- Influence of Personal Protective Equipment
  - To the child you look like a scary alien.
  - Your facial expression can't be seen.
  - Your voice can't be heard properly.
  - You can't use touch normally.
- Influence on staff behaviours seeking to reduce transmission
  - Every room you stop and ask who should go into the room.
  - Fewer staff interactions in each patient room.
  - Interactions are different.
    - For example, how do you provide care for a child whose parents are deaf?

# Delivering health care to acutely unwell infants with respiratory infections and to young people admitted to hospital with life-threatening eating disorders and mental health diseases

Things I did not expect staff on a general paediatric ward would need to know when caring for children requiring inpatient hospital care.

- How to care for very physically unwell young infants on high flow oxygen after just having been verbally abused by a very mentally unwell young person.
- That they would need to learn how to protect themselves from physical assault whilst caring for a child.
- How to work with security staff when caring for a child.

# The clinical context of COVID-19 related care



- The vulnerability of the families affected.
- Caring for COVID-positive children in hospital whose parents are admitted because of severe COVID disease.
  - The children have parenting, psychological and play needs more than they have the need for medical care.
- The need to be working closely with adult services.
- The rapidity of change in care delivery plans.

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# The personal protective equipment ecological disaster



1. Child Physical Health Issues
  - Communicable diseases
    - More variable and more extreme
  - Non-communicable diseases
    - More and more extreme
2. Child Mental Health issues
  - More and more extreme
3. Child Healthcare Delivery
  - Compromised and more challenging