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Human Influenza A (H1N1) (Swine Flu)

19 June 2009

Parliamentary Library Research Paper

SUMMARY

- ▶ A new Influenza A (H1N1) (Swine flu) virus has spread around the world through human to human transmission.
- ▶ The World Health Organization has declared a global pandemic and put the world on the highest pandemic alert - Phase six.
- ▶ While the greater proportion of cases are mild, severe illness and death have been confirmed.
- ▶ A vaccine to protect against this strain of influenza could be available to some countries as soon as September 2009.
- ▶ Community transmission of the Influenza A (H1N1) has been confirmed in New Zealand.
- ▶ Along with other countries, New Zealand has a pandemic plan that outlines the national response at all stages of a pandemic. At present, New Zealand is implementing containment measures at international borders and requesting that people suspected of having Influenza A (H1N1) stay in isolation and take anti-viral medication. Pandemic alert is at Phase 6 – Scenario 6.2 – Code Yellow/Red.

International Update – June 2009

Influenza A (H1N1) is a new influenza virus which has spread around the world through human to human transmission. On the 12 June 2009 the United Nations declared the spread of the influenza virus around the world had reached pandemic levels. The global pandemic alert level is now at its highest – phase six – an indication of its geographical spread, not its severity.

The World Health Organization (WHO) is the lead agency in the global response. As of 17.00 GMT, 15 June 2009, 76 countries have officially reported 35,928 cases of Influenza A (H1N1) infection and 163 deaths. Cases below are confirmed by WHO laboratory testing.

Countries reporting the largest number of cases and deaths (cumulative totals)¹

Country	1/06	3/06	5/06	8/06	10/06	11/06	12/06	15/06
Argentina	100	131	147	202	235	256	343	343
Australia	297	501	876	1051	1224	1307	1307	1823
Canada	1336 (2)	1530 (2)	1795 (3)	2115 (3)	2446 (4)	2446 (4)	2978 (4)	2978 (4)
Chile	250	313	369 (1)	411 (1)	1694 (2)	1694 (2)	1694 (2)	1694 (2)
China	52	69	89	108	142	174	188	318
Costa Rica	37 (1)	50 (1)	68 (1)	68 (1)	93 (1)	104 (1)	104 (1)	104 (1)
Japan	370	385	410	410	485	518	549	605
Mexico	5029 (97)	5029 (97)	5563 (103)	5717 (106)	5717 (106)	6241 (108)	6241 (108)	6241 (108)
Panama	107	155	173	179	221	221	221	272
Spain	178	180	218	291	331	357	488	488
UK	229	339	428	557	666	822	822	1226
USA	8975 (15)	10053 (17)	11054 (17)	13217 (27)	13217 (27)	13217 (27)	13217 (27)	17855 (45)
Grand total	17410 (115)	19273 (117)	21940 (125)	25288 (139)	27737 (141)	28774 (144)	29669 (145)	35928 (163)

For a full list of confirmed cases and deaths by country please see the excel file included with the pdf. version of this research paper.

New Zealand timeline of human Influenza A (H1N1) case update status²

	8/06	9/06	10/06	11/06	12/06	13/06	14/06	15/06	16/06	17/06	18/06	19/06
Confirmed	17	19	23	27	34	43	71	86	109	127	153	216
Probable	10	11	10	10	25	18	—	17	21	20	19	18

Virus Update – June 2009

The Influenza A (H1N1) virus is spreading easily from person-to-person. While most cases seem to be mild, severe illness and death have been reported in a small proportion of cases. The Influenza A (H1N1) virus seems to be affecting young and previously healthy adults and adults with underlying medical conditions including chronic lung or cardiovascular disease, diabetes, immunodeficiencies and obesity.

WHO is recommending that drug makers speed up the production of an Influenza A (H1N1) vaccine. While the development of a vaccine against the virus has been underway since the virus was isolated it will not be available until September 2009³ or later.

To date, most infections of new Influenza A (H1N1) have occurred in the northern hemisphere. However, there is concern that the spread of the virus to the southern hemisphere could have different and perhaps more severe effects. The current winter season gives the influenza viruses an opportunity to inter-mingle and possibly exchange genetic material in unpredictable ways⁴.

¹ World Health Organization, Influenza A (H1N1) updates <http://www.who.int/csr/disease/swineflu/updates/en/index.html>

² Ministry of Health, Influenza A (H1N1) updates <http://www.moh.govt.nz/moh.nsf/indexmh/influenza-a-h1n1-media>

³ The New Zealand Herald. Ryal urges clam after WHO declares swine flu pandemic. 12 June 2009. http://www.nzherald.co.nz/world/news/article.cfm?c_id=2&objectid=10578003&pnum=0 [Accessed 12 June 2009]

⁴ United Nations News Service. UN health agency chief puts Southern Hemisphere on alert for A (H1N1) virus. 22 May 2009. <http://www.un.org/apps/news/story.asp?NewsID=30889&Cr=influenza&Cr1> [Accessed 12 June 2009]

The Australian cases of Influenza A (H1N1) number 2118 with 1230 in the State of Victoria. On 17 June 2009 the Australian Government announced a new response phase to manage the outbreak. The new Phase of 'protect' will direct efforts to those most vulnerable to the virus. The policy of containment and quarantine of probable cases will be discontinued⁵.

International Pandemic: background

During March and early April 2009 Mexican public health authorities reported increased levels of respiratory disease, including reports of severe pneumonia cases and deaths. Testing of specimens identified the Influenza A (H1N1) strain. By the end of April the United States had 109 confirmed cases, including one death, while Mexico had 97 confirmed cases, including seven deaths, and nine other countries had reported low numbers of confirmed cases⁶.

On 25 April 2009 WHO announced Influenza A (H1N1) a public health emergency of international concern. On 29 April 2009 the United Nations influenza pandemic alert was raised to five on a six –level warning scale, signifying that the virus had caused sustained community level outbreaks in at least two countries in one WHO region and that a pandemic was considered imminent. On 9 May 2009 Australia confirmed its first case of Influenza A (H1N1) with a person returning from travel in the United States. On 18 May 2009 the Director-General of the World Health Organization convened a High-Level Consultation for all Member States at the start of the Sixty-second World Health Assembly to discuss the Influenza A (H1N1) pandemic risk⁷.

WHO is the directing and coordinating authority for health within the United Nations system. It is responsible for providing global pandemic leadership by working with Member States across a range of activities, including coordination under the International Health Regulations (IHR) 2005⁸, designation of global pandemic phases, pandemic vaccine production, coordination of a rapid containment operation, and providing early assessments of pandemic severity.

The WHO guidance document *Pandemic influenza preparedness and response* April 2009⁹ should be used as a guide to inform and harmonise national and international preparedness and response before, during and after an influenza pandemic.

World map of the spread of Human Influenza (H1N1) confirmed cases and deaths.

<http://gamapserver.who.int/h1n1/atlas.html?select=ZZZ&filter=filter4,confirmed>

New Zealand Update – June 2009

The numbers of confirmed cases of the Influenza A (H1N1) virus in New Zealand continue to increase with the first community transmission recorded in Wellington on 14 June 2009. In response the Ministry of Health increased the pandemic status to Phase 6 - Scenario 6.2 Code Yellow/Red. On the 19 June, after further cases of community transmission, the Ministry of Health moved to a Manage It phase. Activities at the border would continue, but quarantine, the

⁵ Roxon downgrades swine flu threat, no more school closures, ABC News, 17, June 2009 <http://www.abc.net.au/news/stories/2009/06/17/2601077.htm> [Accessed 18 June 2009]

⁶ WHO. Influenza A(H1N1) - update 6 30 April 2009 http://www.who.int/csr/don/2009_04_30_a/en/index.html

⁷ World Health Organization. Summary report of a High-Level Consultation: new influenza A (H1N1) Geneva, 18 May 2009. [Accessed 12 June 2009] http://www.who.int/csr/resources/publications/swineflu/High_Level_Consultation_18_May_2009.pdf [Accessed 12 June 2009]

⁸The International Health Regulations (IHR) 2005 are an international legal instrument that is binding 194 countries across the globe, including all the Member States of WHO. Their aim is to help the international community prevent and respond to acute public health risks that have the potential to cross borders and threaten people worldwide. <http://www.who.int/ihr/en/>

⁹ World Health Organization. April 2009. Pandemic influenza preparedness and response; World Health Organization Press, Switzerland. <http://www.who.int/csr/disease/influenza/pipguidance2009/en/index.html> [Accessed 6 May 2009].

use of antiviral drugs, and individual (H1N1) testing would be reduced¹⁰. The next phase is Phase 6 – Scenario 6.3 – Code Red of the *New Zealand Influenza Pandemic Action Plan*.

While the symptoms of the illness are reasonably mild there will be disruptions to schools, businesses and health facilities. The southern hemisphere is also just entering its seasonal influenza season which will further compound disruptions and pressures on the health system¹¹. Containment of the virus is still very important to avoid the simultaneous impact of the two influenza viruses.

Treatment of the epidemic influenza virus will happen at a family and community level. The Ministry of Health is advising households to stock up on essential goods and fever reducing medicines¹². The majority of Influenza A (H1N1) cases will recover at home without the need for medical intervention. District Health Boards are the lead agency at a regional level and will consult with and coordinate primary and community health providers. DHBs will use Community Based Assessment Centres¹³ (CBAC) to see and treat those with influenza symptoms separately from other health facilities.

The primary functions of the CBAC include:

- providing clinical assessment, advice and referrals for those with influenza symptoms
- enabling health professionals to specialise in influenza and infection control
- providing a secure distribution centre for antivirals and antibiotics
- support home-based self-care in association with telephone triage and advice.

Significant events in June

1 June 2009 – Ministry of Health sends out letter to all schools warning of possible school closures where cases of the Influenza A (H1N1) virus is found.

6 June 2009 – Ministry of Health starts public awareness campaign.

8 June 2009 – Regulations were promulgated adding Non Seasonal Influenza (swine flu) to the schedule of the Health (Infectious and Notifiable Diseases) Regulations¹⁴.

Background to New Zealand Influenza A (H1N1)

On 25 April 2009 the Auckland Regional Public Health Service (ARPHS) was notified after an influenza-like illness was detected in a group of Rangitoto College students and teachers returning from Mexico via Los Angeles on Flight NZ1. Specimens sent to the World Health Organization (WHO) laboratory in Melbourne tested positive for Influenza A (H1N1). As of 28 April 2009 New Zealand had three confirmed cases of Influenza A (H1N1) from the Rangitoto College party. On 29 April 2009 Influenza A (H1N1) became a notifiable disease in New Zealand by Order in Council. Passengers on all international flights arriving in New Zealand were provided with public health information and asked to fill in passenger locator forms so they could be more easily traced. Those showing signs of illness were quarantined and treated with antiviral drugs.

¹⁰ Govt's swine flu focus switches to management, New Zealand Herald, 19 June 2009. http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10579497 [Accessed 19 June 2009]

¹¹ New Zealand Herald. Swine flu will hit NZ hard: experts. 4 June 2009. [Accessed 12 June 2009] http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10576325

¹² Ministry of Health, Influenza A (H1N1) For the Public, <http://www.moh.govt.nz/moh.nsf/indexmh/influenza-a-h1n1-public> [Accessed 15 June 2009]

¹³ Regional Public Health et al. Feasibility of Community Based Assessment Centres for Pandemic Illness November 2004 [http://www.moh.govt.nz/moh.nsf/pagesmh/4757/\\$File/cbacs-feasibility.doc](http://www.moh.govt.nz/moh.nsf/pagesmh/4757/$File/cbacs-feasibility.doc)

¹⁴ New Zealand Government (Press Release). Extra precautions to cope with swine flu. 08 Jun 2009. <http://www.beehive.govt.nz/release/extra+precautions+cope+swine+flu>

What is human influenza A (H1N1)?

H1N1 is a new strain of the influenza A virus that causes illness and death in people. This new virus is commonly referred to as swine flu because laboratory testing showed that many of the genes in the virus were similar to the strain of H1N1 influenza virus that normally occurs in pigs in North America. Further tests have shown that H1N1 also has significant differences; it has two genes from flu viruses that normally circulate in pigs in Europe and Asia, as well as avian and human influenza virus genes.¹⁵

Like all influenza viruses the H1N1 virus can change constantly. When influenza viruses from different species infect pigs, the viruses can reassort (i.e. swap genes) and new viruses that are a mix of swine, human and/or avian influenza viruses can emerge. Probably the most well known outbreak of swine flu was among soldiers in Fort Dix, New Jersey, USA in 1976. The virus resulted in pneumonia in at least four soldiers and one death; all of these patients had previously been healthy. The virus is thought to have circulated for a month and disappeared. The source of the virus, the exact time of its introduction into Fort Dix, and factors limiting its spread and duration are unknown.¹⁶

The symptoms of this new Influenza A (H1N1) virus in people are similar to those of other human seasonal influenza and include fever, cough, sore throat, body aches, headache, chills and fatigue.¹⁷ A significant number of people who have been infected have also reported diarrhoea and vomiting. At this stage it is understood that the H1N1 virus is passed from person to person in tiny droplets when an infected person coughs or sneezes in a similar way to the other human seasonal influenza. It is then inhaled into the nose or throat and attacks the cells of the host's respiratory tract, causing inflammation. Symptoms usually appear one to four days after infection, and infected people can theoretically pass on the virus from one day before symptoms develop to seven days after symptoms develop.¹⁸ The virus is transmitted more easily in crowded conditions and survives longer outside a host when conditions are cold and dry.¹⁹ WHO has issued concern about southern hemisphere countries that are heading into winter and the influenza season.

Relatively minor epidemics of influenza typically occur in New Zealand during winter months, often affecting all age groups and causing many complications, including viral or bacterial pneumonia. There are approximately 100 deaths per year directly attributable to influenza. This does not include the many cases where influenza contributes to an elderly or chronically ill person's death.²⁰ It is not known at this time how severe the H1N1 virus will be in the general population.²¹

Different types of influenza are categorised as strain A, B, or C depending on microbiological characteristics of the virus. Influenza A is generally the cause of epidemics because it is highly

¹⁵ Centres for Disease and Control Prevention. 5 May 2009. Questions and answers about novel H1N1 flu (swine flu); http://www.cdc.gov/h1n1flu/swineflu_you.htm Accessed 5 May 2009.

¹⁶ World Health Organization. 2 May 2009. Key facts about swine influenza; http://www.cdc.gov/h1n1flu/key_facts.htm Accessed 5 May 2009

¹⁷ *ibid*

¹⁸ *ibid*

¹⁹ World Health Organization. April 2009. *Influenza Factsheet*. <http://www.who.int/mediacentre/factsheets/fs211/en/index.html> Accessed 6 May 2009

²⁰ Ministry of Health. New Zealand Influenza Pandemic Action Plan September 2006; p.14

<http://www.moh.govt.nz/moh.nsf/indexmh/nz-influenza-pandemic-action-plan-2006> Accessed 1 May 2009

²¹ Centres for Disease and Control Prevention. 5 May 2009. Questions and answers about novel H1N1 flu (swine flu); http://www.cdc.gov/h1n1flu/swineflu_you.htm Accessed 5 May 2009

genetically changeable, while Influenza B and C cause more limited outbreaks and milder disease.²²

Influenza pandemics

Pandemics are characterised by the global spread of a novel type of virus.²³

Three conditions must be present for a disease to cause a pandemic. These are

- that a new virus subtype emerges to which the population has little or no immunity,
- that the new virus can cause serious illness in humans, and
- that it spreads efficiently between humans.

20th century Influenza pandemics

There were three pandemics caused by new influenza A virus subtypes which spread around the world within a year of being clinically recognised.²⁴

- the 1918/19 'Spanish flu' [A (H1N1)], which caused the highest number of known influenza deaths – many people died within the first few days after infection, and others died of secondary complications; nearly half of those who died were young, healthy adults
- the 1957/58 'Asian flu' [A (H2N2)]
- the 1968/69 'Hong Kong flu' [A (H3N2)].

Confirming cases of Influenza A (H1N1)

Because the symptoms are similar to other human influenza, laboratory testing is required to confirm a case of human Influenza A (H1N1). To diagnose H1N1 Influenza A infection, a respiratory specimen would generally need to be collected within the first four to five days of illness (the most infectious stage), however, some people, especially children, maybe contagious for seven days or longer. Identification as influenza A (H1N1) virus requires sending the specimen to a special laboratory for testing.²⁵ In New Zealand, specimens are tested at the [New Zealand's National Influenza Centre \(NIC\)](#). See the WHO list of [Countries with PCR capacity in place to diagnose influenza A\(H1N1\) virus infection in humans](#)

More information can be found in the WHO paper on [swine Influenza A \(H1N1\) virus detection and confirmation guidance](#).²⁶

Influenza vaccine

The most effective way to prevent influenza is by vaccination.²⁷ Vaccination is also much cheaper than anti-viral treatment, and is particularly cost effective in high-risk groups.²⁸

²² World Health Organization. April 2009. *Influenza Factsheet*. <http://www.who.int/mediacentre/factsheets/fs211/en/index.html> Accessed 6 May 2009

²³ Ministry of Health. New Zealand Influenza Pandemic Action Plan September 2006, p.14-15 <http://www.moh.govt.nz/moh.nsf/indexmh/nz-influenza-pandemic-action-plan-2006> Accessed 1 May 2009

²⁴ Ibid <http://www.moh.govt.nz/moh.nsf/indexmh/nz-influenza-pandemic-action-plan-2006> Accessed 1 May 2009

²⁵ Centres for Disease and Control Prevention. 5 May 2009. Questions and answers about novel H1N1 flu (swine flu) http://www.cdc.gov/h1n1flu/swineflu_you.htm Accessed 5 May 2009

²⁶ World Health Organization. 29 April 2009. Interim WHO guidance for the surveillance of human infection with swine influenza A(H1N1) virus http://www.who.int/csr/disease/swineflu/WHO_case_definition_swine_flu_2009_04_29.pdf Accessed 1 May 2009

²⁷ Medsafe. 3 March 2009. Data sheet: Tamiflu <http://www.medsafe.govt.nz/profs/datasheet/t/Tamiflucapsusp.htm> Accessed 3 May 2009

²⁸ Jennings, L. C., Wilson, N., and Lush, D. 2001. *Pandemic planning in a temperate country with no vaccine producer*, International Congress Series, 1219:737-744.

Vaccines need to be customised to the specific strain of influenza that is circulating, so no vaccine can be manufactured until the responsible virus has been isolated.²⁹

Will there be a vaccine for H1N1?

Research is underway to develop a vaccine as soon as possible. However, wide scale production is still likely to take five-six months and limited production capacity means that some countries may miss out altogether.³⁰ A pandemic may arrive in a series of waves, so widespread vaccination may protect against subsequent waves. New Zealand has a contract with the Australian government's Commonwealth Serum Laboratories (CSL) to be supplied with a pandemic vaccine within 15 to 27 weeks after a pandemic is recognised by the WHO.³¹

Tamiflu against Influenza A (H1N1)

[Tamiflu](#) (oseltamivir phosphate) and [Relenza](#) (zanamivir) are the two FDA-approved influenza antiviral drugs that are recommended by the [Center for Disease Control and Prevention](#) for use against the 2009 H1N1 influenza virus.³² It is not a cure but has been shown to reduce the severity of symptoms, the chance of complications and the chance of transmission, particularly when treatment is started within 48 hours of the onset of symptoms.³³ It is recommended for treatment and prevention of adults and children over one year.³⁴ Possible side effects include nausea and vomiting, and the drug should be taken with caution when the patient is pregnant, breastfeeding or has kidney disease or fructose intolerance. The Ministry of Health advises a five day period for a treatment course of antiviral drugs. The person is not infectious after 72 hours of taking the drugs. A prophylactic course of antiviral drugs should last 10 days.³⁵

Type A influenza viruses have been known to mutate to develop resistance to Tamiflu.³⁶ Five cases of Tamiflu-resistant seasonal influenza have been diagnosed in New Zealand in the past nine months³⁷ with Tamiflu-resistant H1N1 flu strains becoming more prolific in Hong Kong and the US.³⁸

The New Zealand stockpile of Tamiflu is approx. 1.25 million courses. On 1 May 2009 the Ministry of Health ordered an extra 125, 000 courses of Relenza.³⁹

Tamiflu went on direct sale from pharmacies for people with genuine 'flu' symptoms on 1 May 2009. This was part of New Zealand's regular annual anti-flu plan, rather than a response to the

²⁹ World Health Organization. 29 April 2009. Transcript of virtual press conference with Dr. Keiji Fukuda, Assistant Director-General ad. Interim of Health Security and Environment World Health Organization <http://www.who.int/mediacentre/multimedia/swineflupressbriefings/en/index.html> Accessed 2 May 2009

³⁰ World Health Organization. 19 AUGUST 2005. Influenza vaccines in *Weekly Epidemiological Record*. No. 33, 2005, 80, 277-288 http://www.who.int/immunization/wer8033influenza_August2005_position_paper.pdf Accessed 2 May 2009

³¹ TVNZ. 1 May 2009. NZ student samples to help develop vaccine. <http://tvnz.co.nz/national-news/nz-student-samples-help-develop-vaccine-2692922> Accessed 5 May 2009

³² The US Food and Drug Administration. 5 May 2009. Influenza (Flu) Antiviral Drugs and Related Information <http://www.fda.gov/cder/drug/antivirals/influenza/default.htm> Accessed 5 May 2009

³³ Medsafe. 9 March 2009. *Consumer medicine information: Tamiflu* <http://www.medsafe.govt.nz/consumers/cmi/t/tamiflu.htm> Accessed 3 May 2009

³⁴ Medsafe. 3 March 2009. Data sheet: Tamiflu <http://www.medsafe.govt.nz/profs/datasheet/t/Tamiflucapsusp.htm> Accessed 3 May 2009

³⁵ Ministry of Health. 2 May 2009. Media press conference. <http://www.r2.co.nz/20090429/>

³⁶ E.g. Neuraminidase Inhibitor Susceptibility Network, 29 April 2005. Use of influenza antivirals during 2003-2004 and monitoring of neuraminidase inhibitor resistance. *Weekly Epidemiological Record*, 17:156.

³⁷ ESR. April 2009. Monitoring scheme shows up resistant flu viruses <http://www.esr.cri.nz/news/esrmediareleases/Pages/Resistantvirusesidentified.aspx#> Accessed 6 May 2009.

³⁸ Palmer, Rebecca. Scientists fear flu could mutate. *The Dominion Post*. 30 April 2009, p.1.

³⁹ *The Dominion Post*, Thousands of drug courses on order, 2 May 2009 p.4.

concerns about the H1N1 strain. A course of Tamiflu costs \$NZ 60 - 80 per person.⁴⁰ There were 8000 courses of Tamiflu available on pharmacy shelves.⁴¹

New Zealand's pandemic preparedness plan

The Ministry of Health takes the lead role in planning for a health related emergency. The Ministry has established an internal Pandemic Emergency Group to oversee and co-ordinate pandemic planning for the health sector. The Group reports to the National Health Emergency Plan (NHEP) steering group. The Pandemic Emergency Group and the NHEP steering group report to the Ministry of Health Executive Team and the Minister of Health.⁴²

District Health Boards (DHBs) are the lead agencies for planning and responding to a pandemic on a local and regional basis. DHBs follow major incident and emergency plans and regional incident co-ordination plans specifically for pandemics.⁴³

Intersectoral Pandemic Group

The whole of Government pandemic planning involves the Intersectoral Pandemic Group made up of 11 government agency work groups led by the MOH and co-ordinated by the Department of Prime Minister and Cabinet (DPMC).⁴⁴

Intersectoral Pandemic Group work groups	
Health	Ministry of Health
Biosecurity	Ministry of Agriculture and Forestry
Law & Order & Emergency Services	New Zealand Police
Civil Defence Emergency Management	Ministry of Civil Defence and Emergency Management
Welfare	Ministry of Social Development
Education	Ministry of Education
Border	New Zealand Customs
External	Ministry of Foreign Affairs and Trade
Economy	Treasury
Infrastructure	Ministry of Economic Development
Workplaces	Department of Labour

The Ministry of Health has produced the [New Zealand Influenza Pandemic Action Plan in November 2006](#). The plan outlines national scenarios based on the WHO suggestions for phase subdivisions, and gives corresponding alert codes and strategies.

[Pandemic influenza alert status](#)

New Zealand is currently on the standby phase Code Yellow.

In summary the codes mean:

Code White is information/advisory only, used in the planning stages of pandemic preparedness and for notification to the health sector of areas of concern overseas.

⁴⁰ New Zealand Herald, Tamiflu to cost patients \$60-\$80 1 May 2009, p.2.

⁴¹ The Dominion Post, Thousands of drug courses on order, 2 May 2009 p.4 .

⁴² Ministry of Health. *New Zealand Influenza Pandemic Action Plan* September 2006; p.59 <http://www.moh.govt.nz/moh.nsf/indexmh/nz-influenza-pandemic-action-plan-2006> Accessed 1 May 2009

⁴³ *ibid* p.61

⁴⁴ *Ibid* p.63

Code Yellow is a standby phase, used to alert the health sector when there has been a significant development in the virus overseas, or single isolated cases in New Zealand.

Code Red is the response phase, used to alert the health sector that it should activate its response plans.

Code Green is to notify the health sector to standdown response and move into the recovery phase.

What are the risks to New Zealand if an influenza pandemic occurred?

A recent study estimating the impact of the next influenza pandemic on New Zealand⁴⁵ assumed between 15 percent and 35 percent of the population would be affected, indicated between 1,600 and 3,700 deaths, between 6,900 and 16,200 hospitalisations and between 325,000 and 759,000 medical consultations were likely in the event of a pandemic. Eighty three percent of the deaths would occur among high-risk individuals (e.g. people with diabetes) and 59% would be among people under 65 years of age. The study also indicated that in the peak week of the epidemic 42% of all public hospital beds would be required for influenza cases, and each GP would have 83 consultations for influenza. The health service utilisation rates would vary depending on other factors such as the average length of stay in hospital, the number of consultations by registered nurses and the number of GPs and nurses not working due to illness or caring for relatives. The demand for medical services would overwhelm hospital and primary care capacity, which is already a problem in some places during the usual seasonal influenza outbreaks, and there may be shortages of critical care beds and mechanical ventilators. This study was based on the illness and death rates experienced during the 1968 pandemic, which was a very mild event compared with some other pandemics. Even a relatively minor pandemic could slow or halt economic growth in Asia and significantly reduce trade, especially of services. This could mean that New Zealand's economy is particularly vulnerable given its dependence on exports.

A 2006 New Zealand Treasury paper estimated that a pandemic with fatality rates similar to the 1958 and 1968 pandemics would reduce GDP by approximately 0.7 to 2.1% in the first year, an impact similar to a typical business cycle downturn. Taking into account a typical rate of recovery this would accumulate over four years to a loss ranging from 1.2 to 2.8 % of one year's GDP.⁴⁶

What is the relevant legislation?

The [Epidemic Preparedness Act 2006](#) allows the Prime Minister, with the agreement of the Minister of Health to enable special powers. These provisions will become operative if the Prime Minister issues an 'Epidemic Notice' in the Gazette. The Prime Minister must first be satisfied that the effects of an outbreak of a stated infectious disease are "likely to disrupt or continue to disrupt essential governmental and business activity in New Zealand (or stated parts of New Zealand) significantly" (section 5 (1)).

The Epidemic Notice activates the special powers of the Medical Officers of Health as covered under section 70 and 71 of the [Health Act 1956](#). The special powers include compulsory

⁴⁵ Wilson, N., Mansoor, O., & Baker, M., (2005). Estimating the impact of the next influenza pandemic on population health and health sector capacity in New Zealand. *New Zealand Medical Journal*; 18: 1346-1355.

⁴⁶ Douglas, James., Szeto, Kam. and Buckle Bob. March 2006 *Impacts of a potential influenza pandemic on New Zealand's macroeconomy*; New Zealand Treasury Policy perspective paper 06/03 Wellington. <http://www.treasury.govt.nz/publications/research-policy/ppp/2006/06-03> Accessed 5 May 2009.

medical examination (section 70 (1) (e)) and detention powers through the use of isolation and quarantine (section 70 (1) (f)). Acting under Sections 71A of the Health Act 1956 the Police also have special powers to do anything reasonably necessary (including the use of force) to assist Medical Officers of Health. People failing to comply with orders made under Sections 70 and 71 of the Health Act 1956 will face imprisonment for up to 6 months, a fine of up to \$4000, or both (Section 72).

See also the Ministry of Health [Pandemic influenza legislation](#).

Pacific islands Countries and Territories

The World Health Organization (WHO) has warned that the impact of the Influenza A (H1N1) virus in the Pacific Islands could be worse than other countries given the limited stretch of their health care and essential services.⁴⁷

The [Pacific Regional Influenza Pandemic Preparedness Project \(PRIPPP\)](#) has been designed to build the capacity of Pacific Island Countries and Territories (PICTs) to deal with the potential threat of emerging infectious diseases, in particular pandemic influenza. Influenza A (H1N1) is one such threat. The project is implemented by Secretariat of the Pacific Community (SPC) in collaboration with WHO, the World Animal Health Organization (OIE) and the Food and Agriculture Organization (FAO), and with financial assistance from AusAID and NZAID. It covers 22 Pacific Island Countries and Territories.

Samoa's Ministry of Health has confirmed its first swine flu case after tests on a visiting Australian student returned positive⁴⁸.

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⁴⁷ New Zealand Herald. Monday May 04, 2009. Pacific Islands 'most vulnerable' to swine flu.
http://www.nzherald.co.nz/world/news/article.cfm?c_id=2&objectid=10570295

⁴⁸ Swine flu case confirmed in Samoa, Radio Australia News, 16 Jun 2009.
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