

H&A SPECIAL REPORT: Bird Flu Contingency Planning

27 October 2005



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KEY ISSUES

- We are currently at Phase 3 of the World Health Organisation's (WHO) Pandemic Preparedness.
- The WHO will probably be conservative in declaring any heightened state of alert because of the enormous financial and political implications.
- Companies and governments risk being unable to respond to a pandemic should they not plan **now**.
- The U.S. Embassy of Jakarta issued a warden message on bird flu October 26.
- The onset of the following factors may increase the spread of Avian Influenza:
 - The migratory season
 - Winter and human influenza
 - Increased travel during festivities such as Diwali and Eid ul-Fitr (the end of the Muslim fasting month)

Date of onset	Indonesia		Vietnam		Thailand		Cambodia		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
26.12.03-10.03.04	0	0	23	16	12	8	0	0	35	24
19.07.04-08.10.04	0	0	4	4	5	4	0	0	9	8
16.12.04-to date	7	4	64	21	2	1	4	4	77	30
Total	7	4	91	41	19	13	4	4	121	62

Notes

Total number of cases includes number of deaths.

WHO reports only laboratory-confirmed cases.

Cumulative Number of Confirmed Human Cases of Avian Influenza A (H5N1) Reported to WHO 24 October 2005

CONTINGENCY PLANNING ISSUES

1. Procuring anti-viral drugs?

Does your company wish to procure anti-viral drugs and if so, who will have access to them if a pandemic occurs? Apart from the very real difficulty of getting stocks of Tamiflu and Relenza, any company attempting to develop such a stockpile must not only take into account staff morale issues, but also address a variety of legal and other matters.

Tamiflu and Relenza are drugs that can only be prescribed by a doctor. Buying them in one country and distributing them to branch offices in another may not be legally possible. During a pandemic, large stocks held in central locations may also be subject to compulsory acquisition by governments. The alternative – distributing anti-viral drugs to staff ahead of an expected pandemic – risks having vital stocks misused or wasted on relatively harmless colds.

2. Establish links with local health authorities

As a pandemic spreads, the health authorities are likely to respond with quarantines and other such measures. If you have an office or a manufacturing plant located several kilometres from an outbreak, rapid liaison with the local authorities to identify employees affected by the quarantine could help prevent your office or plant from being shut down. Or should it be shut down, cooperation with the authorities may gain two or three days in which to plan the relocation of essential staff, stock and equipment.

3. Establish “trigger points” for specific actions

Possible trigger points could include a declaration by the WHO of a move to a higher alert level or an outbreak of disease within 5km of a company’s manufacturing plant. Employee screening – one possible action in the event of a localised outbreak – should be clearly defined and the necessary equipment acquired, in this case thermometers.

4. Decide whether employees will be sent home or relocated elsewhere

The time for staff relocation is during Phase 4 of a pandemic. This is where the WHO has declared a pandemic but the outbreak is not serious enough to severely restrict international travel. However, preparations need to be made now because business continuity issues associated with such a move need to be thought through well in advance.

5. Medical evacuation

The usual procedures for medical evacuation may not be possible during a pandemic. Governments may be reluctant to allow patients to leave hospitals in infected areas, and other countries may in any case refuse to accept such patients. It is therefore important for companies to identify possible in-country alternatives.

6. Built-in flexibility

Business contingency plans need to take into account the fact that the pandemic will evolve over time, with different regions experiencing different levels of risk at different periods. For example, it is obviously not necessary to close down all of a company’s offices or manufacturing plants simply because one of them has been quarantined or is located near an outbreak.

7. Keep staff informed

Keeping staff informed of a company’s business continuity plan could help maintain morale while at the same time ensure its success. Will staff who call in sick be paid? If not, they will want to continue working, thus potentially infecting others.

EXECUTIVE SUMMARY

This report concentrates on the contingency planning issues – both at the corporate and government level – in response to the possibility of the H5N1 bird flu virus mutating into a form more easily transmitted between humans, thus triggering a global pandemic. This is an update to and an expansion of “Hill & Associates Special Report: Bird flu in the Asia Pacific Region” on October 7.

Readers should refer to the October 7 Special Report for information on the nature of the H5N1 virus and why it is regarded as so potentially dangerous. We also included in the earlier report information about projected death rates and the growing resistance of bird flu to anti-viral drugs such as Tamiflu.

- Companies should develop their contingency plans **now** in order to avoid being caught unprepared as many were during the SARS crisis of 2003.
- These should focus on business vulnerabilities and corporate communication.
- Such contingency plans should take into account the World Health Organisation’s global preparedness plan, set trigger points for specific actions, and also be aware of the legal difficulties involved in stocking up on prescription anti-viral drugs.
- We are currently at Phase 3 of the six-level WHO-defined stages of a pandemic. A shift to Phase 4, which could occur at any time, would mark a very significant rise in the level of risk.
- While an increasing number of governments have announced contingency plans, it will be some time before the national health systems of even the advanced nations are ready to deal with a pandemic.
- As of 24 October 2005, there were 121 confirmed cases of bird flu (including 62 deaths) in Indonesia, Vietnam, Thailand and Cambodia.

WORLD HEALTH ORGANISATION PANDEMIC PREPAREDNESS PHASES

In drawing up a business contingency plan, it is important to consider the pandemic preparedness phases drawn up by the World Health Organisation (WHO). These phases outline the role of the WHO and make recommendations for national measures before and during a pandemic. Most governments will use these declarations by the WHO as the triggers for their own contingency plans. It is therefore important to align with them.

The phases are:

Interpandemic Alert Period

Phase 1: No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk of human infection or disease is considered to be low.

Phase 2: No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease.

Pandemic Alert Period

Phase 3: Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread through close contact. **We are currently at this level.**

Phase 4: Small cluster(s) with limited human-to-human transmission but spread is highly localised, suggesting that the virus has not adapted well to humans.

Phase 5: Larger cluster(s) but human-to-human spread still localised, suggesting that the virus is becoming increasingly better adapted to humans but may not yet be fully transmissible (substantial pandemic risk).

Pandemic Period

Phase 6: Pandemic – increased and sustained transmission in general population.

Historically, pandemics occur in waves, with each wave lasting between six to 12 weeks. The second outbreak usually begins in a region 3-9 months after the initial wave. A pandemic usually ends 2-3 years after the initial onset.

Read further details of the WHO plan by clicking [here](#).

GOVERNMENT REACTIONS

It is difficult to know exactly how governments will react in the event of a pandemic. Some governments, such as New Zealand and China, have indicated their intention to close their borders. Others, such as Singapore, are so dependent on international trade – even for basic commodities – that such a measure would appear to be out of the question. Yet others, such as Australia, have prepared elaborate quarantine stations at aircraft hangers in international airports.

Should the situation deteriorate to the point where it is no longer possible to control the spread of the disease through measures such as quarantines and restrictions on international travel, governments will probably give priority to the preservation of existing social and political institutions. This means that the limited stocks of Tamiflu and other anti-viral drugs will be used to maintain the health of senior government officials, the police and the military.

It is unclear whether vaccines now being developed could curb an emergent pandemic strain. This is because it is impossible to predict the evolution of a virus and how it would affect humans. Plans by governments such as Australia to vaccinate the entire population if upcoming human trials of a test vaccine are successful should therefore be treated with some scepticism.

In any case, a vaccine for humans cannot be produced in large quantities now because the global pharmaceutical industry does not have the necessary capacity.

HILL & ASSOCIATES ADVICE

At a minimum, those responsible for business continuity plans should:

- Monitor the evolution of the pandemic.
- Suggest reduced airline travel.
- Make maximum use of teleconferencing.
- Establish protocols to allow employees to work from home.
- Identify ways to reduce the impact of a pandemic on supply chains.
- Monitor media and government travel advisories.
- Be aware of government contingency plans.
- Establish reliable means of communication.
- Retain a stock of masks and disinfectant.
- Find a source of anti-viral drugs or vaccines.

Companies should advise their staff to:

- Avoid locations with concentrations of live chickens or other birds.
- Avoid uncooked or undercooked poultry or poultry products in infected areas.
- Consult a doctor if they fall sick with symptoms of influenza. Clean hands frequently using soap. (NB some experts contend that this may reduce transmission by up to 50%)
- Avoid travelling while sick.

Travellers to suspect bird flu infected areas should:

Before Travel:

- Assemble a health kit which includes a thermometer and alcohol-based hand wipes (in case soap and water not readily available for frequent hand cleansing).
- Identify in-country health care resources.
- Check health insurance plan or obtain additional insurance to cover medical evacuation.
- Obtain regular influenza vaccination.

Note: A regular influenza vaccination is unlikely to protect anyone against bird flu. However, it will help to eliminate the possibility that someone who exhibits flu symptoms merely has a harmless cold. It will also help reduce the possibility of someone being infected with the bird flu virus and a regular human influenza virus at the same time. This will avoid a potentially disastrous genetic mix resulting in a strain easily transmissible between humans.

During Travel:

- Avoid all direct contact with poultry, including surfaces contaminated by poultry faeces or secretions.
- Wash hands often with soap. Alcohol-based hand gels should be used when soap is not available or when hands are not visibly soiled.
- All foods, including eggs, should be thoroughly cooked.
- If you become sick with fever and have difficulty breathing, seek prompt medical attention.

After Travel:

- Monitor health for 10 days.
- Before visiting a doctor or hospital, inform medical staff of the following:
 - Your symptoms
 - Where you travelled
 - If you had direct contact with poultry

COUNTRY DEVELOPMENTS

Country	Official Response to date	Projected ability of health system to cope with major pandemic	Extent of H5N1 Infection in Local Poultry	Overall Risk Assessment
Australia	Excellent	Excellent	Nonexistent	Low
Bangladesh	Unsatisfactory	Unsatisfactory	Nonexistent	Medium
Cambodia	Unsatisfactory	Unsatisfactory	Localised	High
China	Satisfactory	Unsatisfactory	Localised	Medium/High
Hong Kong	Excellent	Excellent	Nonexistent since 2004	Medium
India	Satisfactory	Unsatisfactory	Nonexistent	Medium
Indonesia	Unsatisfactory	Unsatisfactory	Widespread	High
Japan	Excellent	Excellent	Localised	Low
Malaysia	Excellent	Satisfactory	Nonexistent since 2004	Medium
Pakistan	Unsatisfactory	Unsatisfactory	Nonexistent since 2004	Medium/High
Philippines	Satisfactory	Unsatisfactory	Nonexistent	Medium
Singapore	Excellent	Excellent	Nonexistent	Low
South Korea	Excellent	Excellent	Nonexistent since 2004	Low
Taiwan	Excellent	Satisfactory	Nonexistent	Low
Thailand	Unsatisfactory	Unsatisfactory	Localised	High
Vietnam	Excellent	Unsatisfactory	Widespread	High

AUSTRALIA

The government has said it will consider vaccinating its entire population of 20 million people against bird flu if trials of a human vaccine are successful. However, citizens may have to wait up to six months to be vaccinated if a pandemic breaks out.

It has also drawn up a contingency plan that includes the possibility of holding airline passengers in quarantine aircraft hangers for about six days. The idea is for arriving passengers to be subject to thermal screening for fever. People on aircraft suspected of having bird flu could be held at airport quarantine centres.

Australia has joined Canada and the United States in adding protection against avian influenza to its counter-terrorism plans.

Meanwhile, the Australian division of GlaxoSmithKline has said it will start a new manufacturing line at its plant in the southern state of Victoria to boost the production of Relenza, an alternative anti-flu drug. Vaccine trials should be completed by the end of the year. The government would then decide whether to mass-produce it.

Australian officials estimate that as many as 13,000 people could die in the country if a pandemic were to occur, with a further 58,000 people hospitalised.

Australia has stockpiled 3.9 million treatment courses of Tamiflu, but Health Minister Tony Abbott has said that this medication would most likely be given to medical staff and other essential service workers.

A site on the southern tablelands of New South Wales has been earmarked for possible disposal of dead chickens if there is a bird flu outbreak. New South Wales state government bodies have met with Collex, the owners of the Woodlawn bio-reactor landfill site near Goulburn, to also discuss using it for dumping animal carcasses infected with foot and mouth disease. The bio-reactor, which converts Sydney's garbage into energy, is in a disused open cut mine, 11km (7 miles) from the nearest town of Tarago.

BANGLADESH

Although it has banned the import of poultry from infected areas and set up a national taskforce to monitor suspected bird flu outbreaks, the country has made little preparation for a possible pandemic. Instead, the government appears to be focused on political issues. In particular, it is preoccupied with ensuring the security of the long-delayed SAARC Summit, due to be held in Dhaka on November 12-13.

Unlike most other countries in the region, the government has not established any mechanism for stocking anti-viral vaccines.

There have been no reported cases of H5N1 in poultry or people so far. However, Bangladesh, one of the world's most densely populated countries, has about 150,000 poultry farms. It is also in the path of migratory birds that are suspected of carrying the H5N1 virus. As winter approaches, hundreds of species of birds will fly through the country from as far away as Siberia.

Poultry industry stakeholders have urged the government to formulate a bird flu policy to protect consumers and the poultry sector in case of an outbreak.

On October 23, Fisheries and Livestock Minister Mohammad Abdul Karim said that the government would seek assistance from donor agencies to implement a project aimed at preventing an outbreak of bird flu in the country. A proposal seeking assistance would be submitted to the World Bank, the Asian Development Bank, the Japan International Cooperation Agency and the World Health Organisation.

CAMBODIA

Cambodia does not have the resources to deal with a pandemic. In July, the media reported a serious outbreak of influenza among children, some of whom died after reportedly coming into contact with chickens. It was later determined that the children were suffering from Influenza B virus rather than bird flu. However, the outbreak strained the nation's grossly inadequate health care system, forcing at least one hospital to put three or four children to a bed.

CHINA

According to Vice Premier Hui Liangyu, China faces a "grave threat" from bird flu. The WHO has commented that, although China appears to have the political will to tackle the problem and had stepped up monitoring efforts, more needs to be done at the local level.

The Chinese government has set up a national monitoring network and emergency response plans to prevent any future epidemic from spreading. Special hospitals for contagious diseases have been built since the 2003 SARS crisis. All hospitals have also instituted alert procedures to handle infectious diseases. However, the new system has yet to be tested. A decision is likely to be made soon about whether to stockpile anti-flu drugs.

Efforts to combat bird flu were stepped up on the weekend of October 22-23, with inspectors being sent to farms, households and migratory bird sanctuaries to enforce disease prevention controls. The Beijing municipal government says it is prepared to ban all slaughtering of poultry at markets as part of its initiatives to prevent a bird flu outbreak in the capital.

China has suffered a series of outbreaks of bird flu recently. The latest cases occurred in a village in Hunan province. Other outbreaks have been reported in Inner Mongolia, Anhui and Hunan. The outbreak in the village of Wantang occurred on October 22. An outbreak the previous week killed 2,600 chickens and ducks in Inner Mongolia. Another outbreak in the week of Oct 24 killed about 500 geese in Anhui.

The government's report on the Hunan outbreak did not say whether authorities imposed quarantines or took other measures in addition to destroying birds. Following the Anhui outbreak, the government told the UN Food and Agriculture Organisation that it destroyed 45,000 birds living nearby and vaccinated 140,000 others.

There have been no reports of human cases of bird flu.

China has proposed a conference on new pandemics next year in Beijing, focusing on the monitoring, control, prevention and treatment of bird flu and on sharing information on the subject.

The government has also enhanced import and export quarantine requirements in a bid to stop the spread of the disease. Health officials have also signed an agreement with Hong Kong and Macau aimed at coordinating responses to outbreaks of infectious diseases.

HONG KONG

Hong Kong is better prepared than many countries to deal with a bird flu pandemic. However, the territory is still vulnerable.

The government has implemented a three-tier alert system similar to the terror alert charts used in the US. There are three stages: "Alert," "Serious" and "Emergency." Earlier this year, as the number of avian flu cases mounted in Asia, the Hong Kong government activated the "Alert" level.

Hong Kong has stockpiled anti-viral drugs for 350,000 people and hopes to eventually acquire enough for two million people. Presumably, these will be given to citizens during the "Serious" or "Emergency" stage. Officials say that the government will try to secure enough Tamiflu and Relenza by mid-2007 to cover 30 percent of the population of seven million. Local media reported last week that pharmacies in Hong Kong have dramatically marked up prices of Tamiflu because the public rushed to buy the drug.

According to local medical experts, there may not be sufficient intensive care unit beds in public hospitals to deal with a major outbreak. Hospital chiefs have prepared plans to turn over half of all public hospital beds to cater to bird flu victims if there is a pandemic. Of those beds, 1,415 would be in isolation and another 800 would be in intensive care units.

The contingency plans would allow for up to 14,300 people in the territory to be hospitalised. These contingency plans are based on the experience of the 1968 Hong Kong flu outbreak, which infected 15 percent of the population. Health authorities have refused to disclose the amount of anti-flu vaccines and drugs in stock, but have pledged to satisfy the World Health Organisation's target requirements.

The first 20 Hong Kong casualties of a bird flu outbreak would go to the city's Princess Margaret Hospital. After that, hospitals in different regions would take up to 20 patients each. Each of Hong Kong's 18 districts would have a public clinic dedicated to dealing with people showing symptoms of the virus.

Meanwhile, Hong Kong has begun an awareness campaign aimed at travellers. Health information pamphlets are distributed to airline passengers flying to or from the infected regions. On flights bound for Indonesia, passengers hear not only flight safety instructions but also health messages concerning the influenza outbreak. In-bound travellers are electronically checked for fever. Sick travellers are detained at the airport and questioned about their contact with poultry.

The Hong Kong authorities also promise swift reporting of bird flu cases and prompt destruction of infected flocks. Those measures, experts say, helped contain the bird flu outbreak of 1997.

However, officials have backed away from an earlier announcement that Hong Kong would close its border with China if cases of person-to-person transmission of the bird flu virus emerge on the mainland.

INDIA

Federal Government

The government has formed a high-level inter-ministerial task force to watch out for possible bird flu outbreaks and draft an action plan. The task force includes secretaries of health, environment, and animal husbandry and agriculture ministries. Although India intends to buy some drugs for emergency use, it apparently has no plans to stockpile them.

The states that have been alerted by the government are Rajasthan, Gujarat, Karnataka, Andhra Pradesh, Orissa, West Bengal, Uttar Pradesh, and the five Northeastern states. These states will hold fortnightly meetings with the federal government. The next meeting is due on October 28.

The government has asked these states to take precautionary measures including increase in collection of random samples and increase surveillance in the vulnerable areas about bar-headed geese, large cormorants and black-headed gulls species, the suspected carriers of the virus.

According to High Security Animal Disease Laboratory (HSADL), there have been no reports of bird flu virus in about 17,000 serum and tissue samples collected since August 2003. However, the government has alerted the respective state governments to take random samples from the poultry situated in the vicinity of the bird sanctuaries where the migratory birds reach during the winter season.

The federal government has banned import of wild birds and poultry meat and eggs from the affected countries. An alert has been issued in the Northeastern states to restrict any smuggling from the neighbouring countries bordering the region.

The Health Ministry has already held a meeting with the officials of pharmaceutical companies Roche, Cipla, and Ranbaxy and discussed licensing and patent issues of 'Tamiflu'. India has also followed Taiwan and Thailand's lead in declaring that they will manufacture generic versions of 'Tamiflu'.

State Level

Tamil Nadu

The state government has put the health authorities on high alert in Namakkal, the country's largest poultry producing centres. Further, the government has asked health authorities to monitor the movement of bareheaded geese in Koodankulam bird sanctuary at Tirunelveli. The government has also planned bio-security shields around 5,600 poultry farms and bird sanctuaries which host migratory birds during winter. The bio-security shield involves disinfecting any vehicle or human being entering a poultry farm and providing special uniforms for labourers.

West Bengal

The state government has stepped up its monitoring efforts after reports that some migratory birds have arrived with the onset of winter.

Rajasthan

Following the federal government's alert, the state government has asked the authorities to take precautionary measures in and around Keoladeo National Park in Bharatpur. More than 160 species of migratory birds pass through the park during November.

Gujarat

This state is of particular concern because it is home to one of the biggest bird sanctuaries in India and 20 major wetlands that are a major stopover destination for migrating birds. The state government has asked the health authorities to increase blood sample collection in the surrounding areas.

Orissa

The state government has alerted the health authorities over detection of avian flu virus strain among some of the migratory birds from Russia and China. The two main species that carry bird flu virus are expected to reach Chilika Lake in late October.

Assam

The state government has convened a meeting of veterinarians, wildlife officials and other health experts on 30 September in Guwahati. The migratory birds take the Central Asian flyway to Assam. The government was asked to monitor and report any incidence of suspected cases related to birds dying of avian disease.

Corporate Response

Most businesses have yet to announce any specific contingency plans. Some Indian companies, including Infosys Technologies and Wipro Technologies, have started immunising their staff using currently available vaccines. However, a specific vaccine for humans that is effective against avian influenza has not yet been developed.

INDONESIA

The U.S. Embassy of Jakarta issued the following [warden message today](#).

Indonesia's approach to the threat posed by bird flu has been haphazard. Critics now say that officials covered up and then neglected a spreading bird flu epidemic for two years until it began to sicken people in the middle of this year. This may be the reason why it has registered more human cases since July than any other country. Meanwhile, the attention of the government has been diverted by the terrorist threat and the need to track down those responsible for the second round of bombings in Bali on October 1.

Indonesia remains highly vulnerable to a pandemic resulting from a mutation of the H5N1 bird flu virus. This is because of its large population and lack of basic safeguards to prevent the virus from spreading to humans. The health care system has also deteriorated significantly since the 1997 Asian financial crisis and the weakening of central government authority following the 1998 overthrow of the Suharto regime. As a result, the country is heavily dependent upon foreign assistance to deal with the threat of a pandemic.

Although the country has a population of 220 million, the authorities have been able to distribute just 15,000 doses of Tamiflu to designated bird flu hospitals. However, more doses are arriving from Australia (40,000 doses) and Japan (10,000 doses). To date, Indonesia has reported seven human cases of H5N1 bird flu. Four of these cases were fatal.

Media reports that local companies assigned to make a bird flu vaccine for use in local poultry produced doses of inferior quality in order to inflate profits has underlined some of the worst fears of observers about the ability of Indonesia to cope with a pandemic.

Perhaps the best that can be said of the latest scandal is that Indonesian officials unearthed it. Earlier this week, the Ministry of Agriculture announced it had informed the Attorney General of the scam after discovering that the vaccines had a low protection level of between 11.8 and 28 percent. Senior ministry officials are suspected of colluding with four pharmaceutical companies to produce the unacceptably weak vaccines. Current estimates suggest that the scam involved losses of up to Rp 56.98 billion (US\$5.7 million). Meanwhile, farmers across the country have been complaining that they have not received any compensation for culling infected flocks because officials have embezzled the money.

This is a serious matter for a government, whose officials only recently insisted that they were vaccinating rather than culling local poultry against bird flu because they could not afford to follow strict World Health Organisation guidelines on culling. Indonesia, the officials argued, just did not have enough money to compensate the affected farmers.

The infection appears to have been contained in large commercial farms, where it first appeared. However, it may now have spread to poultry in smaller farms and to the chickens raised in millions of back yards.

The government has also announced plans to revise laws that have been used to prevent health authorities from investigating suspected bird flu outbreaks in commercial poultry farms. When bird flu first appeared in Indonesia two years ago, the country's 11 biggest poultry producers blocked access to their farms, hampering efforts to fight the virus

JAPAN

Tamiflu is commonly used in Japan to treat ordinary flu. As a result, the country is sitting on a supply of more than 15 million doses. In April, the government launched a five-year plan to stockpile an additional five million doses of the drug.

MALAYSIA

Malaysia only has one percent of the quantity of Tamiflu recommended by the World Health Organisation (WHO). Deputy Health Minister Dr Abdul Latiff Ahmad said the anti-viral drug available in the country was only enough for 60,000 people instead of 30 percent of the population as recommended.

The Agriculture and Agro-Based Industries Ministry has put in place a contingency plan in the event of another bird flu outbreak in the country. Its minister, Muhyiddin Yassin, said the

ministry had learnt valuable lessons from the last outbreak in Kelantan in 2004 and specific measures had been taken to prevent re-occurrence.

Smuggling of infected chickens across the border from southern Thailand remains a concern. On October 24, Malaysian border patrols announced that they had foiled an attempt to smuggle in 12,000kg of frozen chicken meat from Thailand. Customs officers at the northern Malaysia-Thailand border stopped a lorry claiming to be carrying a fruit consignment. However, police discovered the frozen chicken meat, worth 72,000 Malaysian ringgit contained in boxes stored inside the lorry.

MYANMAR

Officially, bird flu is not present in Myanmar, even though neighbouring China, Thailand and Laos have all had outbreaks.

However, given the dearth of reliable information that comes out of Yangon, as well as the military junta's dubious track record with the truth, many international observers are worried about a cover-up. Officials at the UN Food and Agriculture Organisation (FAO) therefore treat Myanmar's assurances that it has never had a bird flu outbreak with a degree of scepticism, especially since it is situated along the flight path of migratory birds which could be spreading the virus.

The Health Ministry has reportedly drawn up a draft bird flu management strategy, including plans to educate Myanmar's 45 million people about it, as well as disease surveillance and victim treatment plans. It has even identified special "bird flu hospitals," including one at an infectious diseases centre near Yangon that is equipped with isolation wards. Some of the ruling generals also appear to have grasped the seriousness of the threat, but given the dire lack of funding and the necessary infrastructure, it is doubtful that anything else is being done. No human or animal testing is available inside the country.

However, despite the generally poor conditions, Myanmar is believed to have a relatively large number of overseas-qualified doctors. This puts it in a better position than other impoverished countries such as Cambodia.

NEPAL

Nepalese authorities say they have banned imports of European poultry following recent incidences of bird flu cases there. No incidence of bird flu has been reported in Nepal yet. Thousands of migratory birds fly from across the Himalayas in the north to the southern plains of Nepal and India every year to avoid extreme cold. A nearly two-year-old ban on the import of bird and bird products from countries in East and Southeast Asia is still in force. That ban was imposed after there were reports of bird flu in East Asian countries including China.

Local media reported on October 20 that a large number of pigeons at a shrine in central Nepal died recently and the government suspects the pigeons were infected with bird flu. Hindu devotees visiting the Manakamana shrine, about 25km (15 miles) west of Kathmandu, reported that a large number of pigeons at the shrine suddenly died.

Officials insist that the country remains free of bird flu.

NORTH KOREA

On October 24, North Korea announced that it was stepping up a campaign to prevent an outbreak of bird flu, using its experience in dealing with a previous outbreak. North Korea

said in July an outbreak near Pyongyang that began in February had been stamped out after destroying more than 200,000 chickens and vaccinating 1.1 million poultry.

NEW ZEALAND

High priority has been given to government planning for a pandemic since the World Health Organisation warned that the risk of bird flu becoming the next human flu pandemic was high. The government is buying enough doses of anti-viral drugs to cover 20 percent of the population.

Rioting, loss of essential services and up to half of the population incapacitated with illness, are scenarios raised by the Ministry of Economic Development. It says 20 to 50 percent of New Zealand's population of four million could be infected and up to 60 percent of the workforce unable to work for between two and four weeks. Under the worst-case scenario, based on the 1918 Spanish flu pandemic, 33,000 will die.

The government has also announced its intention to close its borders indefinitely if a worldwide pandemic occurs.

PAKISTAN

There was an outbreak of bird flu in the southern province of Sindh and the southern port city of Karachi in 2004. However, there have not been any reports of human infection.

Government run hospitals in large cities are overcrowded, have insufficient funds and medical staff to provide proper health care to the public in the event of a major pandemic.

Pakistan has banned import of poultry and poultry products from 13 countries as a precautionary measure. These countries are Thailand, Indonesia, Vietnam, China, Cambodia, North Korea, Laos, Russia, Kazakhstan, Mongolia, Turkey, Greece, and Romania.

Officials continue to insist that there have been no reports of the bird flu virus. However, the Agriculture Ministry has set aside US\$1 million to deal with any emergencies. Several monitoring mechanisms have been established in an effort to ensure early reporting of the disease. The federal government has also asked the provincial governments to collect samples from suspected areas and farms for evaluation of the virus.

The Department of Environment, Food, and Rural Affairs (DEFRA), an apex body of the National Farmer's Union and individual poultry organisations, has been asked to monitor the situation and prepare a separate contingency planning.

PHILIPPINES

As a result of a recent statement by Roche Holdings AG that it will allow other companies to produce Tamiflu, the government expects to have a stable supply of the drug in about three months. Health officials have also crafted a Preparedness and Response Plan for Avian and Pandemic Influenza, which describes measures to be undertaken by particular government agencies in case the deadly virus hits the country.

The trapping of migratory birds has been banned in the mountains of the northern Philippines amid fears they could carry bird flu. The local government of Sagada, where bird hunting is common among villagers, issued a municipal resolution banning the practice until May 2006.

The following areas are being monitored for bird flu: the Candaba Swamp in Pampanga; Agusan provinces; Ilocos Norte; Zambonga peninsula; Tuguegarao in Cagayan; Cebu; Isabela, and Palawan and Victoria in Laguna.

The government will also screen athletes competing in next month's Southeast Asian Games for bird flu. Thermal scanners will be set up at airports to check if any arrivals are suffering from fever. The screening, currently being implemented at the Ninoy Aquino International Airport, creates minimal disruption.

In a telephone survey conducted by Hill & Associates involving 20 companies with operations in the Philippines, only about 30 percent said that their companies had drawn up bird flu contingency measures. However, about 85 percent of the respondents agreed that the Philippine health care system is not capable of handling a pandemic. Respondents to the survey included security managers/directors, corporate affairs executives, and department supervisors.

SINGAPORE

Singapore is preparing isolation wards in hospitals and stockpiling medicine. The government has also stepped up preparations by planning possible outbreak scenarios and response exercises. Singapore started stockpiling the drug fairly early, a move that has given it an advantage over many other countries. The government expects to have enough Tamiflu and Relenza to treat a quarter of its 4.4 million population by next year.

Response systems and operational emergency preparedness capabilities have been boosted in the country by increasing manpower and resources such as isolation facilities in hospitals. The Health Ministry has also published its flu pandemic preparedness and response plan on its website to inform, as well as, seek the opinion of professionals in the field.

SOUTH KOREA

South Korea is looking into the legality of producing a generic version of Tamiflu. Under international patent laws, the Korea Food and Drug Administration (KFDA) believes it is possible to make its own version of Tamiflu without prior consent from pharmaceutical giant Roche. The KFDA has also asked local pharmaceutical companies for advice on the production of the drug.

Officials conducted a nationwide drill for epidemics on March 31 in accordance with a newly approved disaster and safety management law. The drill took place in 16 cities and provinces.

SRI LANKA

Sri Lanka has said it will access a World Health Organisation stockpile of bird flu vaccine in the event that the virus spreads to the country. Health Minister Nimal Siripala de Silva said there were no reported cases of bird flu among poultry on the island, but the government will alert veterinarians to look out for any signs of the disease.

However, officials are preoccupied with an upcoming presidential election on November 17, tsunami relief efforts and a bitter controversy over a proposed peace deal with Tamil Tiger rebels.

TAIWAN

Taiwan is ready to begin production of its own version of Tamiflu, and has said it is prepared to ignore the patent held by pharmaceutical firm Roche if necessary. However, the government has said that it will not market the drug commercially. A generic version of the drug produced by the island's National Health Institute is said to be 99 percent akin to Tamiflu produced by Roche.

Taiwan, which says it can manufacture the drug faster and more cheaply than Roche, aims to have enough to treat about four percent of its population of 23 million by mid- 2006.

According to Department of Health (DOH) Minister Hou Sheng-mou, the government is planning to funnel NT\$20 billion (US\$597 million) into avian flu prevention and control.

The government is adopting a "four-cordons" defence strategy to keep the H5N1 virus and its possible mutations from entering the country – stopping it offshore, at customs, in communities, and within the health care system. The Department of Health said it has stockpiled only 160,000 doses of Tamiflu, a drug seen to be effective against H5N1, far short of the five million that it estimates the country needs to fight a bird flu outbreak.

At a rare drill recently, coastguard officers showed about 1,000 government officials procedures for handling poultry smuggled into the country infected with the H5N1 strain of the virus. During the hour-long exercise in a stadium in Taipei's suburbs, the coastguard officers, wearing protective suits and masks, demonstrated how they would confiscate and then destroy the smuggled birds. Smuggling is rampant between Taiwan and the Chinese mainland, which is separated by the Taiwan Strait, 170km (105 miles) wide at its narrowest point. Agricultural experts also demonstrated taking samples from chickens on farms suspected of having bird flu while government agencies established taskforces to try to contain the outbreak.

Taiwan reported its first cases of avian flu on October 20. They were discovered in a smuggled cargo of exotic birds. Officials said they had encountered the H5N1 strain of bird flu in birds shipped in a container smuggled from China. The authorities said the birds had been destroyed and played down fears that their infection could have spread further.

THAILAND

The Ministry of Public Health has stockpiled 80,000 doses of Tamiflu. Another 20,000 have been ordered and are expected to arrive in February. Separate orders of one million capsules each have been placed for 2006 and 2007.

However, observers remain critical of the commitment of the government to contain the disease in local poultry and are sceptical of the apparent rarity of human infections so far this year. Until the announcement of another death from bird flu in mid-October, the last recorded human case of bird flu in Thailand was in October 2004.

According to Pajjit Warachit, director-general of the Medical Sciences Department, the Public Health Ministry is planning to conduct a bird flu vaccine trial on humans in the middle of next year. The ministry has asked for cooperation from Japan's Osaka University to produce a pilot batch of 30,000-100,000 doses of vaccine from a seed sample provided by the World Health Organisation (WHO). The shipment from Japan would be ready by early next year, Pajjit said. The country also has plans to produce its own generic version of Tamiflu.

Meanwhile, bird flu appears to be spreading rapidly in the country. Currently, 39 of the nation's 76 provinces have reported confirmed or suspected cases of fresh infections. Only last week, the authorities had just 21 provinces under close watch. Officials are also reporting resistance from some villagers who had tried to prevent officials from culling their birds. Health officials claimed on October 24 that they have assigned 900,000 volunteers to perform house-to-house checks for signs of bird flu in local poultry.

A Kanchanaburi hospital on Tuesday (Oct 25) quarantined three suspected bird flu patients – all from the same district where the country's 13th avian influenza victim contracted the disease. All patients have been given Tamiflu.

VIETNAM

According to an emergency plan being drawn up by the government in the event of a pandemic, several major hospitals would be mobilised as focal points for treating patients, with schools and public places also being used as treatment areas. Officials also plan to purchase 1,000 respiratory machines.

Other measures range from declaring a nationwide state of emergency and isolating everyone infected to culling all infected birds and banning the sale and transport of poultry from infected areas.

Vietnam has a stock of 600,000 Tamiflu tablets and plans to import 400,000 more.

The National Institute of Hygiene and Epidemiology and the Pasteur Institute in Ho Chi Minh City are the two organisations most capable of carrying out biological tests. However, in the case of a pandemic, it will simply not be possible to conduct tests on every sample. Thus, all patients showing similar symptoms would be treated as bird flu victims.

The government has also announced that patients infected with bird flu will receive free medical attention. Vietnam has promised that foreigners living in the country would be provided with the same health supervision, protective measures and medical treatment as those given to Vietnamese citizens. Even so, it is generally accepted that the country's healthcare system would be overwhelmed if 10 percent of the country's population became infected with bird flu.

Officials announced on October 20 that they had slaughtered 180 ducks on a farm in the Mekong Delta after tests confirmed the country's first outbreak of the H5N1 strain since July.

Vietnam is intensifying the detoxification and disinfection of poultry farms nationwide, especially those with large flocks of chickens and ducks, to prevent possible outbreaks of bird flu in the upcoming winter. Northern provinces such as Ha Tay, Vinh Phuc and Bac Ninh plan to re-establish poultry quarantine checkpoints along main roads to monitor the transport of fowl, according to local newspaper Labor on Tuesday (Oct 4).