Pandemic (H1N1) 2009 Update: New Zealand's Experience

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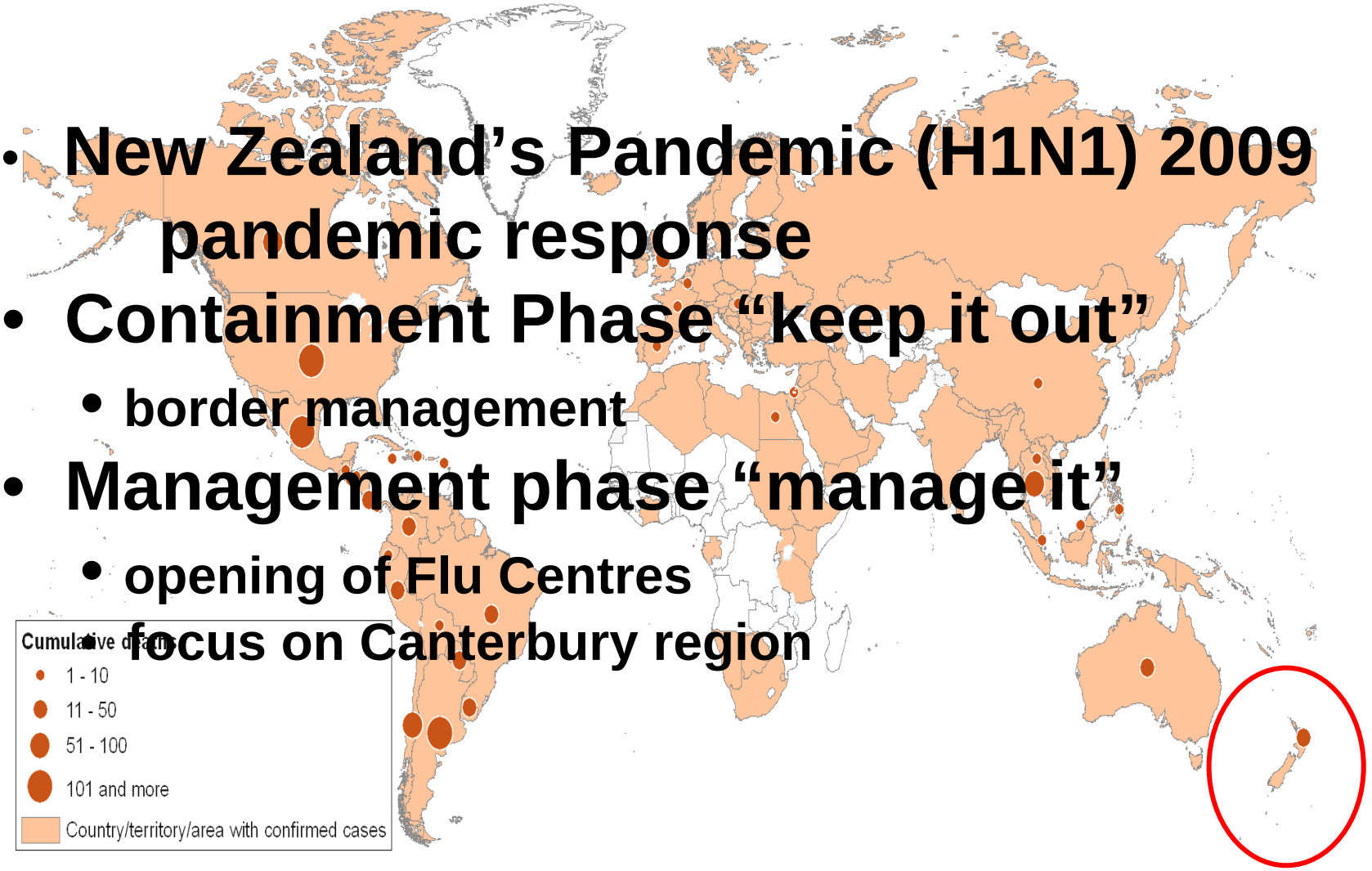
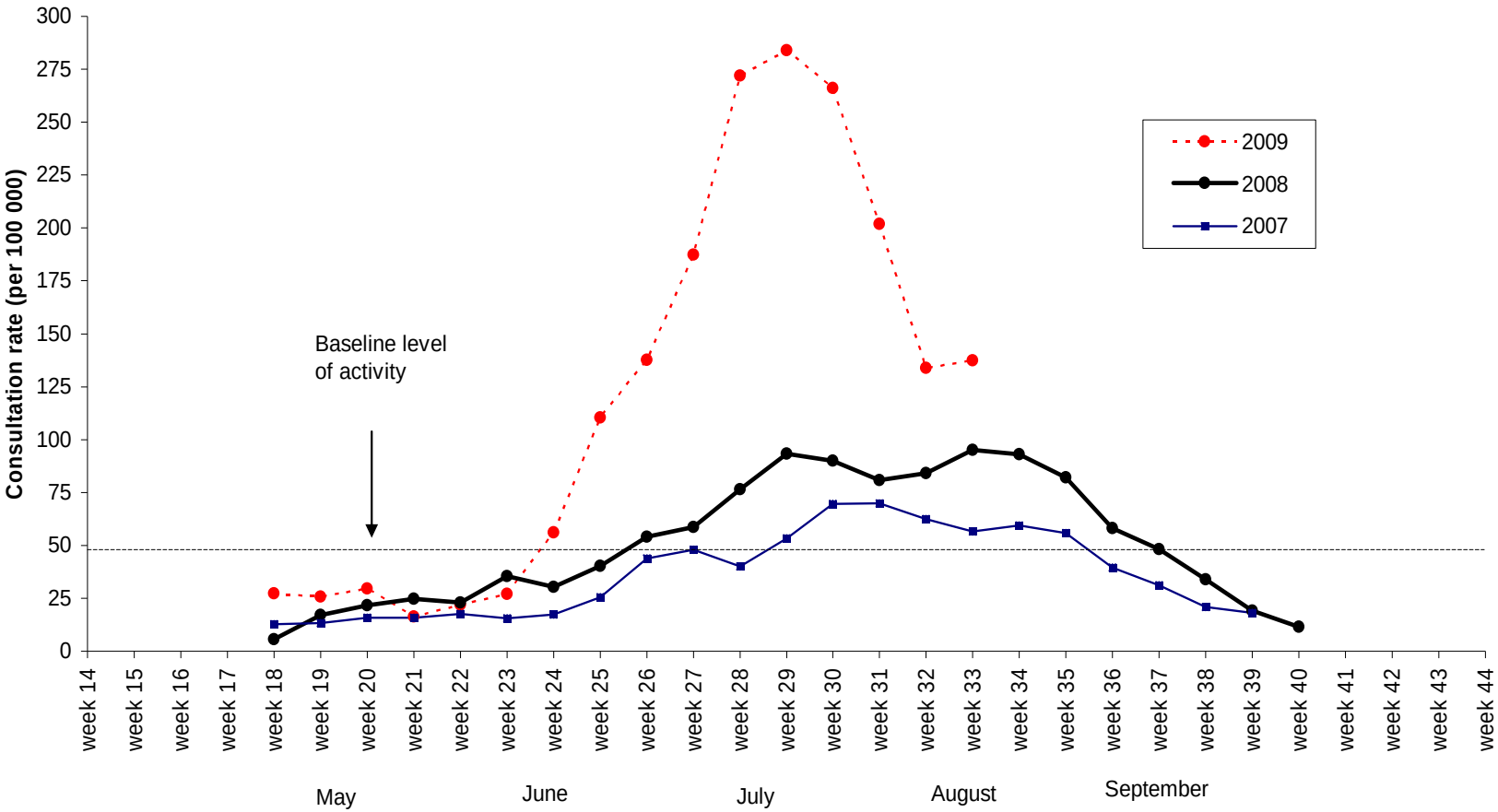
Outline

- New Zealand's Pandemic (H1N1) 2009 pandemic response
- Containment Phase "keep it out"
  - border management
- Management phase "manage it"
  - opening of Flu Centres
  - focus on Canterbury region

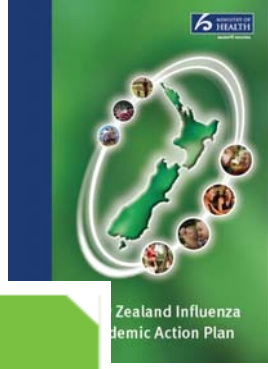


NZ Weekly ILI Sentinel GP Consultation Rates



ESR/NCBID Aug 2009

NZ Influenza Pandemic Action Plan



WHO Period*	WHO Phase*	NZ Scenario**	Main Strategy	MOH/DHB Alert Code***
Interpandemic period	Phase 1	Scenario 1.1	Planning	N/A
	Phase 2	Scenario 2.1		
		Scenario 2.2		WHITE (information/ advisory)
Pandemic alert period	Phase 3	Scenario 3.1		
		Scenario 3.2		
		Scenario 3.3		YELLOW (standby)
		Scenario 3.4		
	Phase 4	Scenario 4.1	Border management	
		Scenario 4.2		YELLOW/RED depending on district/ region and exact situation
	Phase 5	Scenario 5.1		
		Scenario 5.2		
Pandemic period	Phase 6	Scenario 6.1		
		Scenario 6.2	Cluster control	
		Scenario 6.3	Pandemic management	RED (activation)
		Scenario 6.4		
Post-pandemic period	Post-pandemic period		Recovery	GREEN (stand down)

http://www.moh.govt.nz/pandemicinfluenza

NZ Influenza Pandemic Plan outline

Plan for it

- Engage with all relevant agencies

Keep it out

- Border management

Stamp it out

- Cluster control operations

Enhanced Surveillance

Manage it

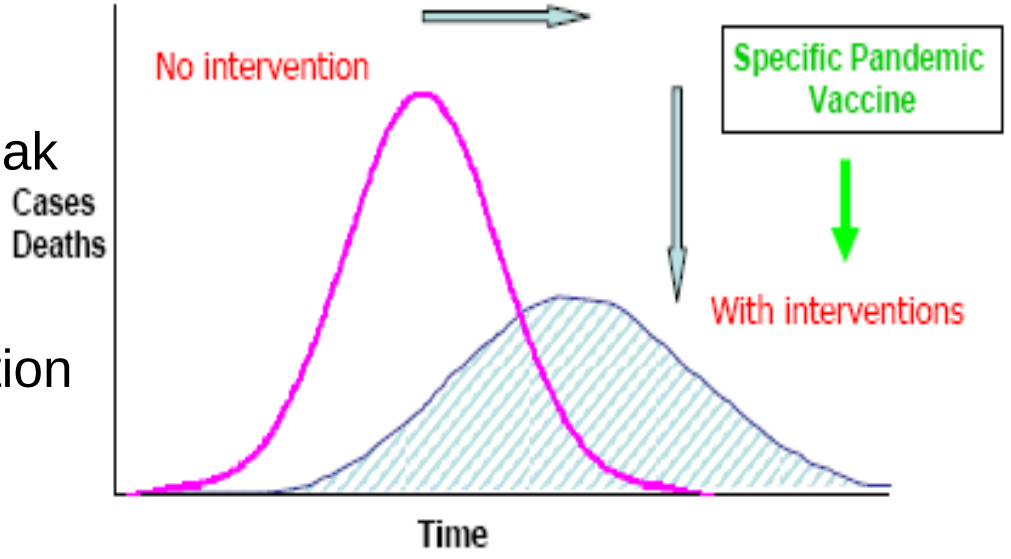
- Public health measures,
- Public gatherings, antivirals

Recover from it

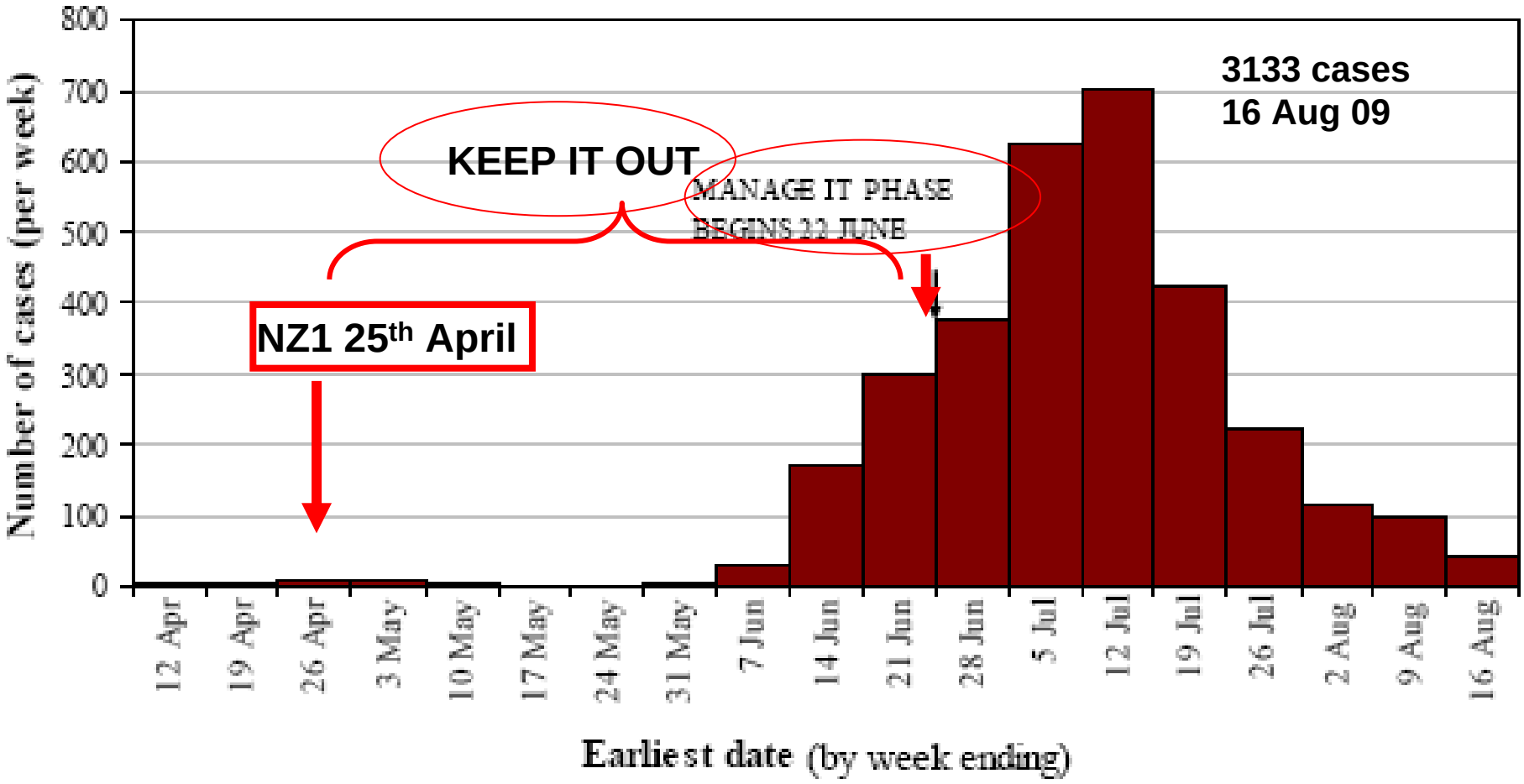
- Return to normal service delivery

Objectives of Action Plan

- **Primary Objective**
  - Reduce transmission & so number of infections, illness & deaths
- **Secondary Objectives**
  - Delay & flatten outbreak peak
  - Reduce peak burden on healthcare system
  - Buy some time for preparation & developing pandemic vaccines

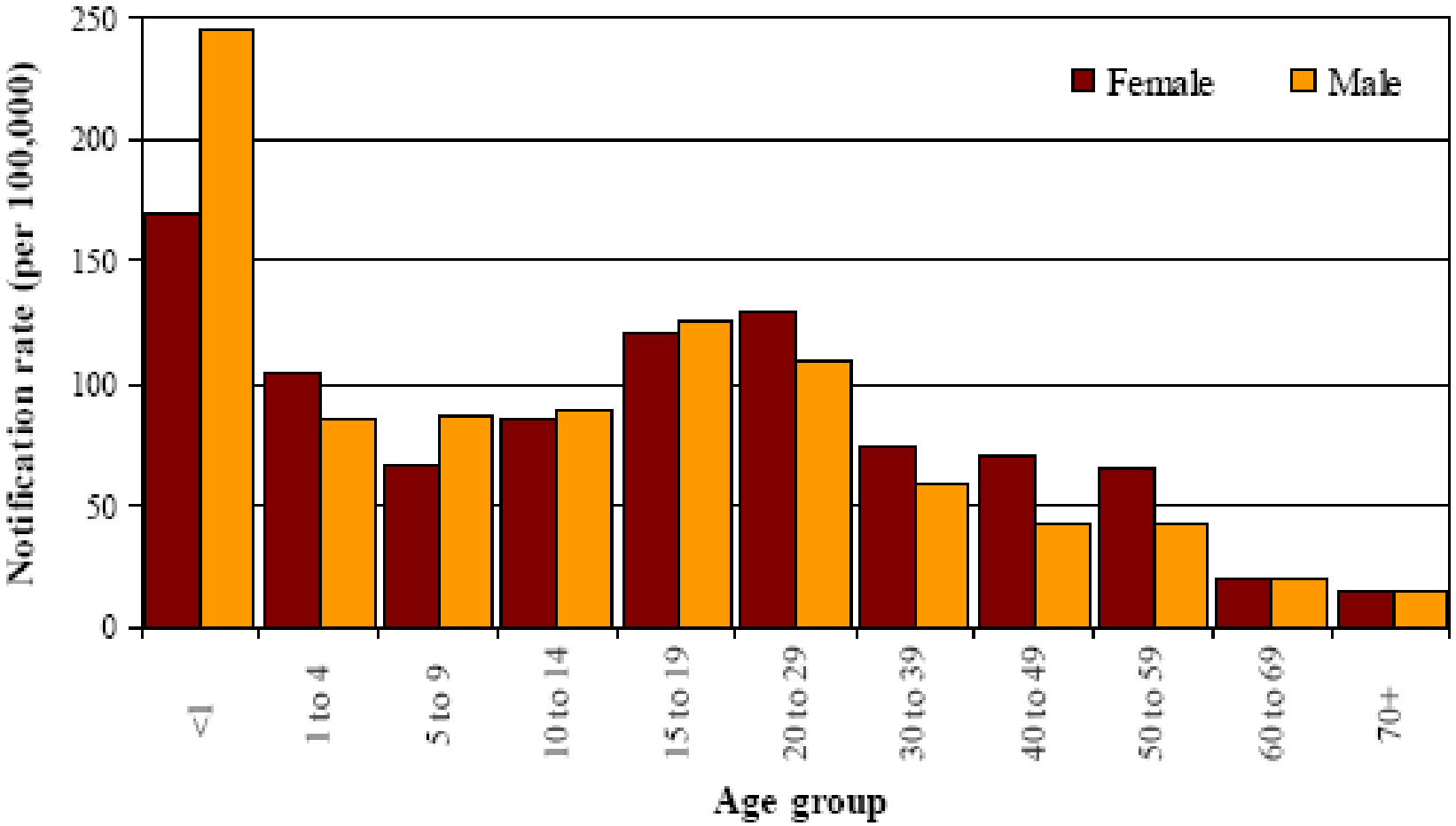


Pandemic (H1N1)2009 NZ Epidemic Curve: Important events



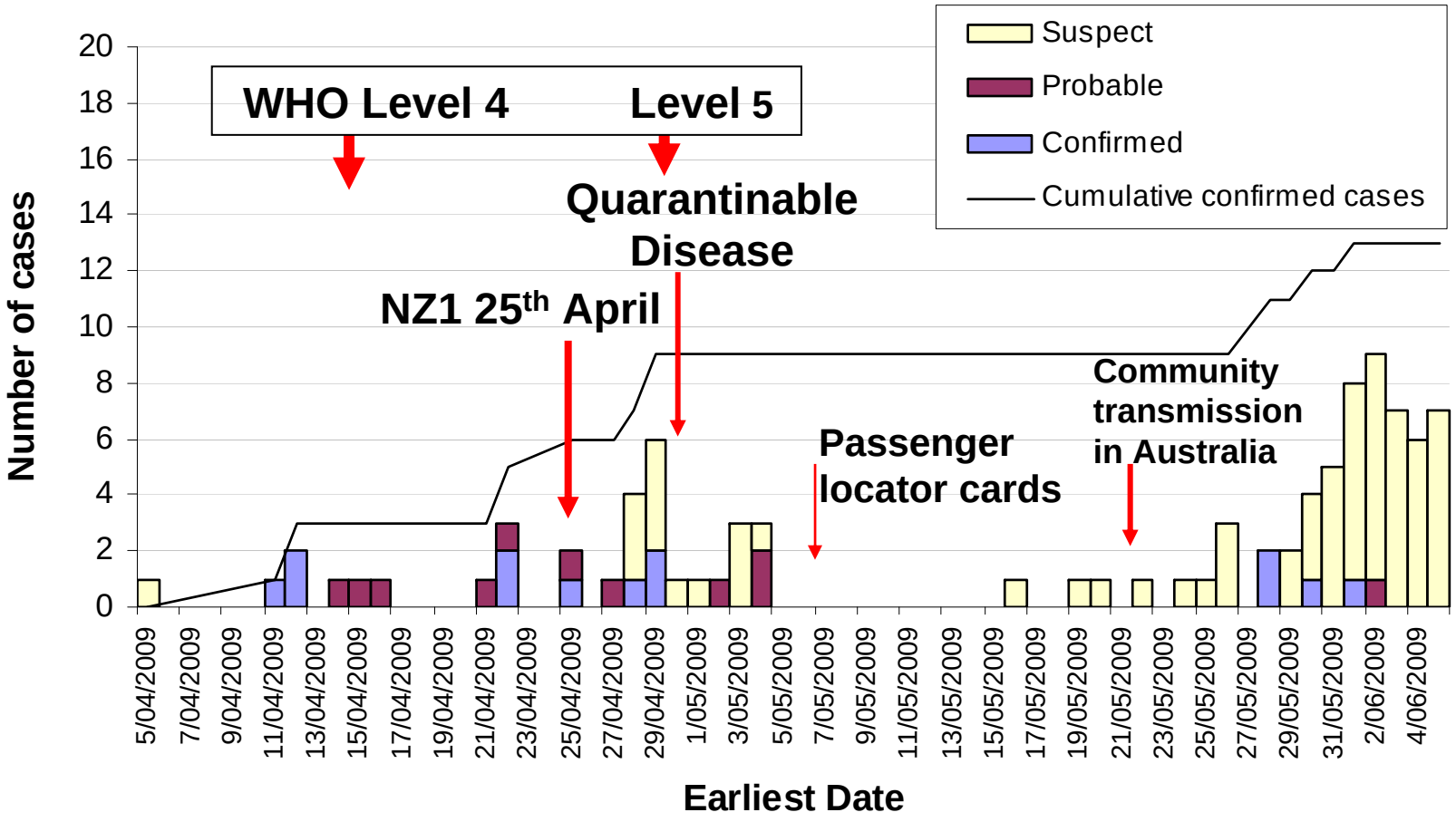
ESR/NCBID/NHCC data

NZ Cases by Age & Sex



ESR/NCBID/NHCC data

‘Keep It Out ‘ Phase,
April-May 2009



Earliest of date reported, date hospitalised, date of death or onset date, as recorded in EpiSurv.

NHCC data 2009

‘Keep It Out’ Phase

Depended on:

- Maximising the detection and effective management of infected and potentially infectious people arriving in NZ.
  - Public Health announcement on all incoming aircraft
  - Positive pratique of all incoming aircraft and ships (ie, 100% health status reported from all aircraft).
- Completed passenger locator card to allow contact tracing.
- Public health staff at airports to carry out clinical assessments.
- All suspect cases and contacts managed with treatment and quarantine.

Border Closure / Border Management

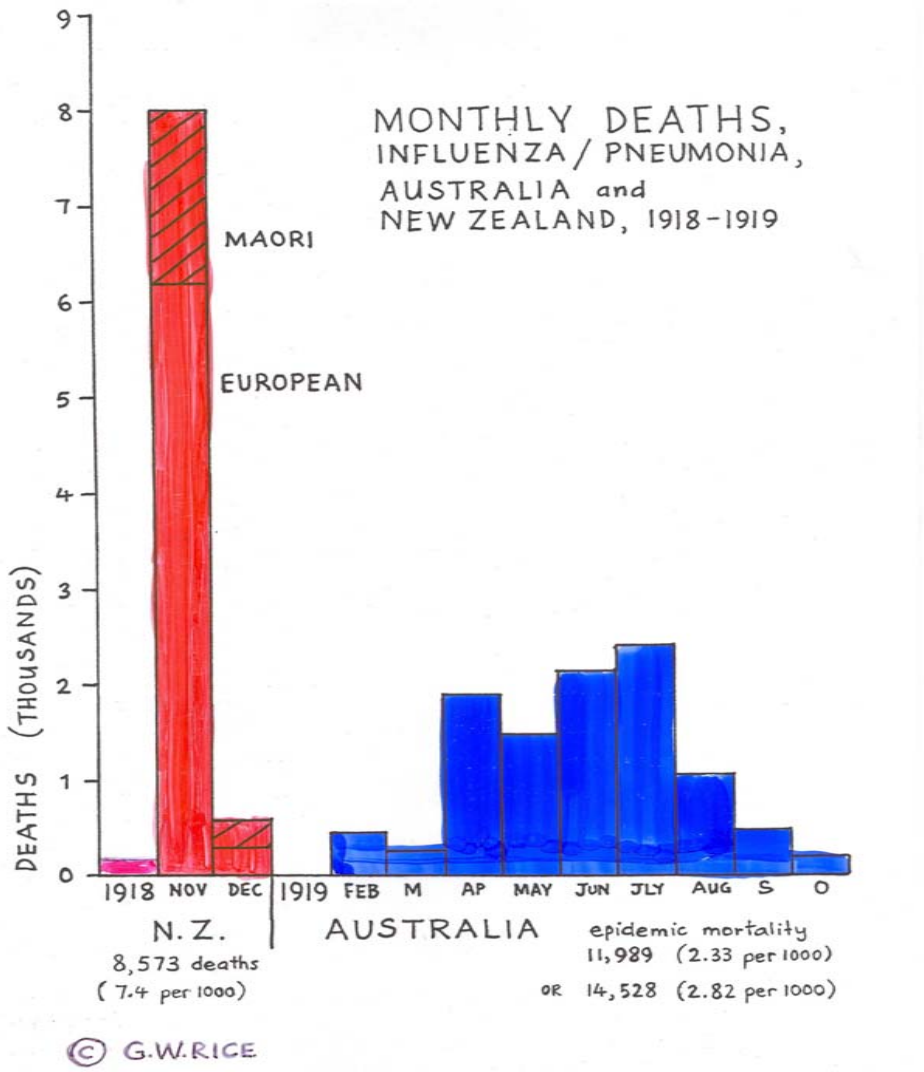
- Effectiveness?
  - "Unless little international travel to a country and almost complete cessation of travel, attempts at border closure will be unsuccessful in preventing entry."

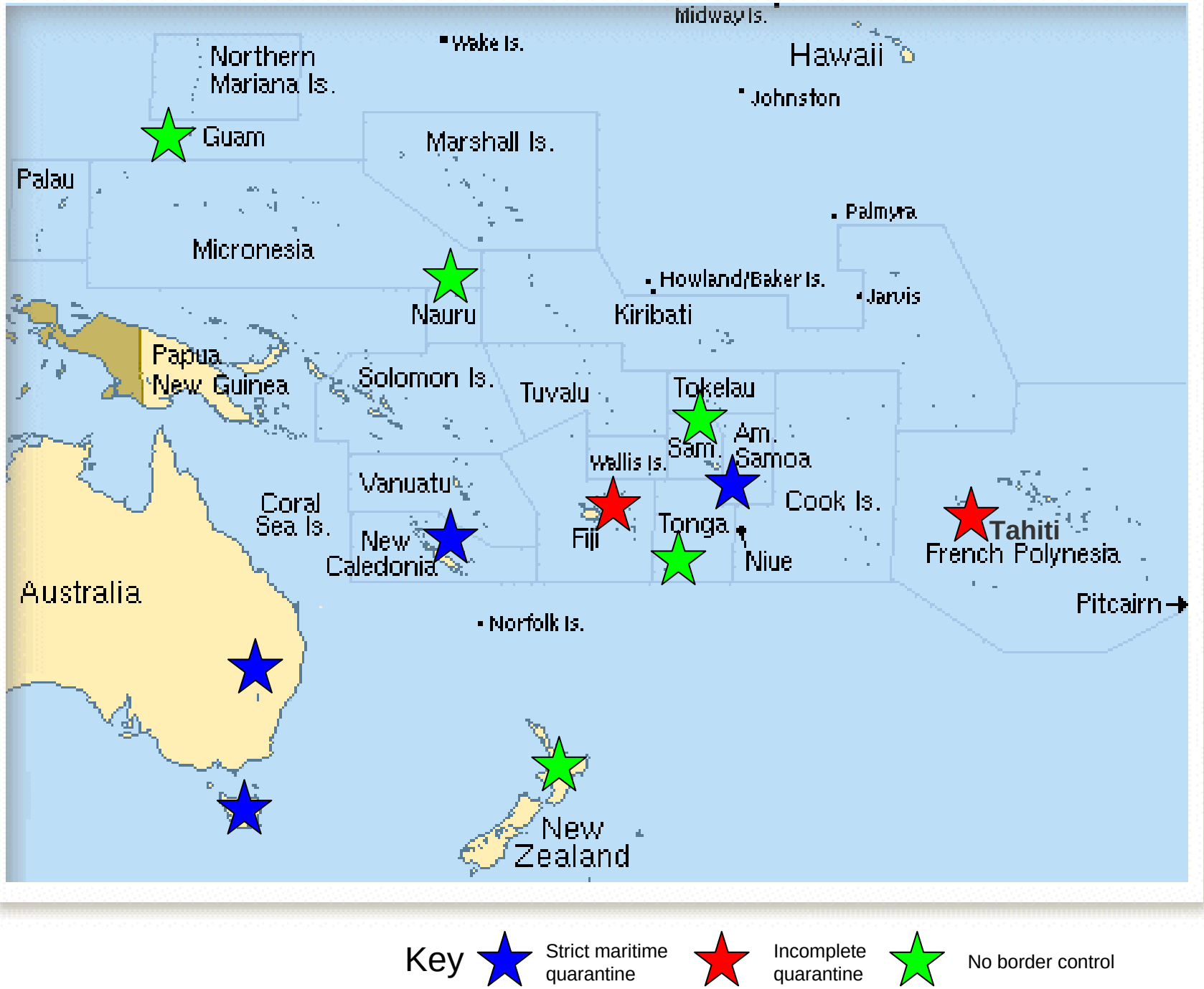
    Interim Guide to Public Health Measures: 'The ECDC Menu', 2007
  - Modelling exercises support this unless almost complete and rapidly implemented.

    Cooper BS et al. PLosMed 2007:3;212

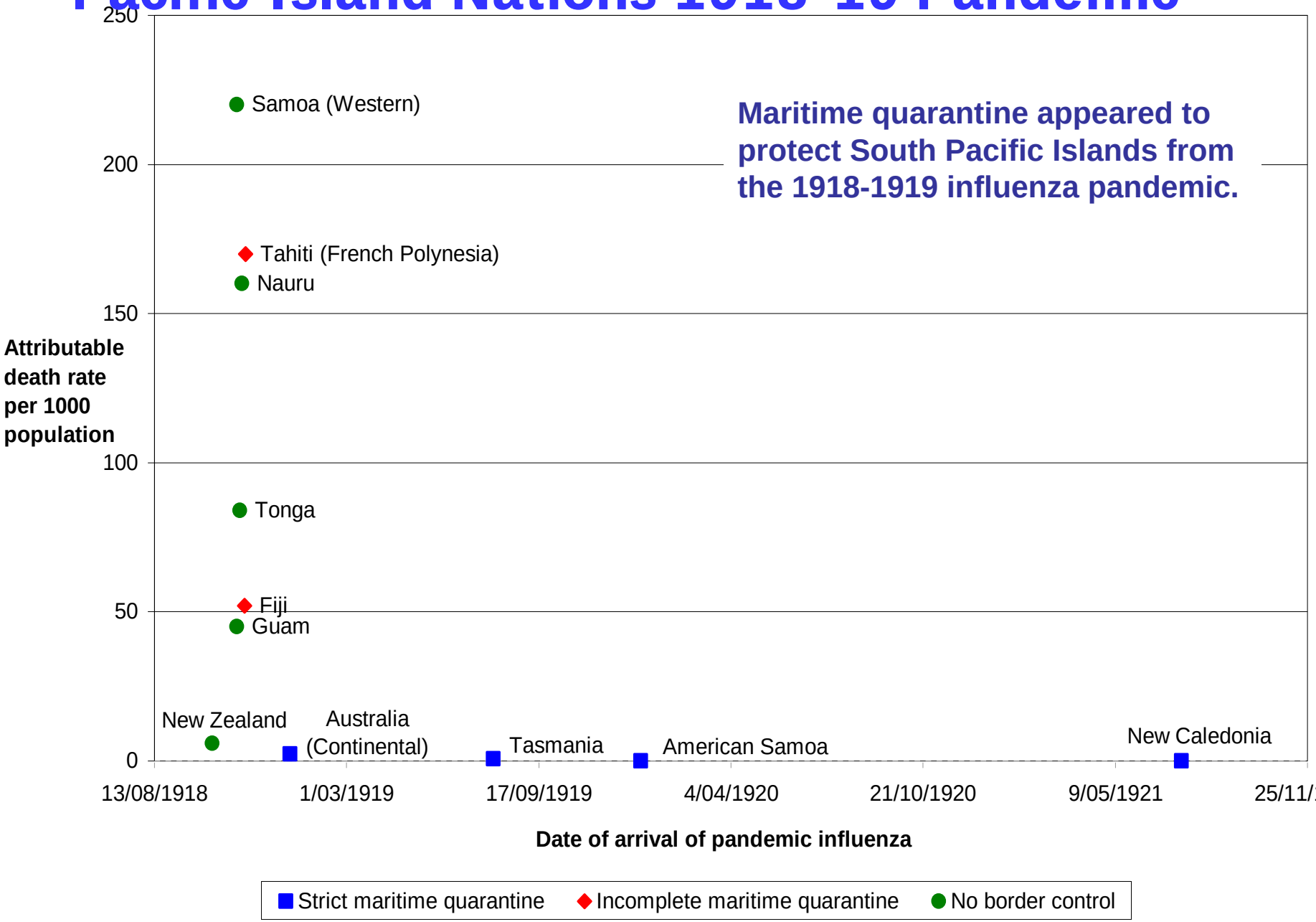
  WHO
  - has placed little emphasis on border closure except for 'isolated communities'

NZ & Australia 1918-19 Pandemic




Midway Is.
Wake Is.
Hawaii
Northern Mariana Is.
Johnston
Guam
Marshall Is.
Palau
Palmyra
Micronesia
Howland/Baker Is.
Jarvis
Nauru
Kiribati
Papua New Guinea
Solomon Is.
Tuvalu
Tokelau
Am. Samoa
Sam.
Wallis Is.
Vanuatu
Coral Sea Is.
Cook Is.
Fiji
Tonga
Tahiti
French Polynesia
New Caledonia
Niue
Australia
Pitcairn
Norfolk Is.
New Zealand
Key
Strict maritime quarantine
Incomplete quarantine
No border control

Pacific Island Nations 1918-19 Pandemic



McLeod M. et al. Emerg Infect Dis 2009

Influenza in International Travellers Study

23 June to 12 September 2008

- **18,148 questionnaires were returned**
  - **16.8% were 'symptomatic' .**
  - **ILI (cough/sore throat + reported fever)**
- **Influenza prevalence**
  - **2000 samples from symptomatic travellers**
  - **2500 samples from asymptomatic travellers**.

Duncan, Priest, Jennings et al. Screening for Influenza Infection in International Airline Travelers. American Journal of Public Health 2009 [In Press].

Priest et al (in preparation)

- **Suggests**
  - **during the seasonal influenza season there will be ~ 120 people infected with influenza in every 10,000 arriving passengers.**

Baker et al. Discussion Paper May 2009

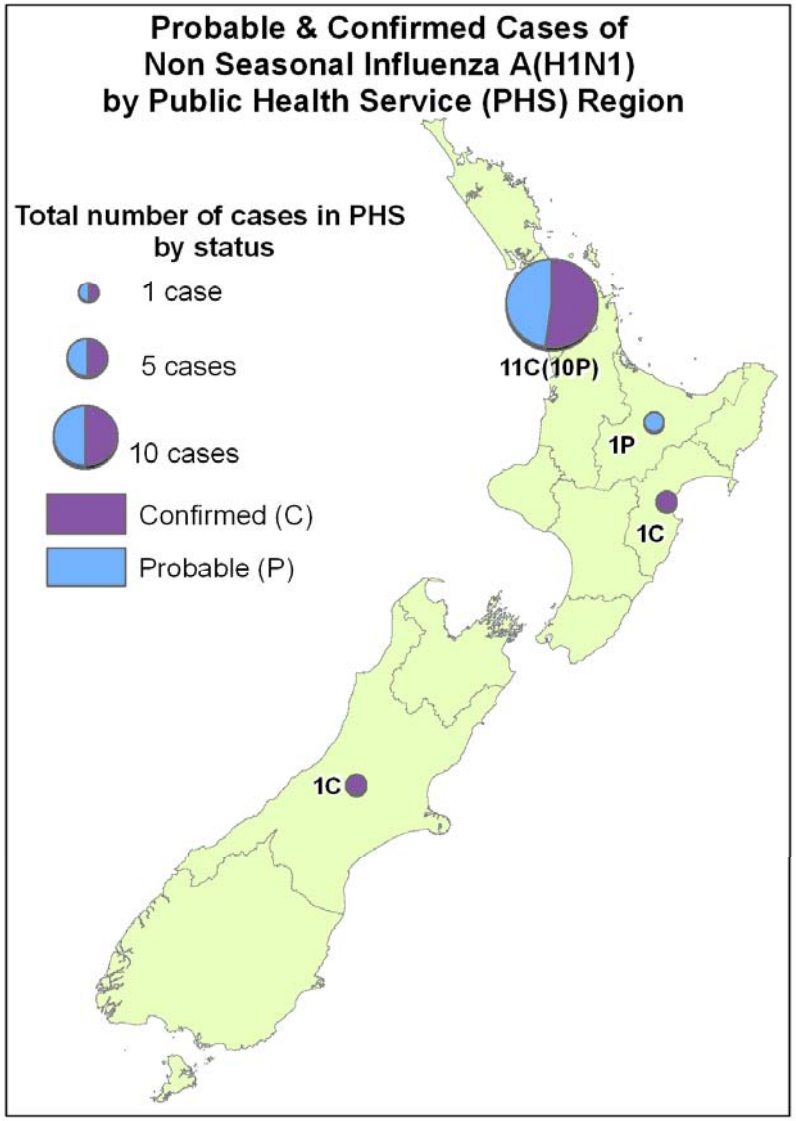
Estimated number of flights and passengers arriving at Auckland International Airport in a typical week (April-May 2009)

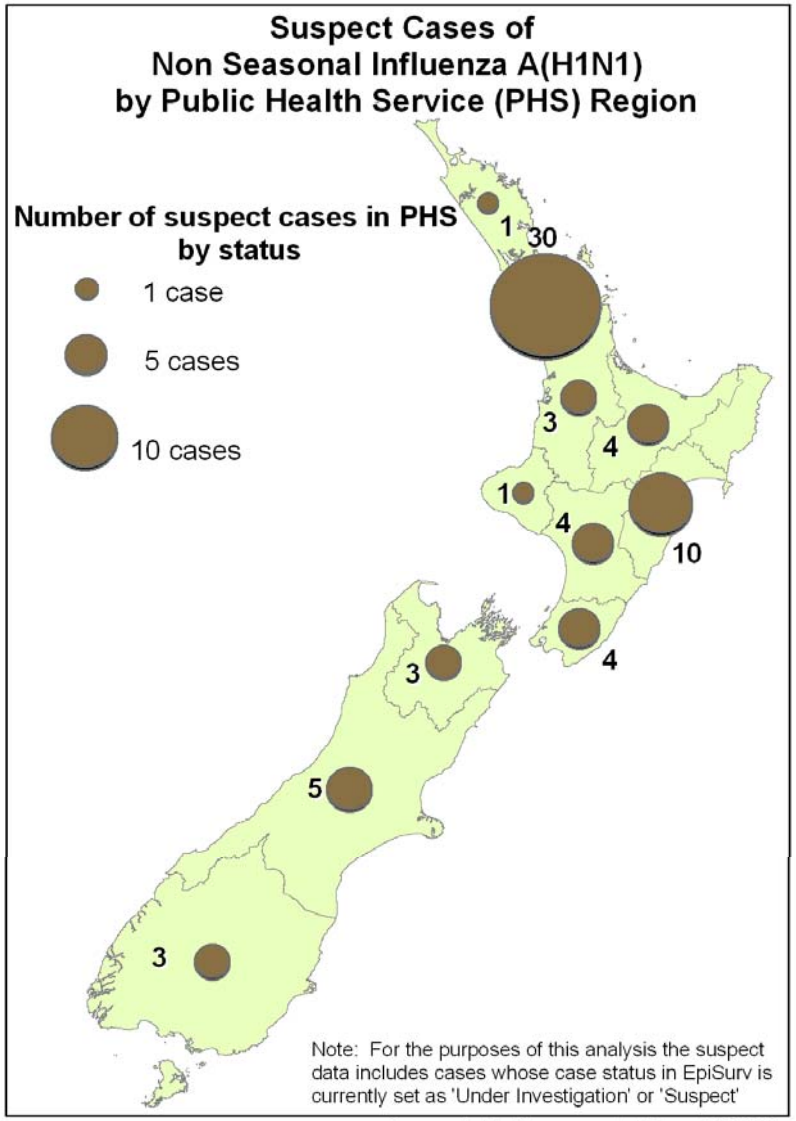
Day	Total		High risk countries[1]	
	Flights	Passengers	Flights	Passengers
Mon	47	7603	4	942
Tues	52	7532	4	1046
Wed	54	7095	3	699
Thurs	51	8399	3	777
Fri	51	8587	5	739
Sat	57	9700	3	810
Sun	66	11895	6	1561
Total	**378**	**60812**	**28**	**6574**

[1]**High risk countries = those in North America** (April-May 2009)

Baker et al. Discussion Paper May 2009

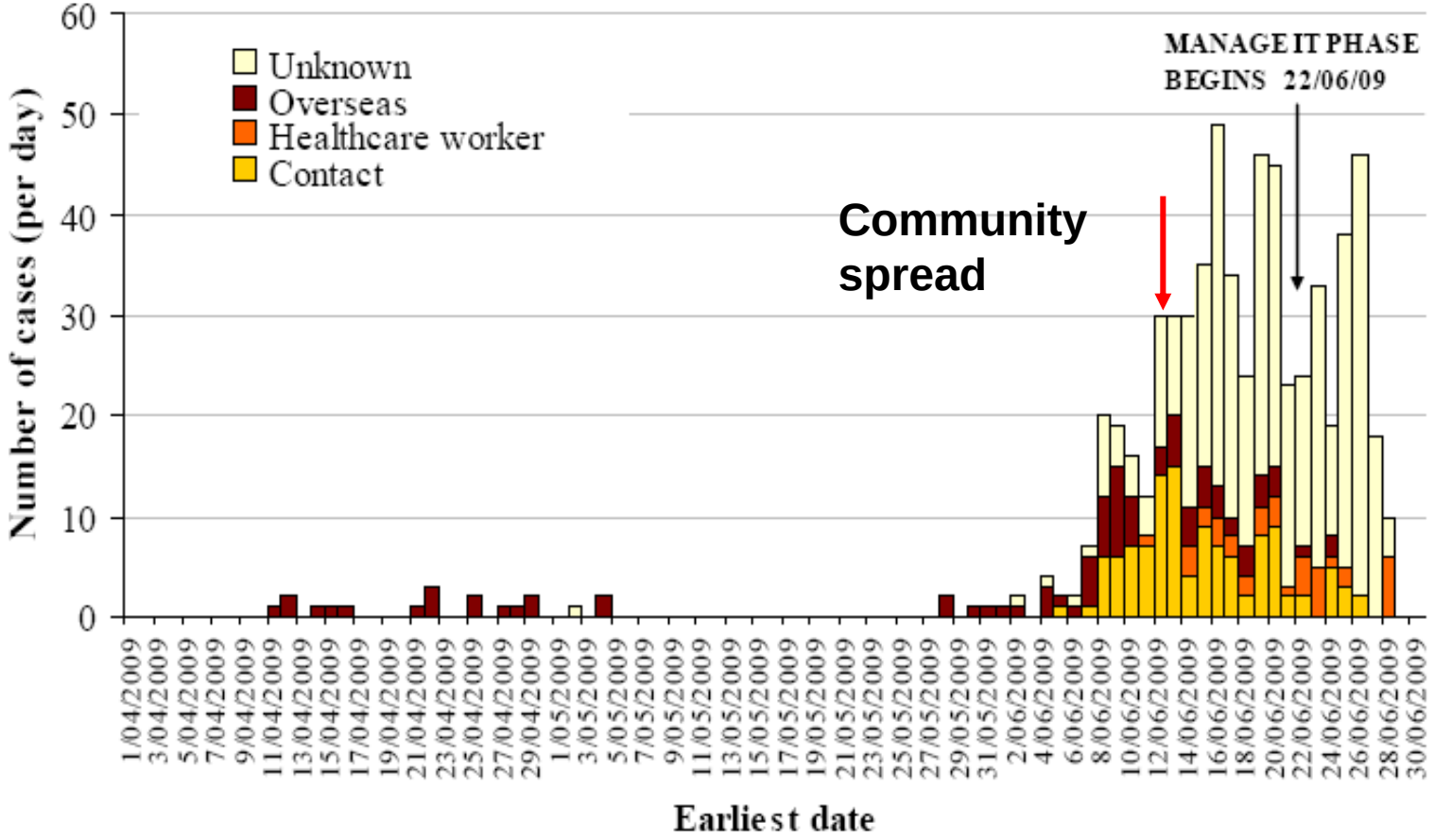
A(H1N1)2009 Cases 6th June





Cases in EpiSurv as at 10am 6/06/09

Cases & Risk Factors April-June

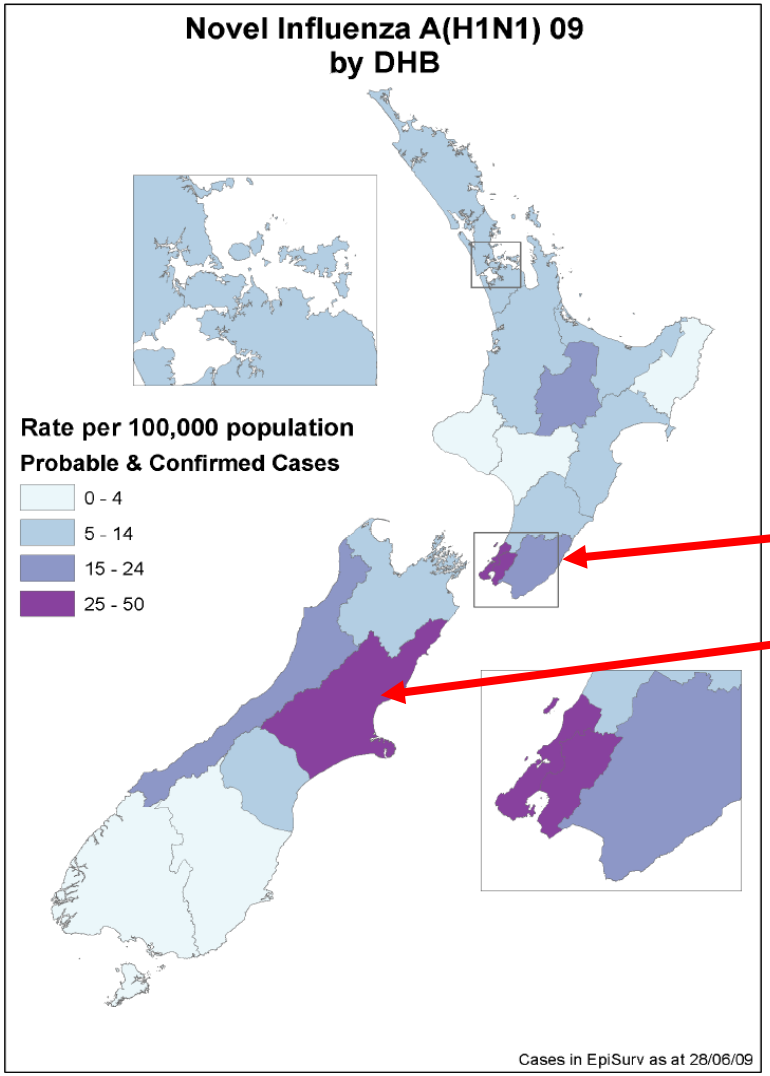


Earliest of date reported, date hospitalised, date of death or onset date, as recorded in EpiSurv.

Management Phase

- NZ ‘Manage it’ phase
  - Announced 19th June

(H1N1)2009 by 3 July



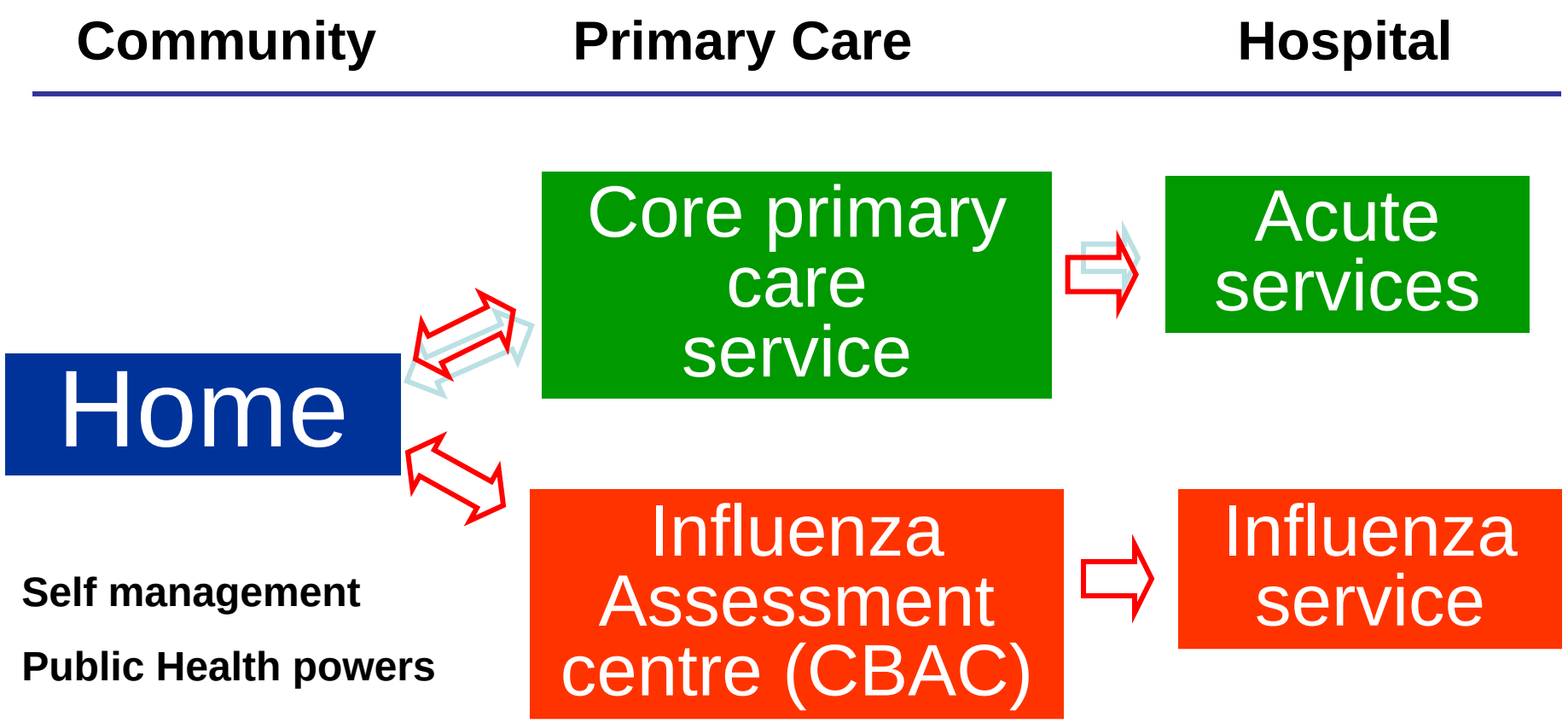
Wellington

Canterbury

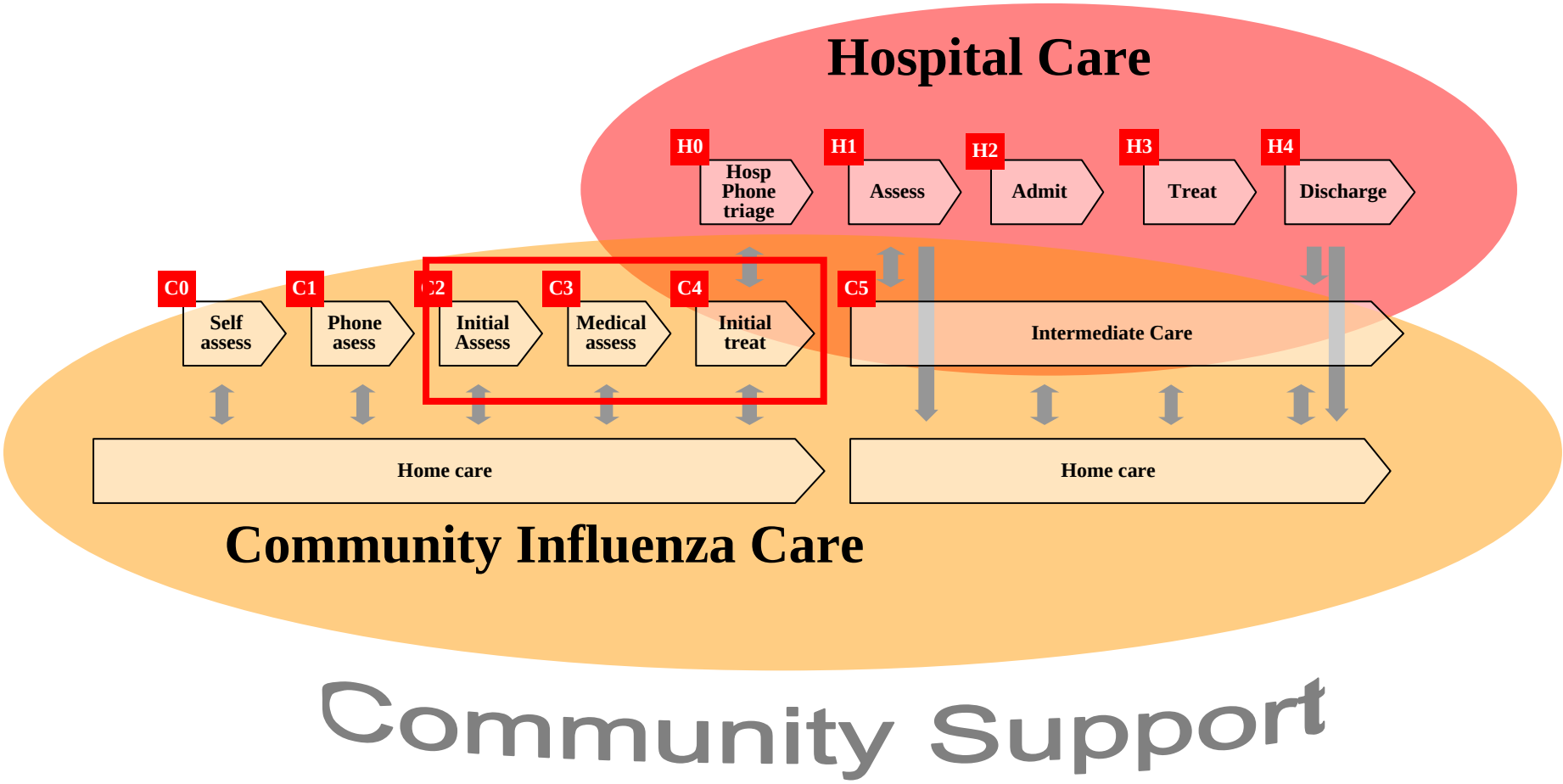
ESR/NZBID 2009

1° & 2° Healthcare Strategy:

Separated streamed services



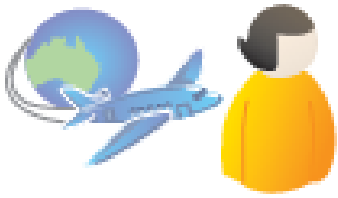
Red Stream
Influenza care pathway



CDHB *Draft* 2006

The spread of swine flu

How one person has infected or affected more than 630 people.



Grandmother returns from Australia with swine flu and infects ...

4th June 2009

12-year-old female family member

Grandson, 8

Granddaughter, 23

Grandson, 4

Daughter, 40

13-year-old female family member

Grandson, 13

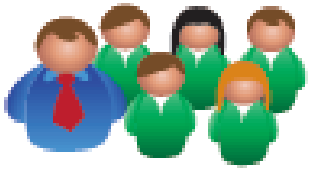
LINWOOD INTERMEDIATE
4 teachers and **25** pupils quarantined

SAMOAN METHODIST CHURCH MINISTER
All people at Sunday service being traced

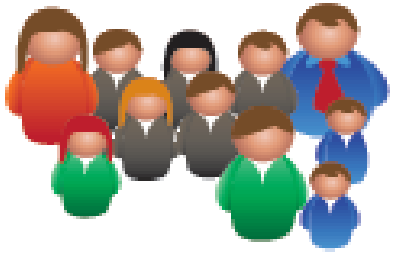
TINO E TASI PRESCHOOL
10 staff and **49** pupils quarantined

LINWOOD COLLEGE
4 teachers and **35** pupils quarantined

BURNSIDE HIGH SCHOOL
77 teachers and pupils quarantined



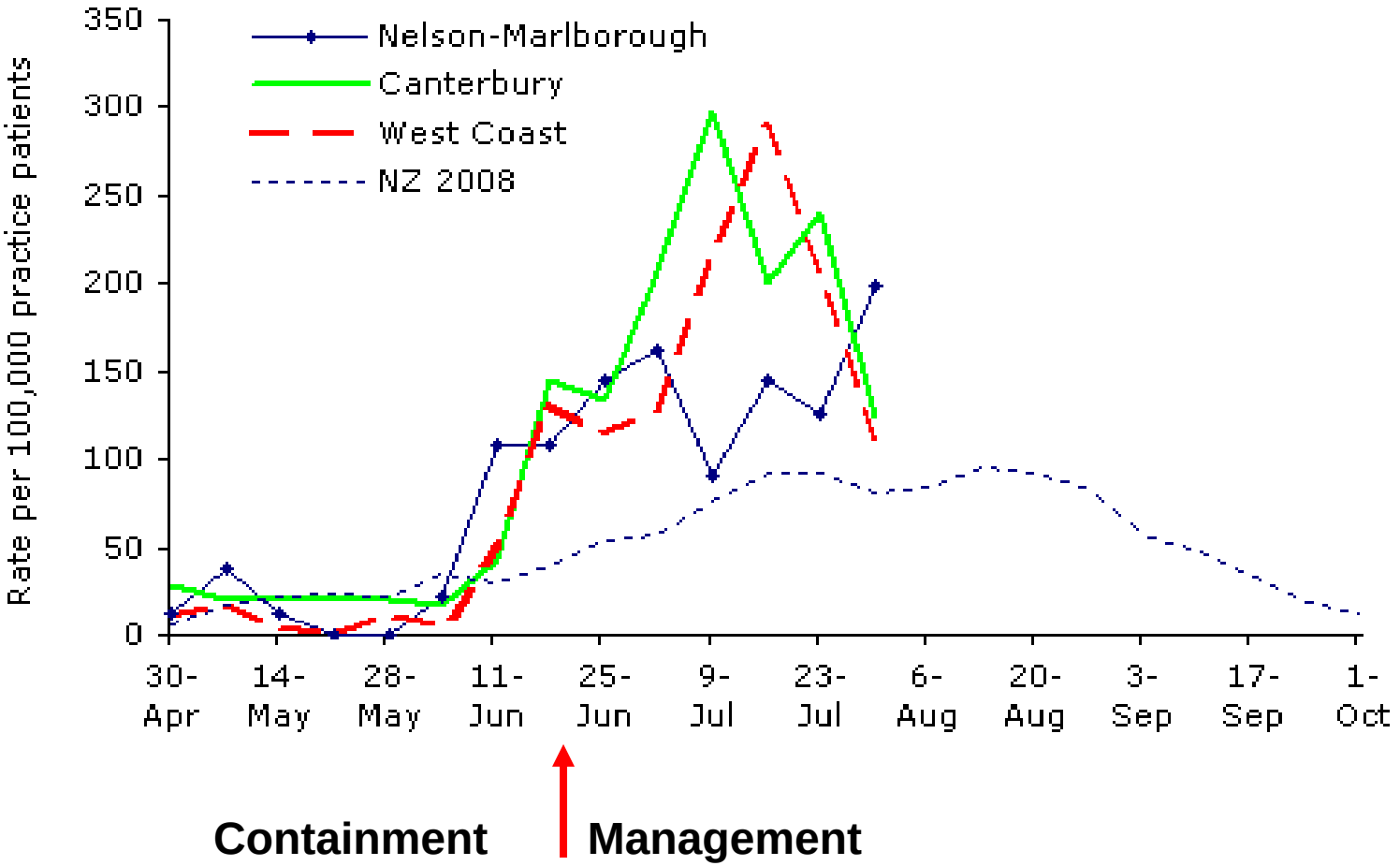
BROMLEY SCHOOL
80 pupils quarantined, a further 220 pupils off school and **27** staff off work



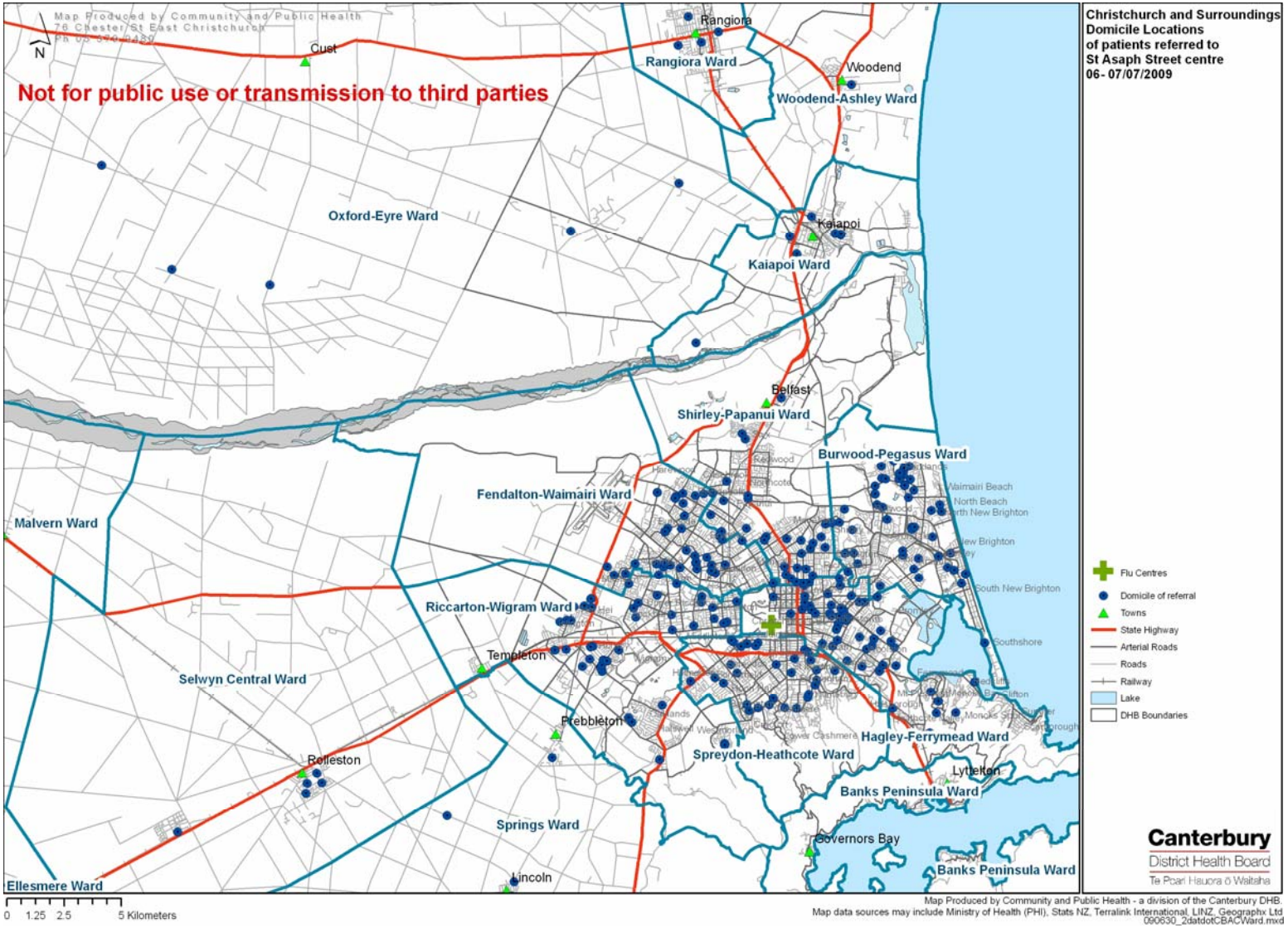
SEA PRODUCTS
Factory closed and **94** workmates quarantined

The Press, 12th June 2009

Canterbury: Escalation

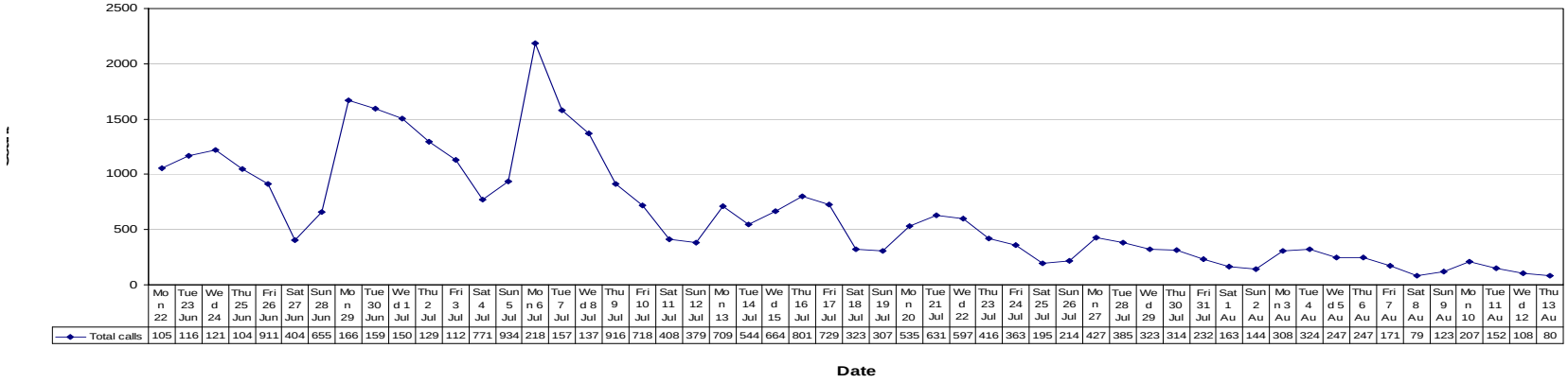


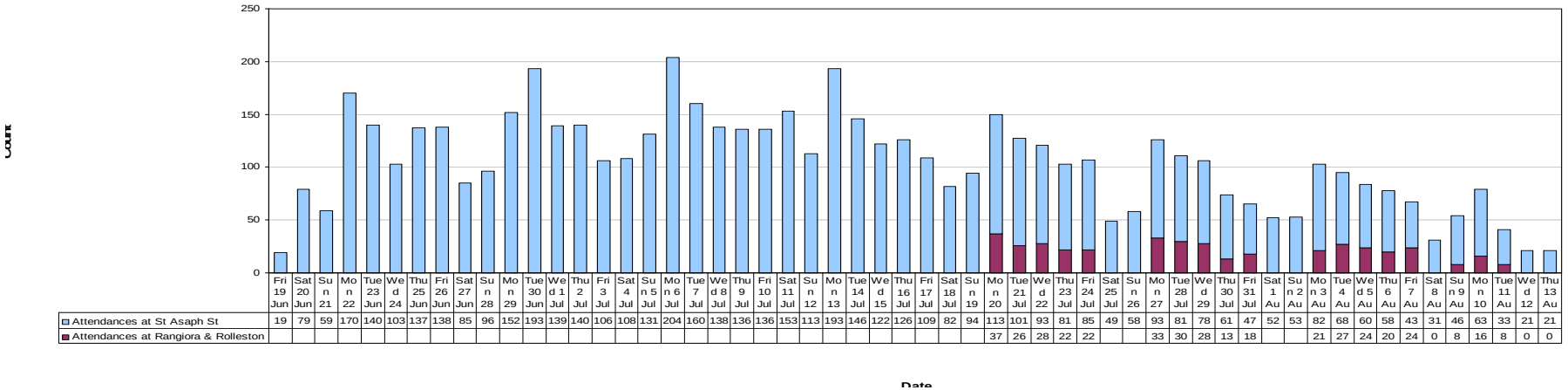
Canterbury: Spread by 30th June



St Asaph St Flu Centre

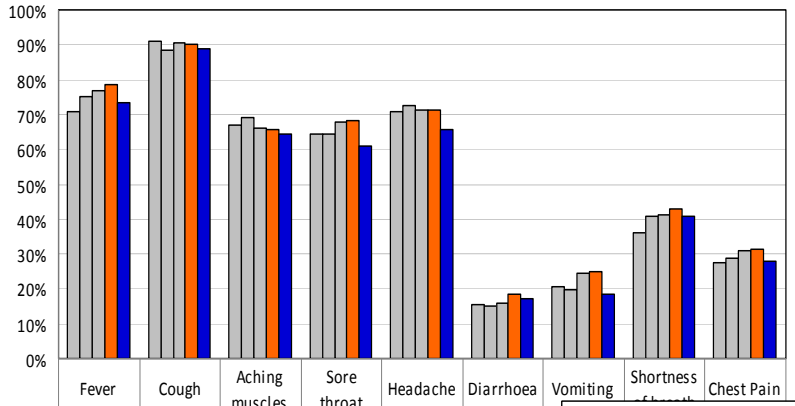
Canterbury Healthline 0800 Calls & Flu Centre Attendances





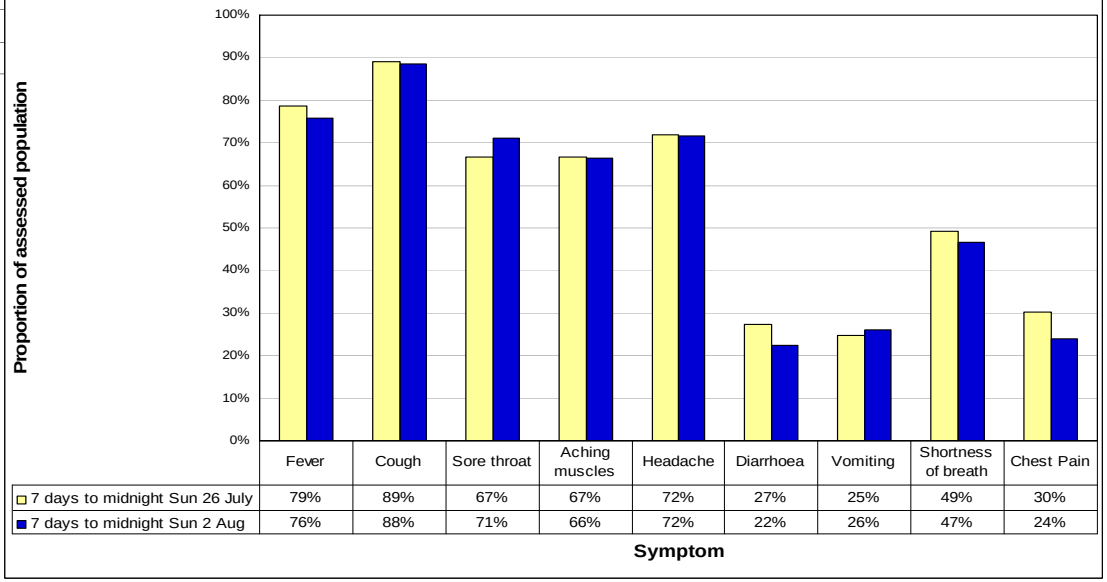
Canterbury: Flu Centre- Symptoms

Symptom prevalence among triaged patients



	Fever	Cough	Aching muscles	Sore throat	Headache	Diarrhoea	Vomiting	Shortness of breath	Chest Pain
48hrs ending Midnight Mon 29 Jun	71%	91%	67%	64%	71%	15%			
48hrs ending Midnight Wed 01 Jul	75%	88%	69%	64%	72%	15%			
48hrs ending Midnight Fri 03 Jul	77%	91%	66%	68%	71%	16%			
48hrs ending Midnight Sun 05 Jul	79%	90%	66%	68%	71%	19%			
48hrs ending Midnight Tue 07 Jul	73%	89%	64%	61%	66%	17%			

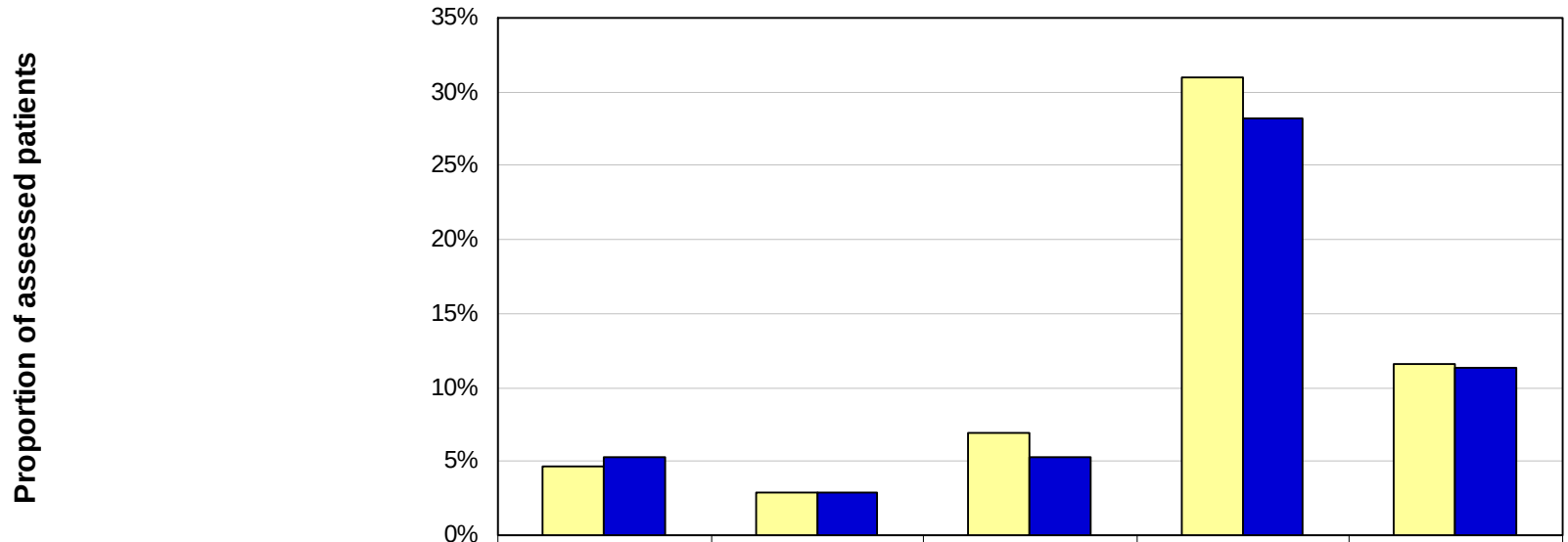
Assessed patients by symptom



	Fever	Cough	Sore throat	Aching muscles	Headache	Diarrhoea	Vomiting	Shortness of breath	Chest Pain
7 days to midnight Sun 26 July	79%	89%	67%	67%	72%	27%	25%	49%	30%
7 days to midnight Sun 2 Aug	76%	88%	71%	66%	72%	22%	26%	47%	24%

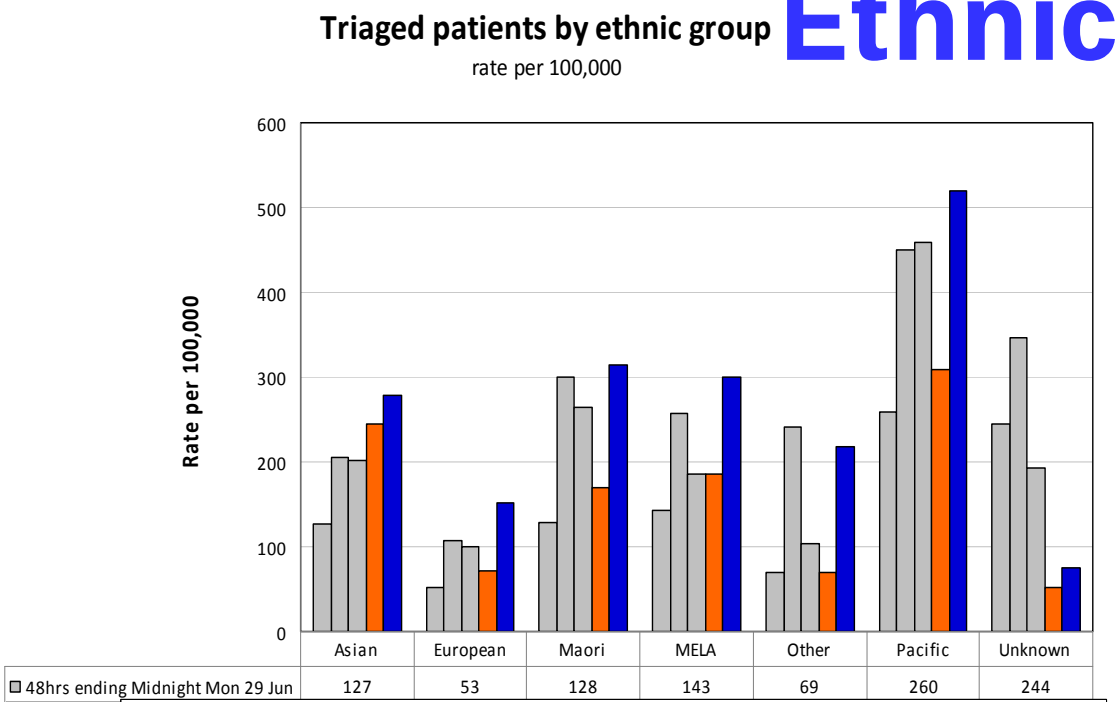
Canterbury: Flu Centre-Health Conditions & Treatment

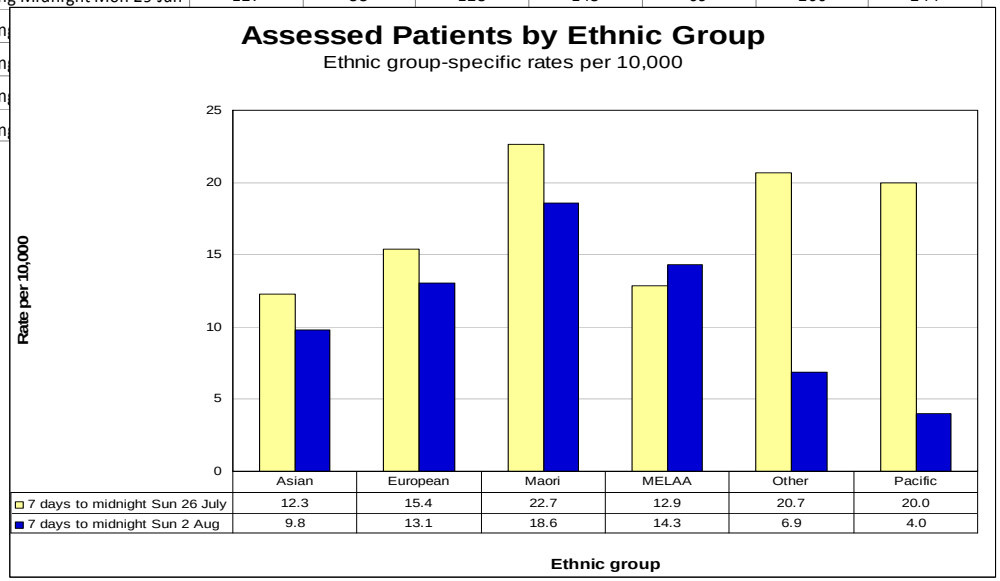
Assessed patients by health conditions and treatment



	Diabetes	Pregnant	Heart Disease	Asthma/Chronic Lung Disease	Tamiflu
Proportion of patients 7 days to midnight Sun 26 Jul	5%	3%	7%	31%	12%
Proportion of patients 7 days to midnight Sun 2 Aug	5%	3%	5%	28%	11%
Count of patients 7 days to midnight Sun 26 Jul	35	22	52	232	87
Count of patients 7 days to midnight Sun 2 Aug	32	18	32	172	69

Canterbury: Flu Centre - Ethnicity





National Rates

42.6 Maori
94.0 Pacific
23.9 Asian
34.4 Other
13.2 European

Hospital Admissions

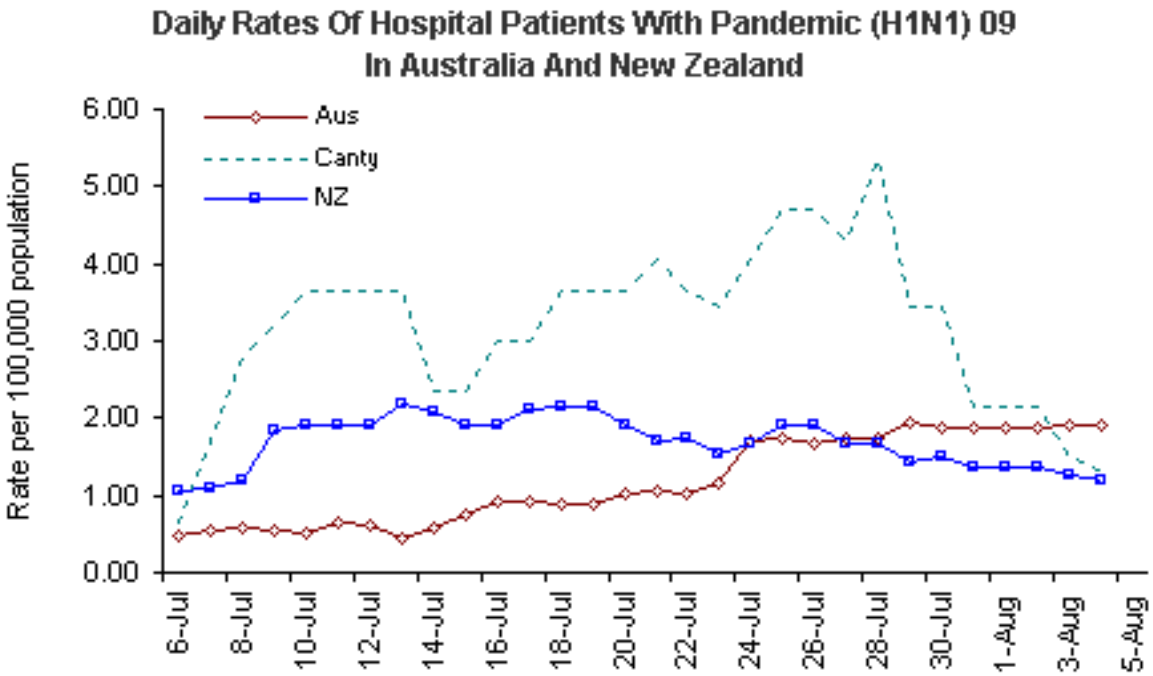
National

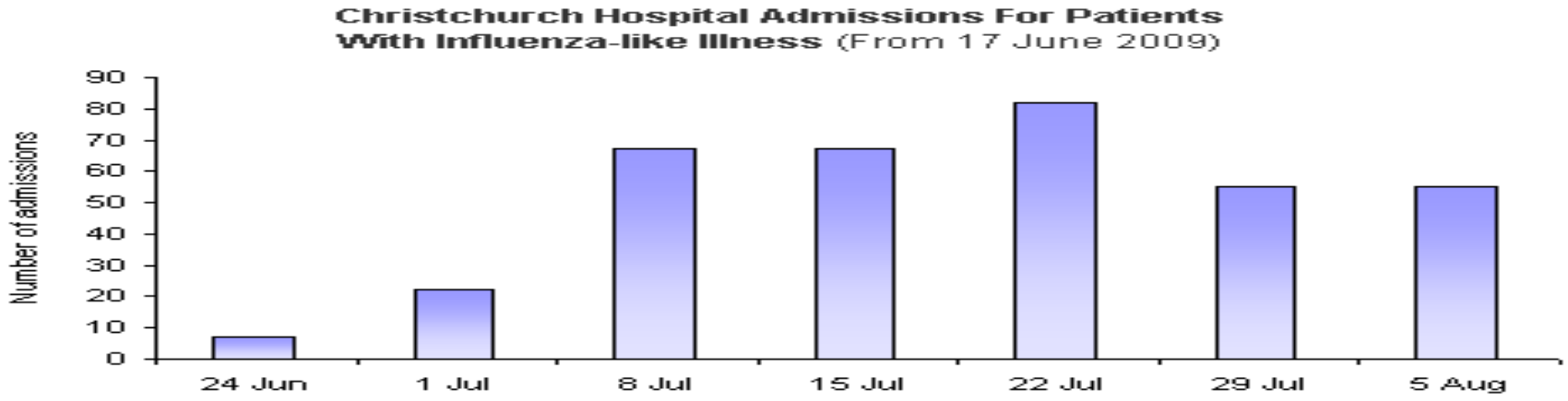
951 hospitalized

233 pneumonia

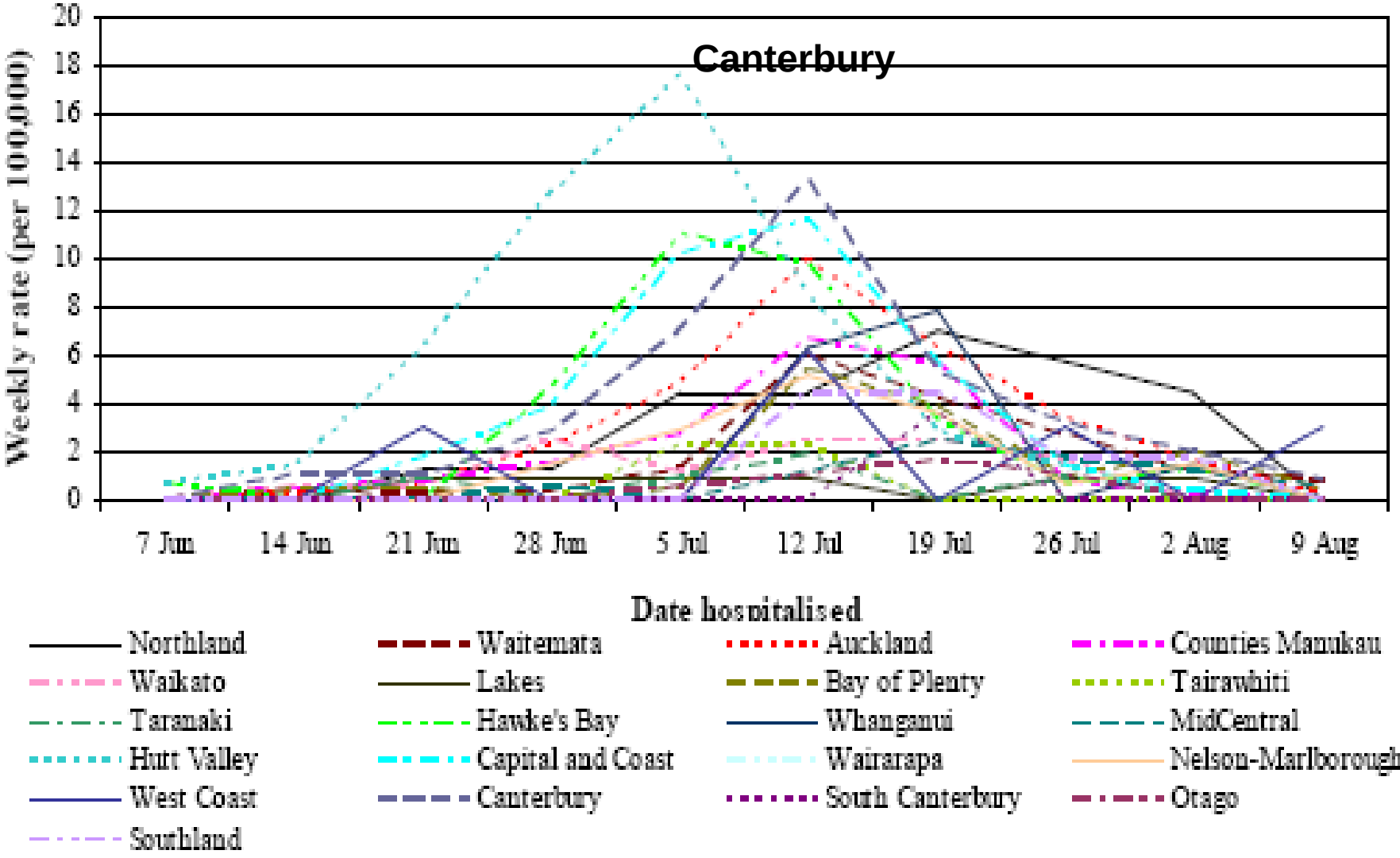
38 ARDS

15 deaths

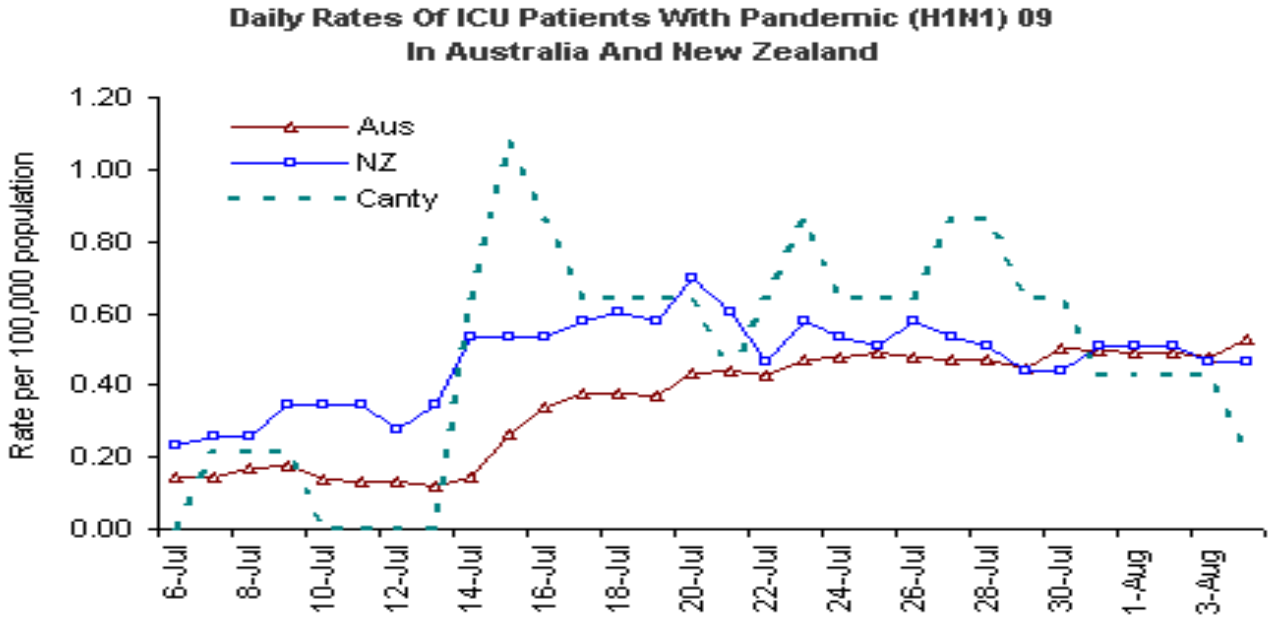


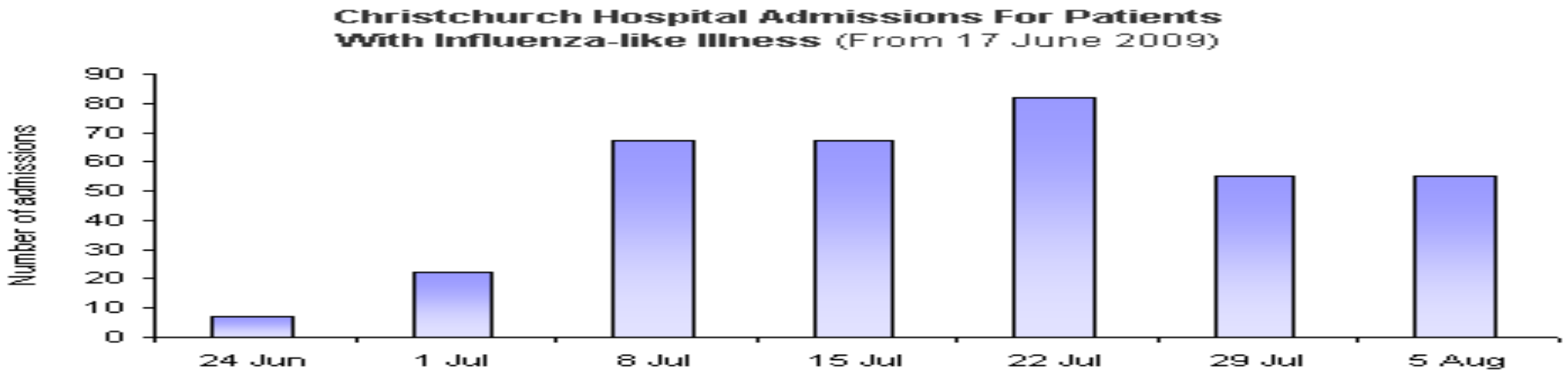


Hospitalisations

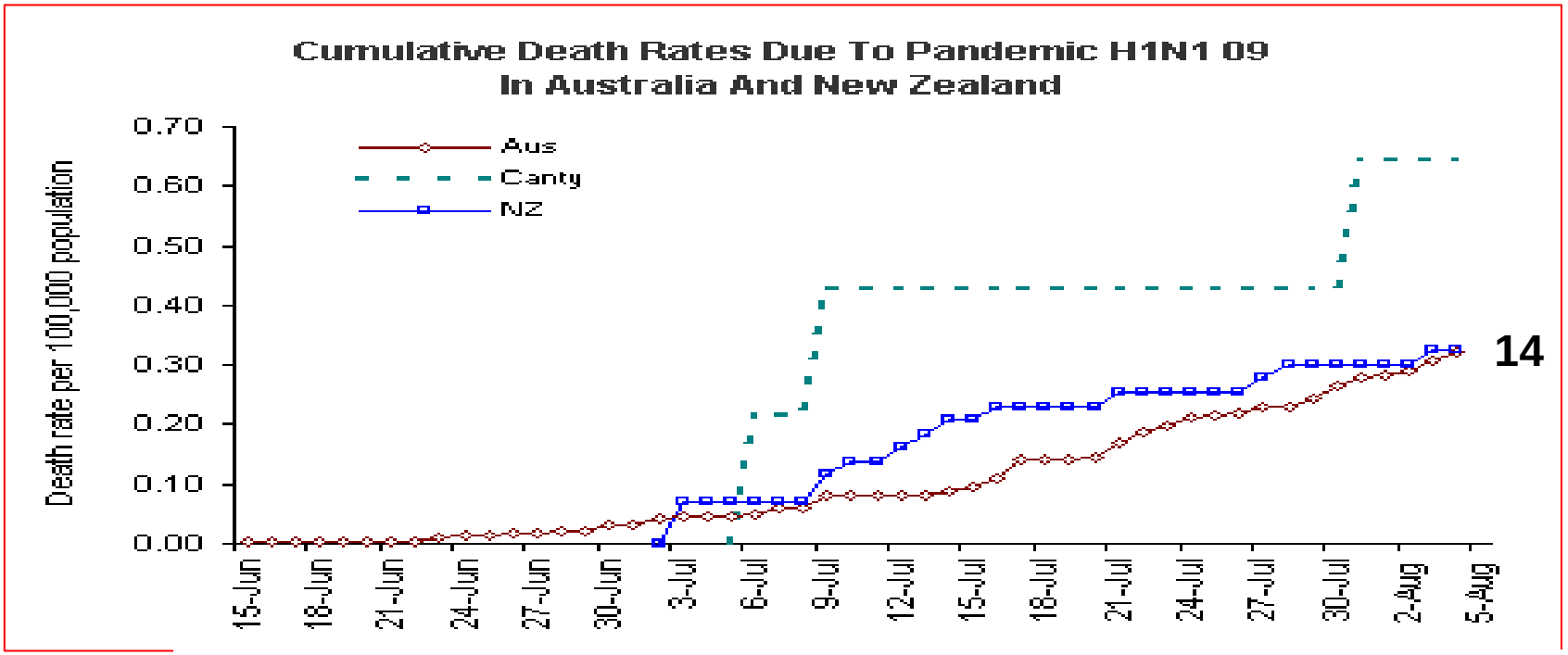


ICU Admissions

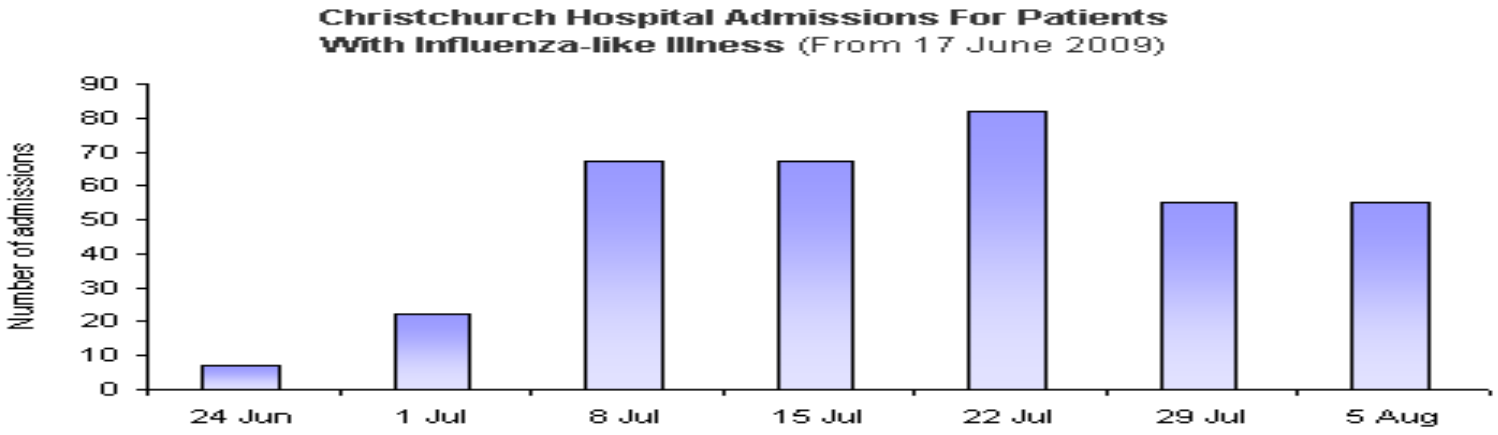




Deaths


Cumulative Death Rates Due To Pandemic H1N1 09
In Australia And New Zealand
Death rate per 100,000 population
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Aus
Canty
NZ
15-Jun
18-Jun
21-Jun
24-Jun
27-Jun
30-Jun
3-Jul
6-Jul
9-Jul
12-Jul
15-Jul
18-Jul
21-Jul
24-Jul
27-Jul
30-Jul
2-Aug
5-Aug

14


Christchurch Hospital Admissions For Patients
With Influenza-like Illness (From 17 June 2009)
Number of admissions
90
80
70
60
50
40
30
20
10
0
24 Jun
1 Jul
8 Jul
15 Jul
22 Jul
29 Jul
5 Aug

Summary

- Pandemic preparedness framework in place
  - ? Planning fatigue
- Containment in NZ successful (or good luck?)
  - Contained for ~6 weeks
- Movement from containment to management phase
  - Community spread ~ 12th June
  - Political decision
  - Highlights need for flexibility in preparedness plans
- Extended containment phase allowed planning & communication of key messages to public.
  - Stay at hoe
  - If concerned phone GP or 0800 Healthline
- Major outcome was flattening of epidemic curve
  - Influenza Centres protected General Practices (green & red Streams)
  - Emergency Departments/hospitals not overwhelmed
- ICU's however overburdened