Doherty Modelling Progress Report

National Cabinet

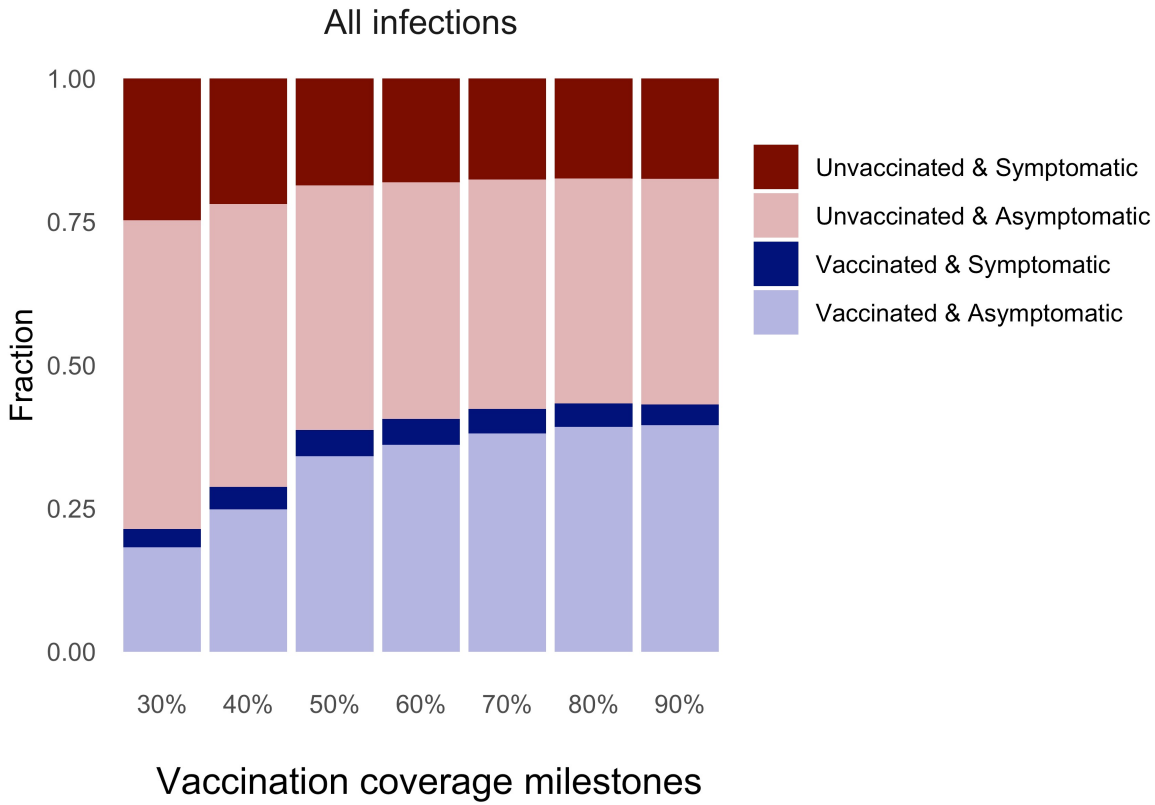
Friday 5th November 2021

Key messages

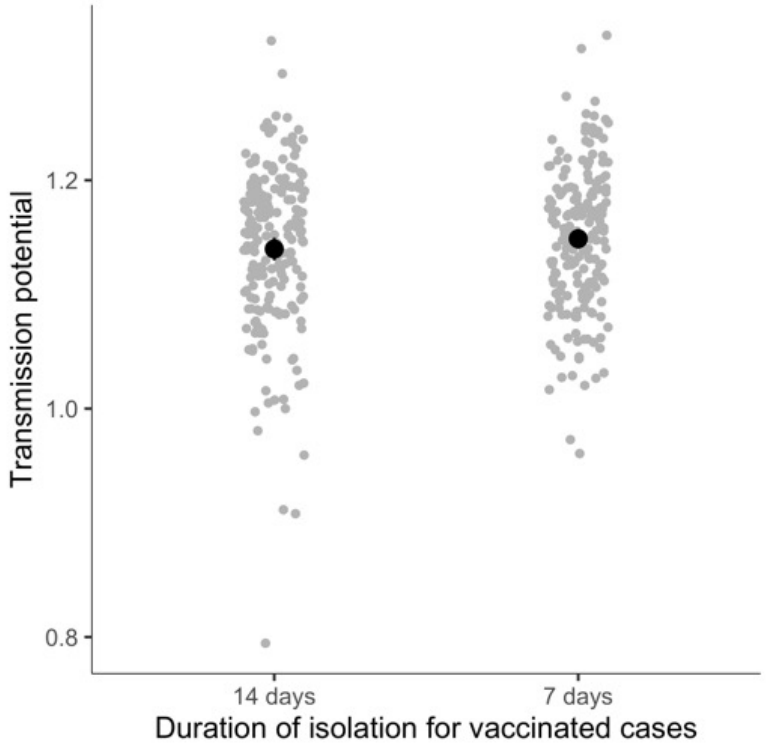
- WP1 TTIQ
  - With coverage >70%, around half of all infections will be in vaccinated people, so milder and less infectious
  - Management of vaccinated cases and contacts can be simplified, but TTIQ remains critical for control
  - Ongoing evaluation of the impacts of TTIQ on TP will be needed for situational assessment
- WP2 First Nations
  - High levels of vaccine coverage can reduce transmission and health impacts in remote and urban communities
  - Reactive vaccine approaches are a useful adjunct to community engaged and led outbreak response
  - Providing access to effective treatments will further promote health outcomes
- WP2 LGAs
  - Baseline TP differs by small area, as do vaccine and PHSM impacts (ability to work from home)
  - Focused TTIQ and wrap around supports will be needed to constrain TP in high-risk areas
- WP2 Schools
  - Early infection detection and high vaccine coverage markedly reduce outbreak risk
  - 'Test to stay' is equivalent to quarantine and enables face to face learning
- WP3 Borders
  - Vaccination reduces the risk of quarantine breach events, mitigating against shorter duration
  - Breach importations do not materially impact on established epidemics or lead to large outbreaks where vaccine coverage is high *if strain characteristics are equivalent*

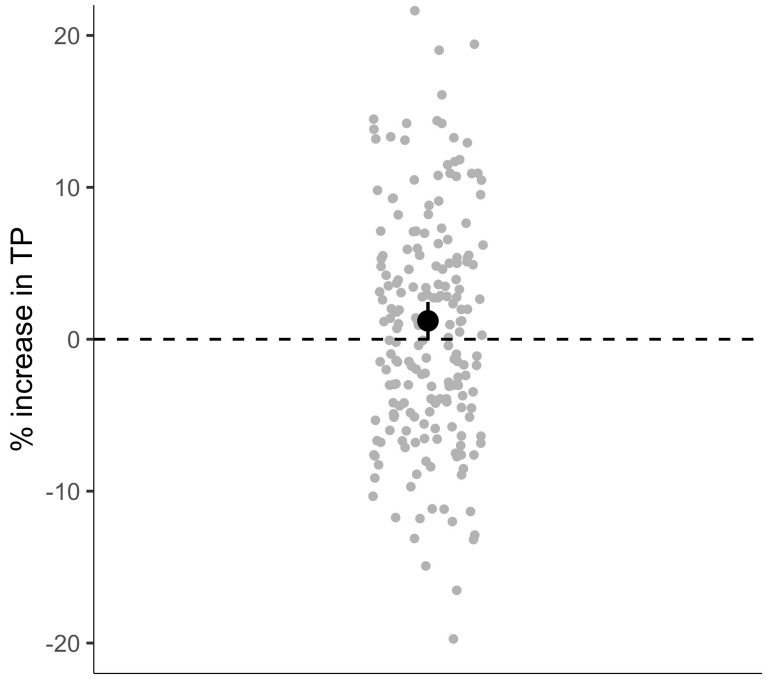
WP1 TTIQ – effective & sustainable future responses

- As vaccine coverage increases, a greater proportion of all infections will be in vaccinated people, who are likely to be less symptomatic and infectious
- Streamlined TTIQ approaches, including case-initiated contact tracing, can maintain effective responses in times of system stress
- Reduced contact tracing intensity and differential management of vaccinated individuals will help to ensure sustainable and effective responses
- Focused TTIQ responses with wrap around supports will be needed in communities that remain at risk of higher transmission and/or clinical impacts
- Ongoing evaluation of TTIQ system performance will be needed to inform situational assessment of transmission potential

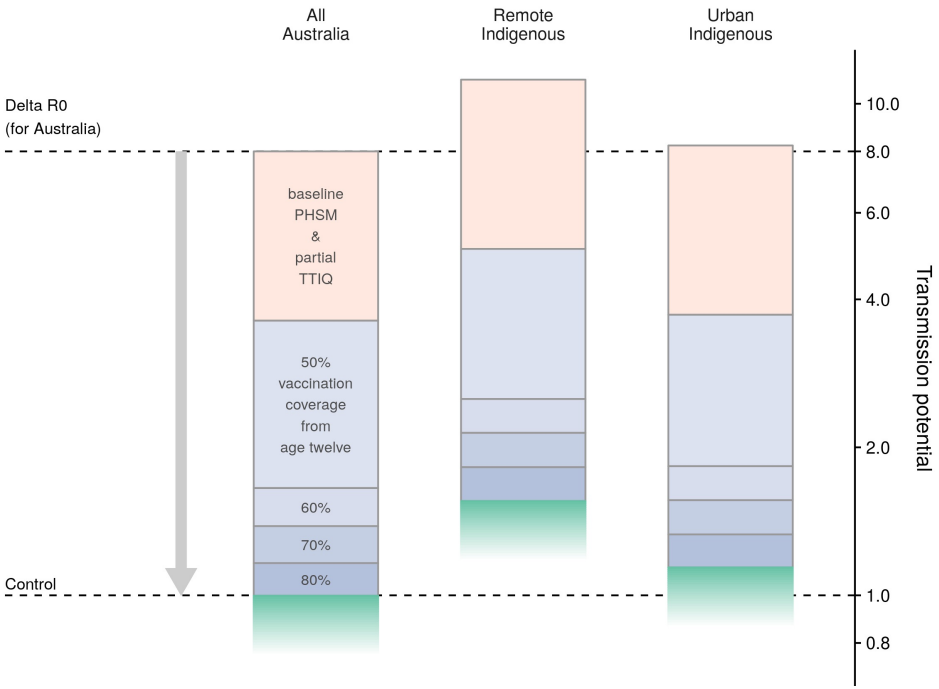


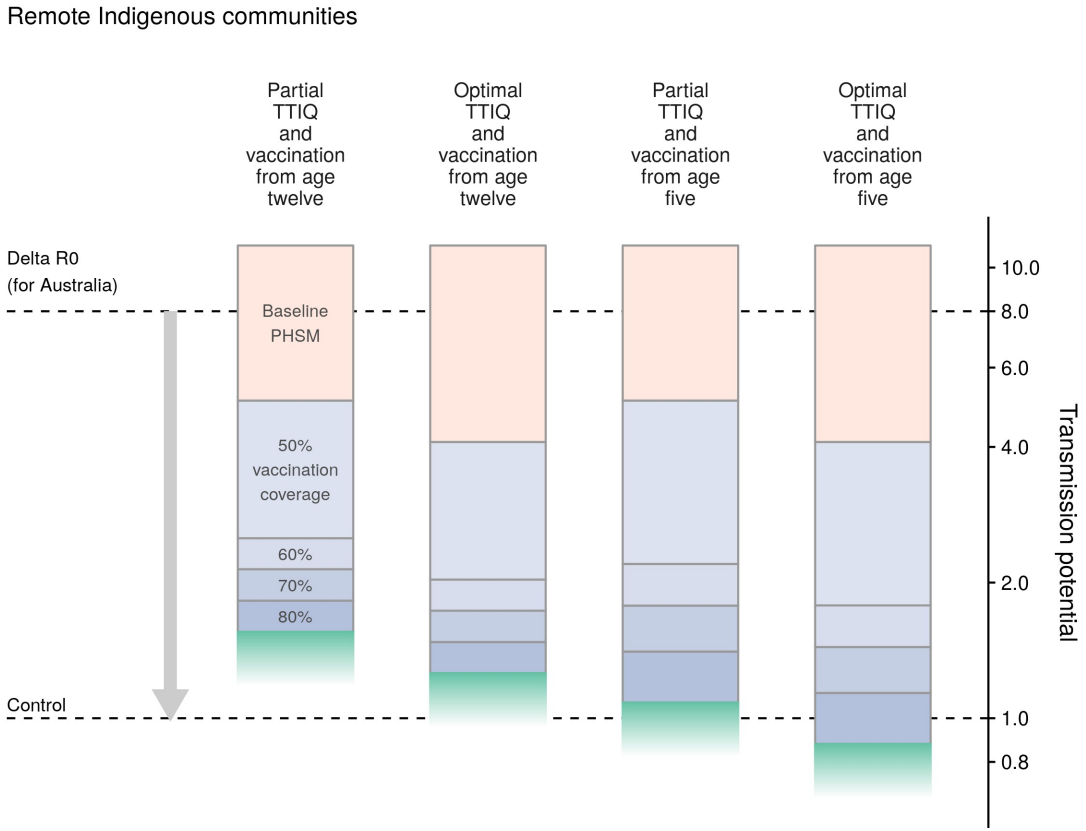
WP1 TTIQ – shorter isolation for vaccinated COVID cases





WP2 First Nations – Baseline TP & vaccine impacts

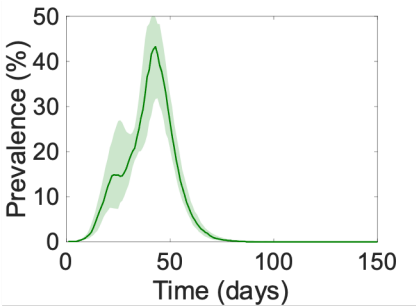
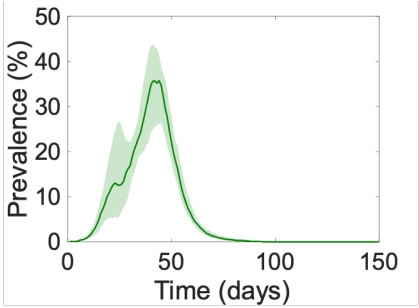
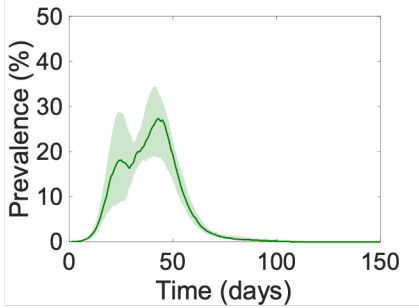
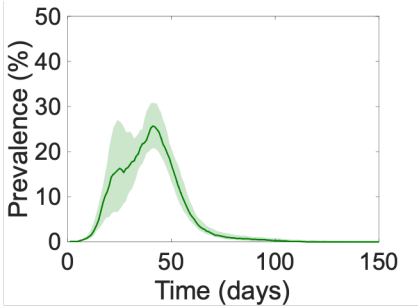




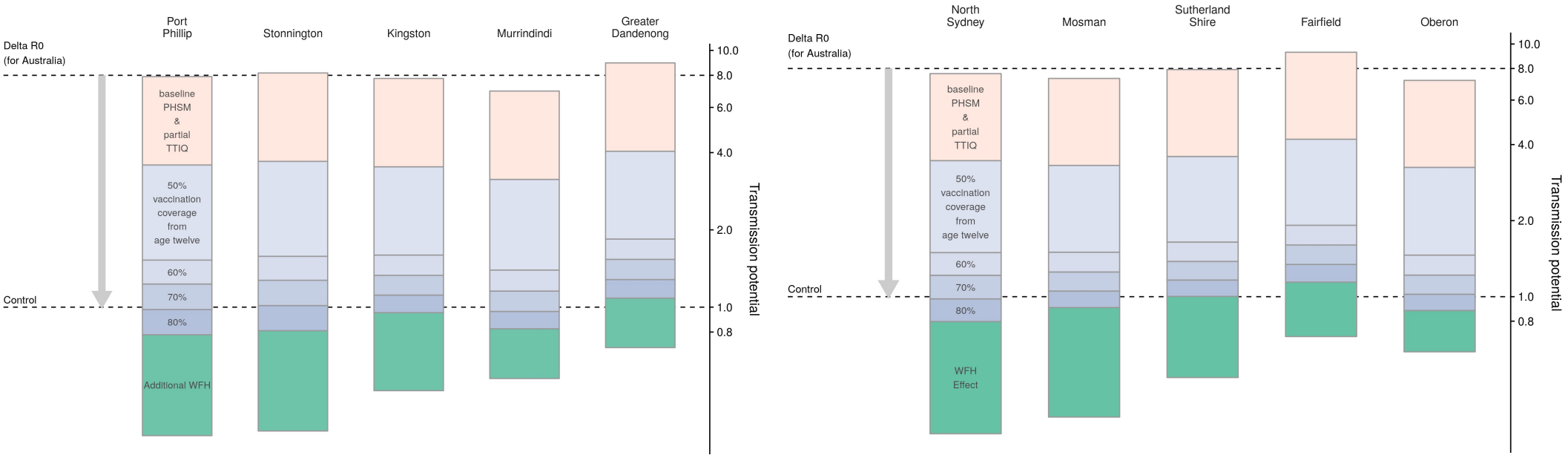
WP2 First Nations – Reactive immunisation

Remote community, population 1,018, baseline TP 10.7
Starting 2 dose vaccine coverage ~50% for >50 years, ~25% for 40-49 years, <10% for <40 years

Reactive vaccine delivery

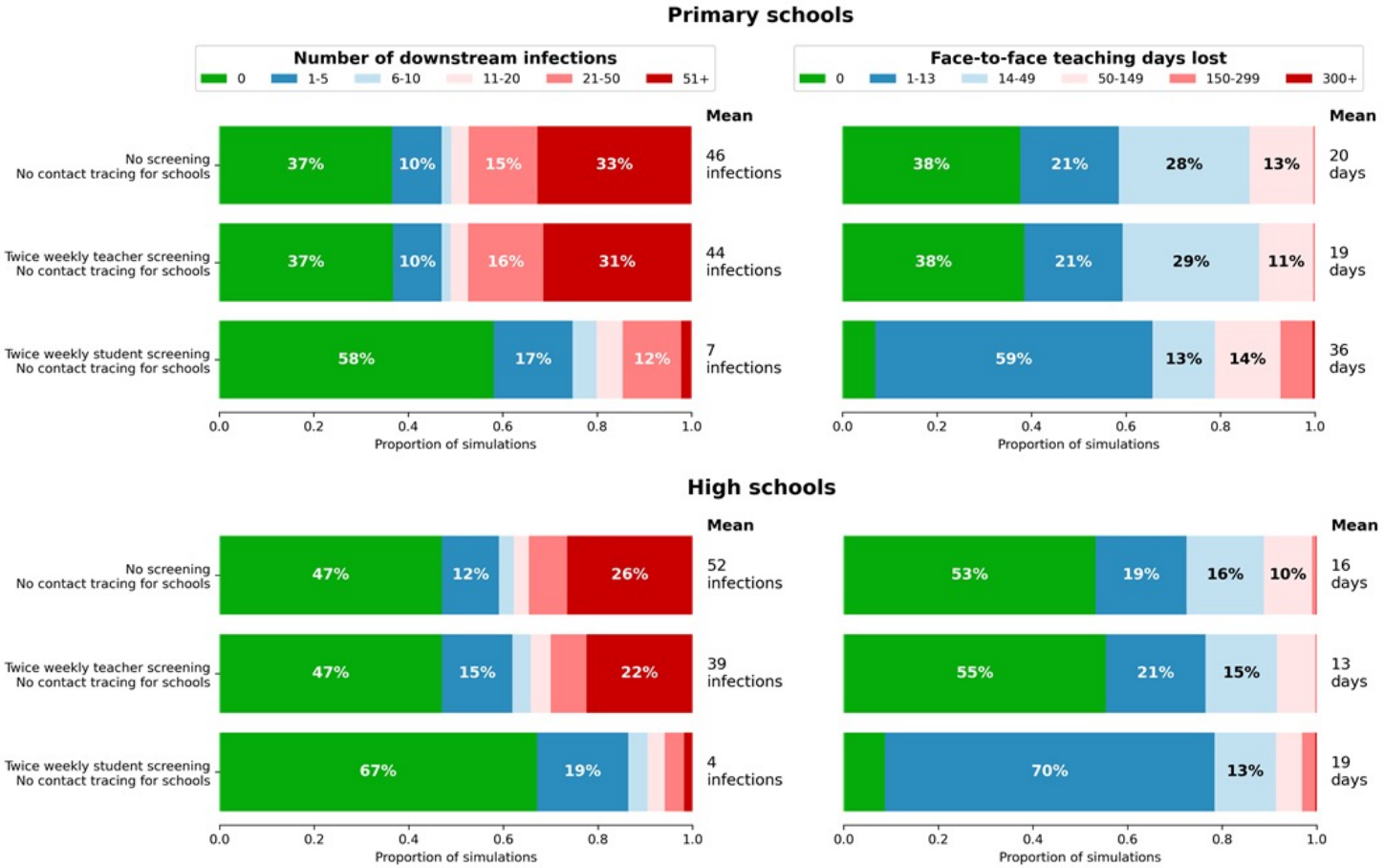
	None	**Low (30/day, 13 days)**	**Medium (75/day, ~5 days)**	**High (120 per day, ~3 days)**
				
Symptomatic	248	180	166	160
Hospitalisations	49	26	26	26

WP2 LGAs – Baseline TP, vaccine & PHSM impacts

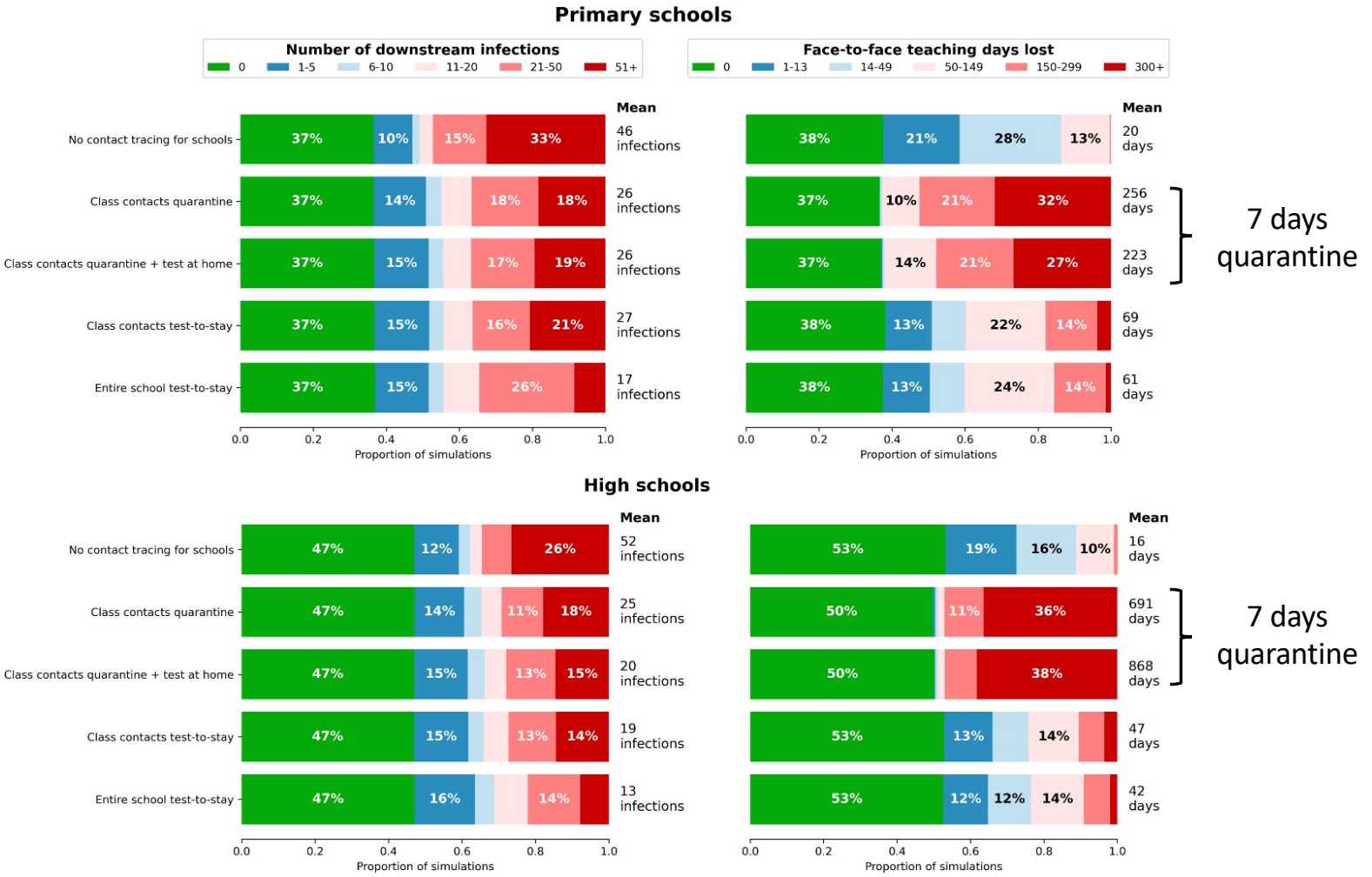


**Additional WFH relates to the anticipated impact of 'stay at home' orders to reduce transmission, based on occupations*

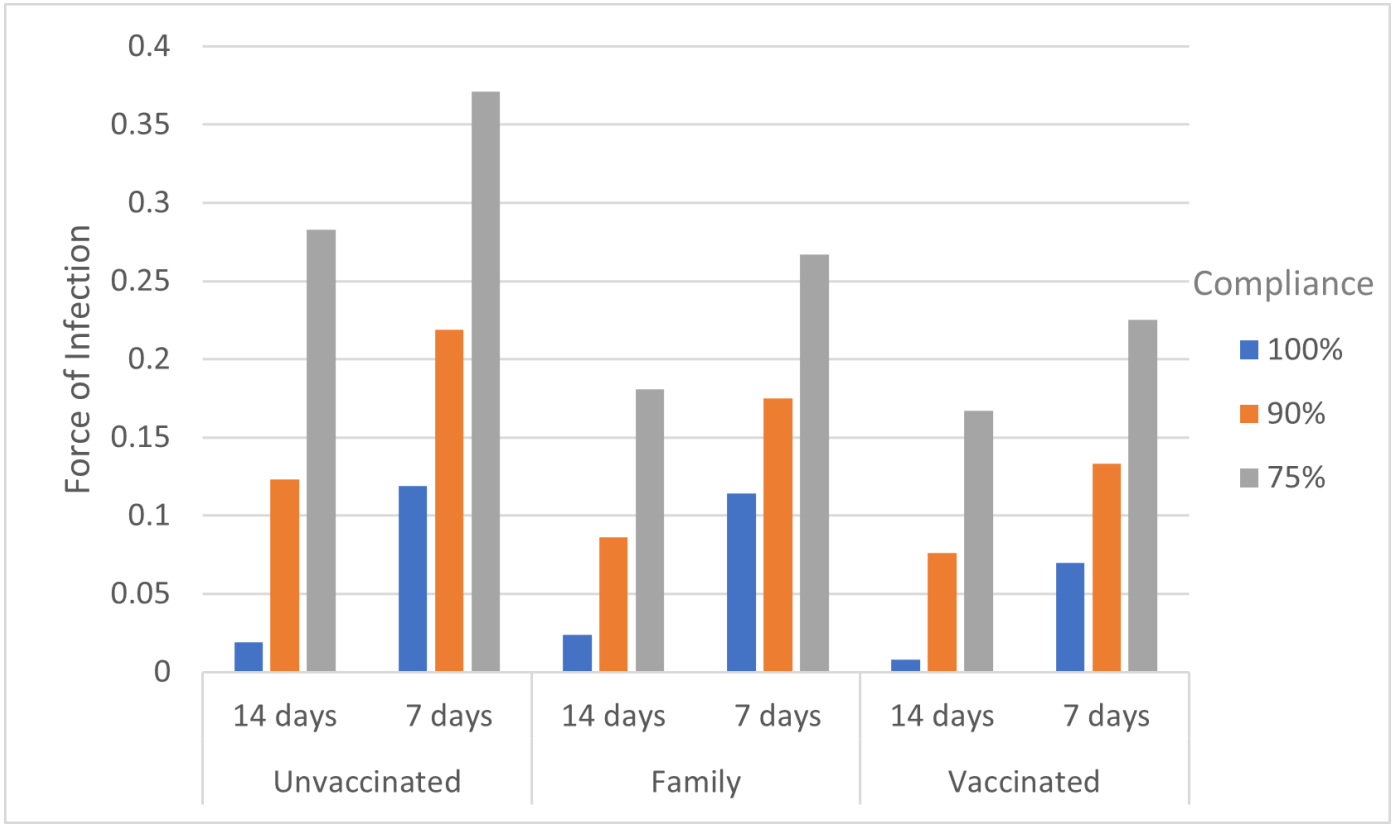
WP2 Schools – surveillance strategies



WP2 Schools – contact management

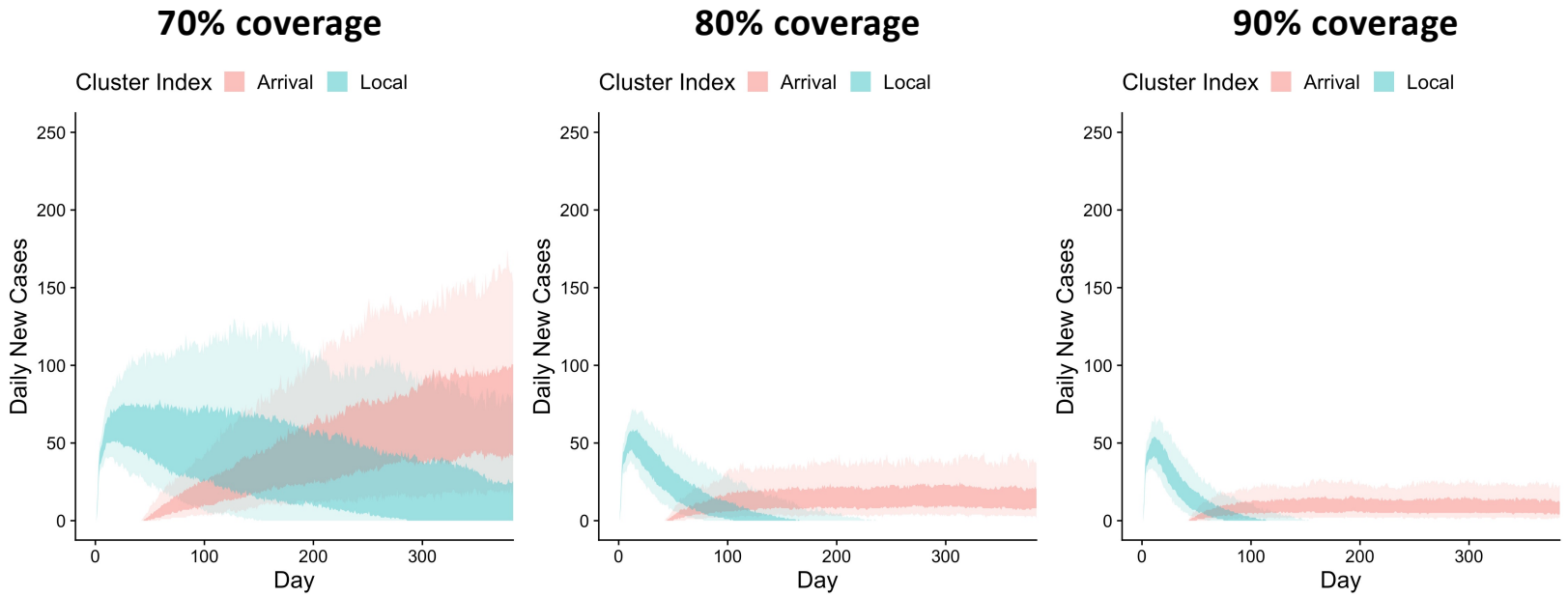


WP3 Borders – Family arrivals (half-vaccinated)



**Force of infection is a measure of community exposure days adjusted for infectiousness, per infected arrival*
***Percentages refer to compliance with home quarantine requirement, per day*

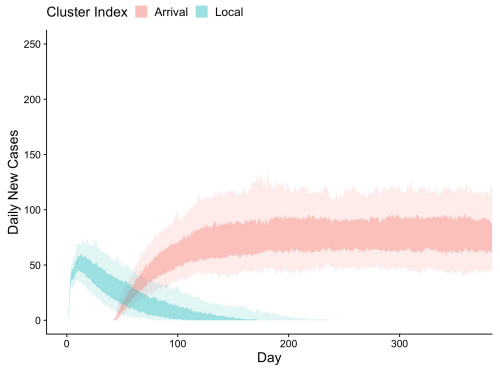
WP3 Borders – Scenario 1 *(endemic cases, partial TTIQ, low PHSMs)*



Citizen and PR arrivals @40% of 2019, large jurisdiction (32,767/week)
Family arrivals constitute 17.9% of total travellers
Above plots assume 7 days home quarantine for all arrivals

- 90% compliance, PCR testing on days 1 and 5

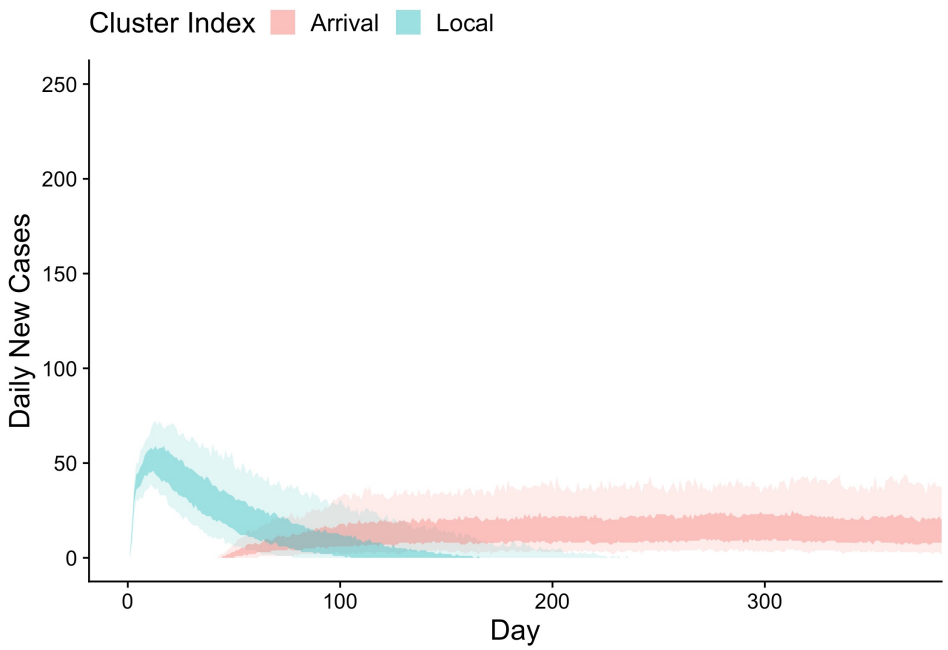
Plot on right compares no quarantine, testing days 1 and 5, 80% coverage



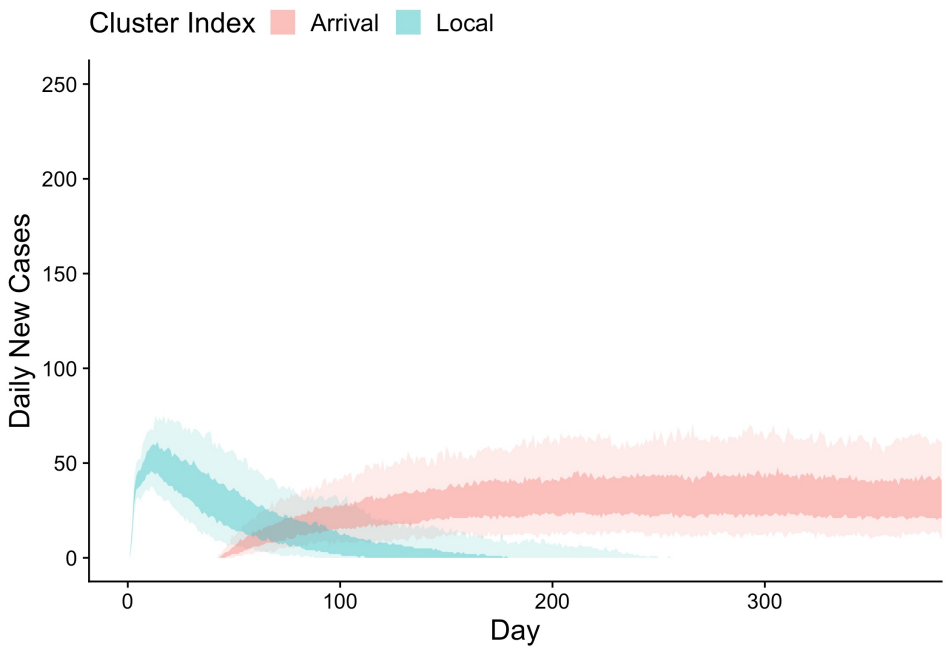
WP3 Borders – Scenario 1 *(endemic cases, partial TTIQ, low PHSMs)*

80% vaccine coverage, families 17.9% of travelers, 7 days home quarantine (90% compliance)

40% of 2019 arrivals



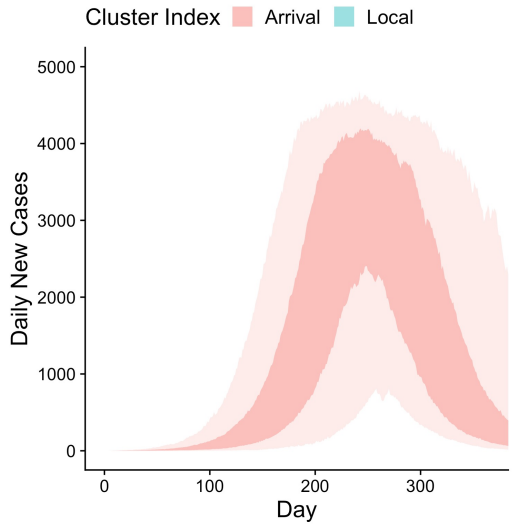
80% of 2019 arrivals



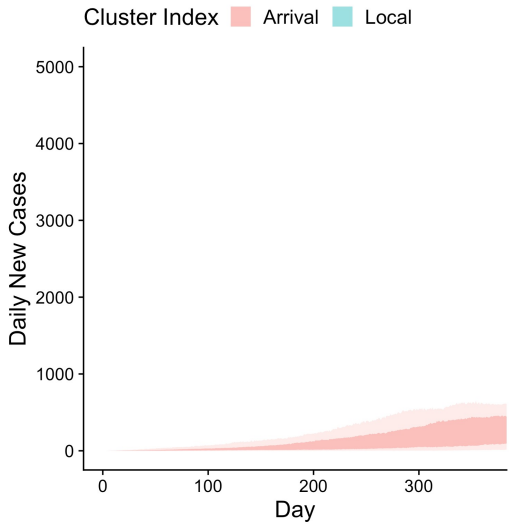
**Citizen/PR arrivals as proportion of 2019 traveler volumes, large jurisdiction: 40% (32,767/week), 80% (65,534/week)*

WP3 Borders – Scenario 2 *(zero-COVID, optimal TTIQ, baseline PHSMs)*

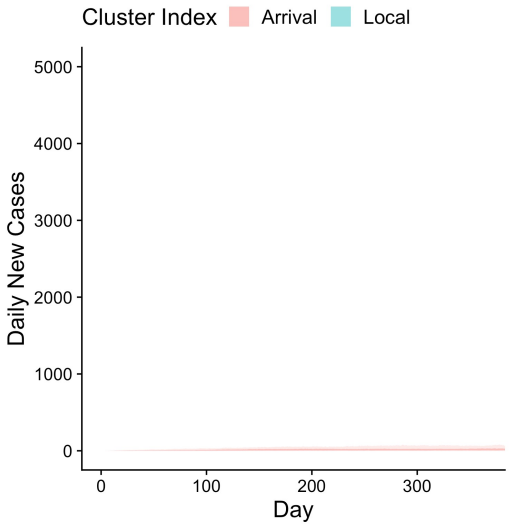
70% coverage



80% coverage



90% coverage



Citizen and PR arrivals @40% of 2019, smaller jurisdiction (10,363/week)
Family arrivals constitute 18.2% of total travellers
Above plots assume 7 days home quarantine for all arrivals

- 90% compliance, PCR testing on days 1 and 5

Plot on right compares no quarantine, testing days 1 and 5, 80% coverage