

# Influenza Pandemics Compared & Lessons Learned



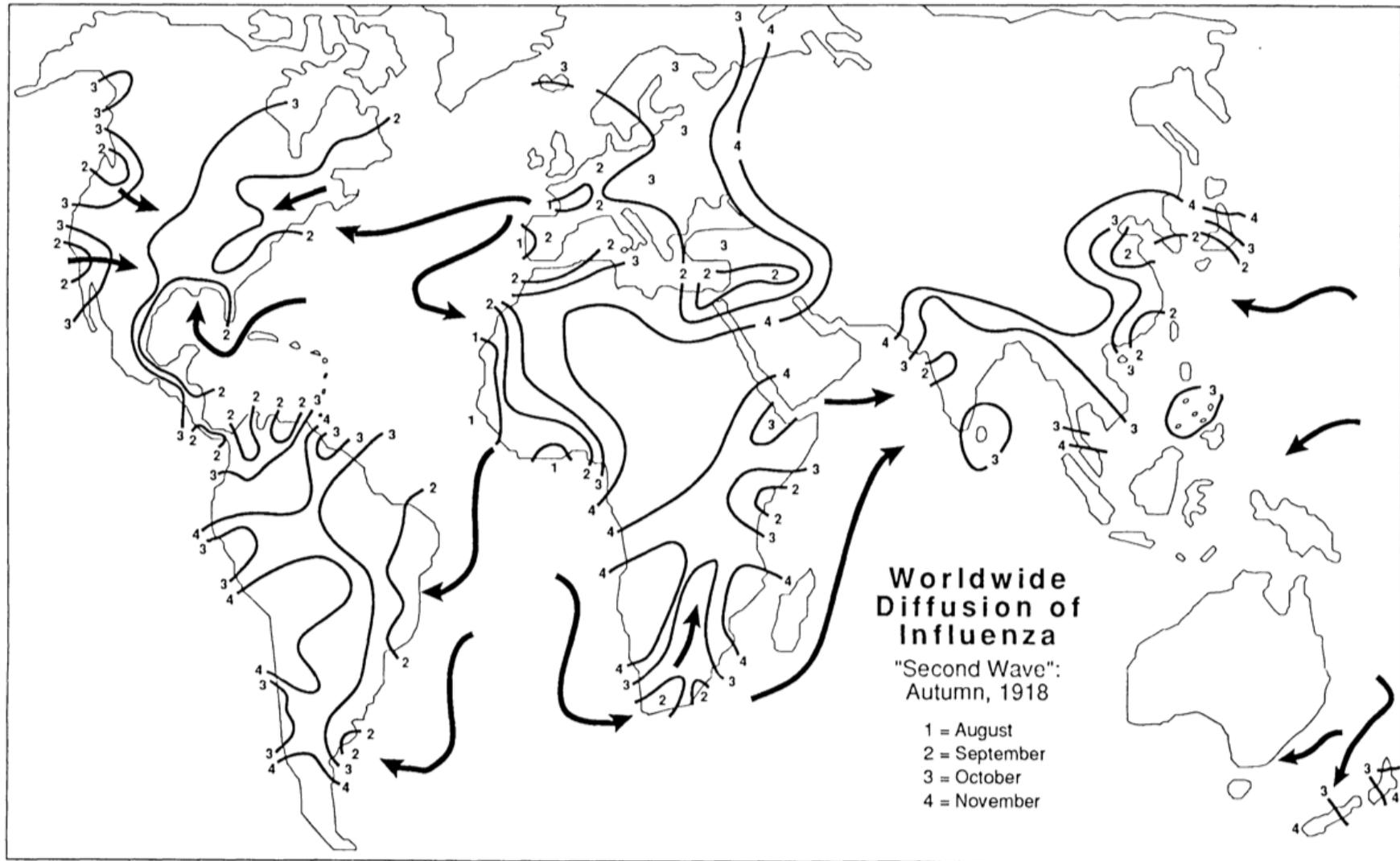
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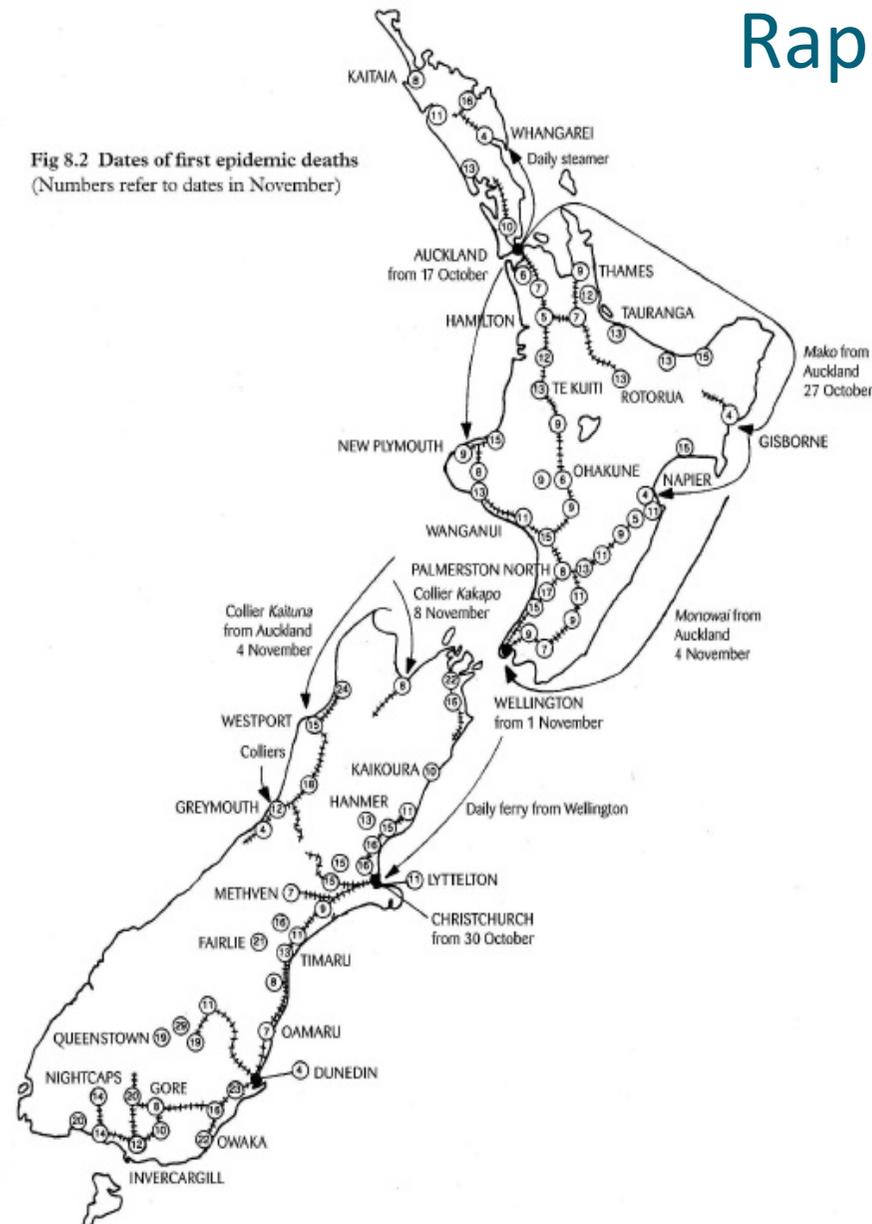
<b>Pandemic</b>	<b>Estimated Morbidity</b>	<b>Estimated Mortality</b>
1889 'Russian flu' from Europe H <sub>3</sub> N <sub>2</sub>	?	~1 million
1918 'Spanish flu' from USA? H <sub>1</sub> N <sub>1</sub>	500 million	50-100 million
1957 from Asia H <sub>2</sub> N <sub>2</sub>	?	~2 million
1968 from Asia H <sub>3</sub> N <sub>2</sub>	?	~1 million
2009 'swine flu' from Mexico? H <sub>1</sub> N <sub>1</sub>	1.6 million	~19,000

# Global spread in 1918 – mainly shipping



# Rapid spread in 1918 (train & ships)

Fig 8.2 Dates of first epidemic deaths  
(Numbers refer to dates in November)

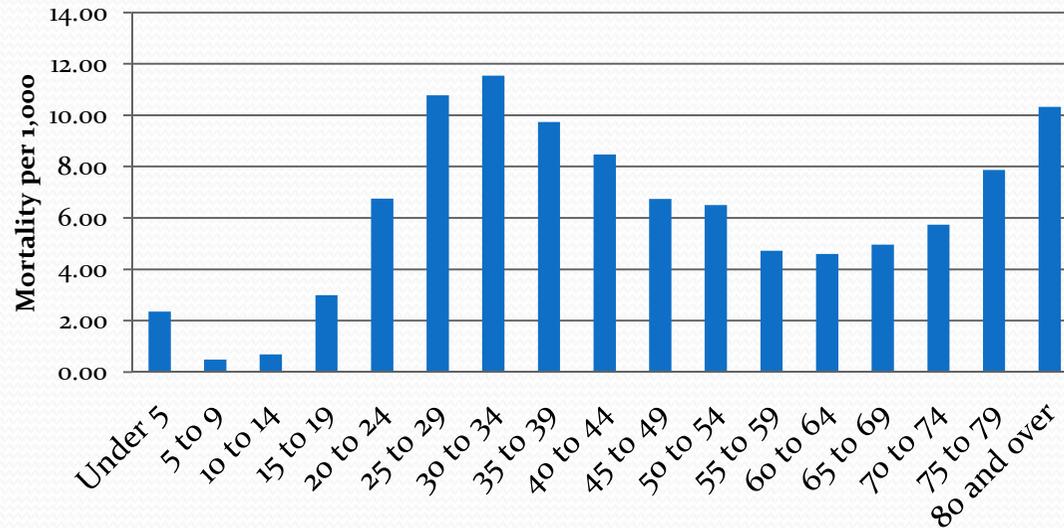


From Rice (2005)  
Black November

# Current Air NZ & codeshare routes



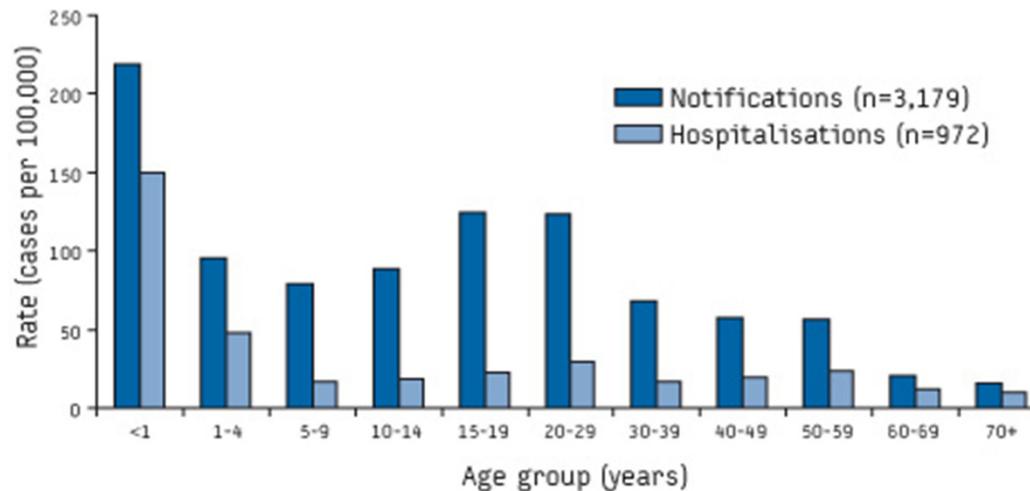
## 1918 Influenza Pandemic Mortality NZ



From Rice (2005)  
"Black November"

**FIGURE 8**

Rates of notified and hospitalised influenza A(H1N1)v cases by age group, New Zealand, cumulative rates for 2009



From Baker et al  
(2009) EuroSurv

## Key epidemiological parameters & features of the 2009 influenza pandemic in NZ (wave 1) and comparison with the 1918 pandemic

Key parameter/feature	1918 pandemic	2009 pandemic – wave 1 (95%CI)
Reproduction number	1.3-3.1 in a military setting 1.2-1.8 in community settings	1.25 (1.07-1.47)
Generation time (days)	Estimated between 2-4 days	2.38 (mean result)
Cumulative infection	Unknown for NZ	18.3% (serological evidence)
Cumulative proportion with symptomatic illness	Estimated: 33%-50%	12.2%
Cumulative proportion hospitalised	Unknown for NZ	26 per 100,000
Cumulative proportion dying	550 per 100,000 (European) 4,230 per 100,000 (Māori)	1.38 per 100,000

# 1918 Control Measures

Setting	Public Health Measures	Outcome
<b>Australia</b>	Influenza made a notifiable disease on 18 October 1918, allowing for early introduction of strict maritime quarantining and reporting.	Delay of first cases of pandemic until early January 1919, and less virulence of pandemic strain in Tasmania (compared to other Australian states and other countries) as a result of delayed introduction.
<b>Iceland</b>	Closure of roads to outer regions of the island, and naturally glacial ice barrier provided for “protective sequestration”.	Reduced mortality/morbidity in the isolated areas. However, a later wave in 1921 caused many cases.
<b>US cities</b>	Various US cities introduced mask-wearing and social distancing measures	Effective and sustained containment measures in these various cities appeared to reduce impact of the pandemic. Effect was greater in those introducing measures early.
<b>Gunnison, Colorado, US</b>	Protective sequestration (enforced at gun point).	Town escaped the pandemic.
<b>South Pacific Island Jurisdictions</b>	Varying degrees of maritime quarantine were used throughout the South Pacific.	Jurisdictions (New Caledonia, Tasmania and American Samoa) that employed strict quarantine were successful in delaying and/or excluding the 1918 pandemic strain.

# 2009 Control Measures

Country	Anti-viral prophylaxis & treatment	Community Mitigation Measures
Argentina	Oseltamivir was given to persons with ILI.	Some school closures. Dissemination of information to reduce transmission. Social distancing measures : flight cancellations, mass gathering restrictions
Australia	Oseltamivir was used for persons with moderate to severe illness, and high-risk populations.	Some school closures. Initial border screening at international airports.
Chile	Oseltamivir was given to persons with ILI.	Travel restriction recommendations. Health questionnaires and information dissemination at borders.
New Zealand	Oseltamivir was given to persons with ILI and their contacts. Special national reserve.	Contact tracing initially Some schools closed for brief periods. Public health messages encouraged hygiene practices & for ILI cases to stay at home .
Uruguay	Oseltamivir available in all health care centers plus additional national reserve.	Nil of note
U.S.	Oseltamivir was given to persons with ILI and high-risk populations.	Some school closures. Dissemination of guidance on personal hygiene, use of antivirals, facemasks, and respirators.



San Francisco 1918



Mexico City 2009

# EPIDEMIC INFLUENZA (SPANISH)

**This Disease is Highly Communicable. It May Develop into a Severe Pneumonia.**

There is no medicine which will prevent it.

Keep away from public meetings, theatres and other places where crowds are assembled.

Keep the mouth and nose covered while coughing or sneezing.

When a member of the household becomes ill, place him in a room by himself. The room should be warm, but well ventilated.

The attendant should put on a mask before entering the room of those ill of the disease.

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## TO MAKE A MASK

Take a piece of ordinary cloth about 6 x 14 inches, fold it to make it 3 x 8 inches. Sew fold this to make it 5 x 4 inches. The ends about 10 inches long at each corner. Apply over mouth and nose as shown in the picture.



ISSUED BY THE PROVINCIAL BOARD OF HEALTH

Composite

Weather: Sunny and warm, 84/64      **SPORTS ★ FINAL**      Monday, April 27, 2009

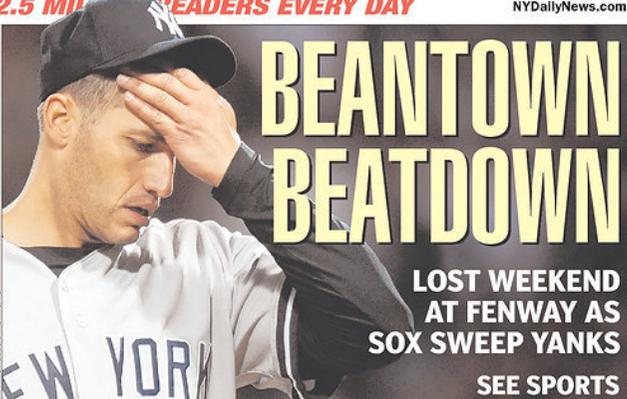
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SEE PAGE 10



**BEANTOWN BEATDOWN**

LOST WEEKEND AT FENWAY AS SOX SWEEP YANKS

SEE SPORTS

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# SWINE FLU SPREADS!

- Feds fear virus could turn deadly in U.S.
- Mayor says don't panic as cases confirmed

**EVERYTHING YOU NEED TO KNOW — SEE PAGES 4-6**

# Summary

- Some common features for different pandemics eg, speed of spread, multiple waves, age distribution, ethnic gradient
- Enormous variation in impact (mortality)
- Greater use of quarantine and social distancing measures in 1918
- 2009 – reliance on anti-virals & vaccines; limited use of public health measures