

# National Contingency Plan for Preparedness and Response for Influenza Pandemic Papua New Guinea

By

National Task Force for Influenza Pandemic Threat Preparedness and Response

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### Foreword

Influenza pandemics are associated with high morbidity, excess mortality, and social and economic disruption. There were three such pandemics in the twentieth century: in 1918-19, 1957, and 1968. Experts on influenza concur that future influenza pandemics are inevitable; nonetheless, there is no way of predicting when the next influenza pandemic may strike. According to historical data, pandemics occur every 10-50 years and three to four times per century

Since 2003, highly pathogenic avian influenza strain (A/H5N1), has swept through poultry populations in large numbers of East and South Asia, Europe and even the African continent. The outbreaks are historically unprecedented in their scale, geographical spread and economic consequences for the agricultural sector of the countries affected. Tens of millions of chickens have either died or been slaughtered in an attempt to contain the disease's spread.

Avian influenza caused by influenza A/H5N1 virus in animal populations, particularly chickens and ducks, poses a continuing global human public health risk. By early July 2006, over 230 laboratory-confirmed human cases had been reported from nine countries (Azerbaijan, Cambodia, China, Egypt, Indonesia, Iraq, Thailand, Turkey, and Viet Nam) more than half of these cases were fatal. As surveillance improves, it can be anticipated that more human cases will also be detected in other countries where outbreaks in poultry are rapidly spreading. This will be accelerated if the A/H5N1 virus mutates or re-assorts and obtains human-to-human transmission ability.

The world is much smaller today and Papua New Guinea is not that far from the affected countries. In recognition of the scale of the danger posed to animal and human lives and of the potential damage to the economy in Papua New Guinea, the National Executive Council (NEC) has determined to establish the National Influenza Pandemic Threat Response Coordination Body. This body will be responsible for responding to any potential pandemic and for developing an Influenza Pandemic Threat Response Contingency Plan

The plan details strategies and response mechanisms for whole-of-Government response to an influenza pandemic. The plan provides general information on the influenza virus to assist the veterinary sector and human health care workers in the process of early identification of a viral infection. It will also provide information on proper case management to prevent death, infection control measure to be implemented and epidemiological surveillance including laboratory diagnosis needed to be instituted. This plan will also provide general guidance on non-pharmaceutical interventions for the general public such as social distance and food safety.

I on behalf of the Government and people of PNG wish to thank the WHO and AusAID for providing both technical and financial support to develop this contingency plan and very much looking forward to their continued support and the whole-of-government to use the document to prepare their sector response preparedness implementation plans.

Sir Peter Barter, KT, OBE, MP Minister of Health and Bougainville Affairs

# Abbreviations

AI	Avian influenza		
AQIS	Australian Quarantine and Inspection Service		
CPHL	Central Public Health Laboratory		
DAL	Department of Agriculture and Livestock		
ELISA	Enzyme-linked immunosorbent assay		
FAO	Food and Agriculture Organization of the United Nations		
GoPNG	Government of Papua New Guinea		
HCWs	Health Care Workers		
HPAI	Highly pathogenic avian influenza		
INGO	International non-governmental organisation		
IHR (2005)	International Health Regulations (revised 2005)		
ILI	Influenza like Illness		
NAQIA	National Agriculture Quarantine Inspection Authority		
NAQS	Northern Australia Quarantine Strategy		
NDoH	National Department of Health		
NEC	National Executive Council		
NFP	(Pandemic Influenza) National Focal Point		
NGO	Non-governmental organisation		
NIPCB	National Influenza Pandemic Coordination Body		
NIR	National Incident Room		
NTF	National Task Force		
OCHA	Office for the Coordination of Humanitarian Affairs		
OIE	World Organisation for Animal Health		
PEP	Post-exposure prophylaxis		
PI	Pandemic influenza		
PINFP	Pandemic Influenza National Focal Point. Long version of NFP.		
PNGIMR	Papua New Guinea Institute of Medical Research		
PPE	Personal protective equipment		
PRIPPP	Pacific Regional Influenza Pandemic Preparedness Project 2006-2010.		
RT-PCR	Reverse transcriptase polymerase chain reaction		
SPC	Secretariat of the Pacific Community		
ТАР	Targeted antiviral prophylaxis		
TWG	Technical Working Group		
UN	United Nations		
UNICEF	United Nations Children's Fund		
WHO	World Health Organization		

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# National Contingency Plan for Preparedness and Response for Influenza Pandemic Papua New Guinea

### Part 1 - Introduction

Influenza A viruses cause annual seasonal epidemics, and less frequent pandemics (global epidemics) which can severely affect public health. Pandemics occur when a completely new strain of influenza A to which the global human population has no or little immunity emerges from its animal source and adapts to spread efficiently in humans. Emergence is the result of either (a) re-assortment of the genetic material of human and avian influenza A viruses directly or through an intermediary animal such as the pig ("mixing vessel" theory) or (b) mutation of the avian virus with adaptation for human transmission.

Seasonal epidemics may result in excess mortality while pandemics result in high morbidity and mortality rates, and can cause enormous economic loss and social disruption. Experts in influenza concur that future influenza pandemics are inevitable; nonetheless, we have no way of predicting either when the next influenza pandemic will occur or its severity. According to historical data, pandemics occur every 10 - 50 years and three to four times per century. The last influenza pandemic occurred in 1968.

In 1998 the World Health Organization (WHO) issued a global influenza pandemic warning due to the emergence of a novel highly pathogenic influenza strain, A/H5N1, which caused deaths in poultry and a cluster of human cases and deaths in Southeast Asia. Water fowl, especially ducks, are the natural reservoir of the influenza A virus. A/H5N1 is only one of a large number of potential avian influenza viruses; however, to date only H5 and H7 strains have caused human disease. Humans are a reservoir of H1, H2 and H3 strains of influenza A, which caused pandemics in 1918-19, 1957 and 1968 respectively when they first emerged.

Since December 2003, a severe and geographically widespread epidemic of highly pathogenic avian influenza (HPAI) A/H5N1 has been taking its toll on domestic poultry and some wild bird species in Asia, Europe and parts of Africa. By early July 2006, over 230 laboratory-confirmed human cases had been reported from nine countries: Azerbaijan, Cambodia, China, Egypt, Indonesia, Iraq, Thailand, Turkey, and Viet Nam. The global case fatality rate is approximately 60%. The avian outbreak continues to spread westward from the site of its emergence in South East Asia. Fifty-four countries have reported outbreaks of A/H5N1 avian influenza since 2003 including 31 countries reporting outbreaks in poultry since 1 February 2006.

Epidemiological data from affected areas show that:

- Individuals who became sick are in the vast majority exposed to sick poultry, although there are a small number of people without a history of direct exposure to infected bird species. At the present time, humans remain accidental hosts of avian influenza as there is no evidence of efficient human-to-human transmission.
- The A/H5N1 virus has been detected in samples from wild fowl showing no sign of the disease (silent carriers).

HPAI A/H5N1 has demonstrated two of three criteria indicative of an influenza strain with pandemic potential.

- 1. A/H5N1 is a new strain of influenza that has not previously been known to affect humans and has a high mortality rate in humans.
- 2. A/H5N1 virus has crossed the species barrier from birds to humans.

Fortunately, A/H5N1 has not yet met the third criterion – efficient human-to-human transmission.

Based on the epidemiology, and as long as the avian epidemic continues to spread and people continue to fall ill, there is a significant risk of either re-assortment or mutation of A/H5N1 with adaptation for efficient human-to-human transmission. This could result in another influenza pandemic.

Data from the last three pandemics suggest that it would take about two to three months for a new pandemic virus to spread from its country of origin to another country, and six months to spread worldwide. However, in the present era of rapid international travel and trade, a new pandemic influenza strain may actually spread more quickly. Moreover, influenza pandemics usually occur in two or more waves, either during the same year or in successive influenza seasons. The second pandemic wave may appear within three to nine months after the first one and have an even more severe health impact than the first wave. Each pandemic wave may last six to eight weeks.

In summary, while the time between the emergence of a pandemic strain of influenza and its arrival in Papua New Guinea may be rather short, the pandemic itself will most likely last a considerable amount of time. It is thus imperative to be prepared by planning the measures to be taken to minimize the health, social and economic impact of the next influenza pandemic in PNG.

#### **Overview of the National Contingency Plan for Pandemic Influenza**

Pandemic influenza can be regarded as a complex emergency that affects all aspects of social and economic functioning on a global scale. Accordingly, it requires a whole-of-Government approach with involvement by a range of GoPNG, non-governmental, industry and community partners to minimise the impact of pandemic influenza in PNG.

In addition, the GoPNG will work closely with international partners including the World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO) and the World Organisation for Animal Health (OIE) in their efforts to contain the spread of highly pathogenic avian influenza A/H5N1 and prevent the emergence of a pandemic strain of influenza. GoPNG will also collaborate with countries and regional networks such as the Secretariat of the Pacific Community (SPC) in the Asia Pacific Region to strengthen epidemic intelligence and response capacity, and with donor agencies to secure the necessary technical and financial support to fully implement this plan.

This Plan replaces the 2004 *PNG Interim Papua New Guinea Guidelines for Action in the event of Avian Influenza A/H5N1 Virus Outbreak.* This Plan is a living document that will be updated as required in accordance with new knowledge about the A/H5N1 virus and changes in our understanding about the best approaches to its containment and control.

The latest plan, now referred to as the *National Contingency Plan for Preparedness and Response to an Influenza Pandemic, Papua New Guinea* (the Plan), targets a wide range of people who will be involved in planning and responding to the health aspects of an influenza pandemic - health care workers, emergency responders, health planners, public health laboratories, as well as those involved in the procurement, registration and supply of pharmaceuticals - and links to the plans of other key agencies in the response.

The primary audience for preparedness planning in the health sector are the National, Provincial and District health authorities, as the provision of community-based health care and essential services is the jurisdiction of the provinces and districts while hospital-based services are under the authority of the National Department of Health.

#### Title

This Plan shall be titled the *National Contingency Plan for Preparedness and Response to an Influenza Pandemic*, Papua New Guinea abbreviated to '*National Contingency Plan for Pandemic Influenza*'

#### Aim

The aim of this Plan is to outline the arrangements for the management of avian influenza in humans and pandemic influenza in PNG.

#### Scope and Objectives

The National Department of Health is a key combat agency for pandemic influenza as part of its primary responsibility for ensuring that there is adequate preparedness for public health emergencies in PNG. This is done in conjunction with Provincial and District health authorities through a coordinated whole-of-Government approach of preparedness activities.

This Plan identifies the operational roles and responsibilities of the NDoH in PNG's response to influenza pandemic, and planned activities to rapidly detect and manage a pandemic. The Plan recognises the role of other GoPNG Departments, Provincial and District Authorities, churches, other non-governmental organisations (NGOs), international NGOs (INGOs), and the private sector, including general practitioners, in an integrated emergency management response to combat pandemic influenza.

The objectives of this plan are to:

- Ensure adequate surveillance is in place so that the country can rapidly detect, diagnose, characterise and respond to a pandemic influenza virus that may gain entry into the country
- Prevent the spread of avian influenza virus from its native host (wild birds) into and amongst domestic poultry or other non-native species, including humans
- Prevent the entry into the country of avian influenza virus by any preventable measures (i.e. other than via wild migratory birds)
- Limit pandemic spread through early containment measures
- Limit morbidity and mortality from infection during a pandemic
- Ensure essential services during a pandemic, sustain infrastructure and mitigate the impact to the economy and the function of the society
- Provide the public, health care workers, the media and other service providers with up to date information.

#### **Components of the Plan**

The World Health Organization recommends that all pandemic preparedness plans include five components:

- Coordination (Part 3 describes roles and responsibilities of health authorities and Part 4 describes the functions of other agencies involved in the pandemic response)
- Preparedness and prevention (Part 5)
- Rapid detection and response (Part 6)
- Health services management (Part 5)
- Risk communication (Part 5)

Key activities and resources needed to implement the pandemic plan effectively include:

- Trained staff and strong public health infrastructure
- Collaboration between countries and with regional partners
- Safe clinical case management and infection control
- Laboratory capacity
- Stockpiles of PPE, antiviral and antimicrobial drugs and possibly vaccines
- Non-pharmaceutical interventions, including social distancing

• A risk communication strategy that incorporates corporate communications (e.g. outbreak communications via the media), IEC materials and communications to reduce risky behaviours (e.g. unprotected contact with dead or sick poultry) and promote healthy behaviours (e.g. hand washing, food safety etc).

# Most important related documents used in the development of this Plan

The following documents are related to this Plan and are held by Disease Control at the NDoH.

- WHO global influenza preparedness plan. The role of WHO and recommendations for national measures before and during pandemics, 2005.
- WHO Draft Protocol for Rapid Response and Containment, 17 March 2006 update.
- Pakistan Ministry of Health, WHO and NIH. Toolkit for early detection and control of human cases of avian influenza. Pakistan, 2006.
- WHO Recommended laboratory tests to identify avian influenza A virus in specimens from humans, June 2005.
- WHO Interim Guidelines for Health Monitoring of Persons Involved in Culling of Animals Potentially Infected with Highly Pathogenic Avian Influenza Viruses, 22 March 2004.
- Public Health Considerations in the Application of Measures to Contain and Control Highly Pathogenic Avian Influenza (HPAI) Outbreaks in Poultry. World Health Organization Regional Office for the Western Pacific, 26 April 2004.
- Avian Influenza, including Influenza A (H5N1), in Humans: WHO Interim Infection Control Guideline for Health Care Facilities, 9 February 2006.
- Public Health Interventions for the Prevention and Control of Avian Influenza. A manual for improving biosecurity in the food supply chain: Focusing on live animal markets, March 2006.
- Review of Latest Available Evidence on Risks to Human Health through Potential Transmission of Avian Influenza (H5N1) through Water and Sewage. Last updated 24/03/2006.
- Pandemic Influenza Preparedness and Mitigation in Refugee and Displaced Populations. WHO guidelines for humanitarian agencies. April 2006.

#### Procedures for decision making

Designation of pandemic Phases, including decisions on up scaling and downscaling, will be based on recommendations of the National Influenza Pandemic Threat Response Coordination Body and its technical working group (the National Task Force) and be made by the Prime Minister, GoPNG.

The Prime Minister and/or the NEC will determine when PNG will move from a local (District or Provincial response) to a national response against avian or pandemic influenza on the advice of the National Influenza Pandemic Threat Response Coordination Body. Local and provincial responses are components of the national response. In Phases 2-4 when the pandemic risk is regarded as very low to low (see Part 2, Table 1 for the Pandemic Phases), the response to avian influenza in poultry and A/H5N1 or other novel influenza strain in humans will be a predominantly District and Provincial response although the whole of PNG will be in a state of alert. The national response will be resource support to the affected areas and coordination of localised outbreaks.

Phase 5, 6 and the Recovery Phase will require national responses.

# Roles of committees and task forces involved in response, and their terms of reference

#### National Influenza Pandemic Threat Response Coordination Body

In recognition of the scale of danger to animal and human lives and the potential damage to the economy, the National Executive Council (NEC) established the National Influenza Pandemic Threat Response Coordination Body to respond to any potential pandemic. This body will coordinate the national response to any threat and effectively implement preparedness arrangements in concert with multi-sectoral partners. The Body is also responsible for maintaining the national focus in developing an integrated pandemic threat preparedness framework; securing resources required by technical agencies and ensuring there is support at all a level of government, private sector and the community.

The Coordination Body consists of the designated or appointed representative from Central Agencies and line technical Agencies of the PNG National Government, including:

- Department of the Prime Minister and NEC (Chair)
- Department of Provincial and Local Government Affairs
- National Disaster Management Office
- Department of Treasury
- Department of Finance
- Department of National Planning & Rural Development
- Department of Justice and Attorney General
- Department of Community and Social Development
- Department of State Enterprises and Communications
- Department of Agriculture and Livestock
- National Department of Health
- National Agriculture Quarantine Inspection Authority (NAQIA)

The Terms of Reference of the Coordination Body include the following:

- Secure political commitment and maintenance of leadership at national, provincial and local levels
- Coordinate the development and oversee the implementation of the *National Contingency Plan for Pandemic Influenza*
- Support technical agencies in the development and implementation of their national preparedness and response plans
- Secure approval and ensure resources including personnel and funds are made available on timely basis to the technical agencies
- Solicit technical and funding support from local and international development partners as required
- Monitor the progress of the response through the Technical Task Force and direct preparedness arrangements as required
- Provide regular feedback to the Prime Minister and/or the NEC
- Undertake other tasks as directed by the Prime Minister and/or NEC.

Annex 2 lists the contact details of key personnel involved in PNG's pandemic planning and response at the national level.

#### National Pandemic Influenza Threat Response Technical Task Force

In recognition of the nature of the influenza pandemic itself and the need for several national technical agencies to share limited resources and maintain close collaboration to protect both animal and human

lives, the National Executive Council decided to establish the National Influenza Pandemic Threat Response Technical Task Force. The Task Force shall report to and operates under the direction of the National Influenza Pandemic Threat Response Coordination Body. The membership of the task force includes the core National Government and international technical agencies whose responsibility includes responding to such issues. Other Government Agencies, key development partners, non-governmental organisations and community groups will be co-opted as reported.

The core membership of the National Task Force consists of the designated or appointed representative from:

- National Department of Health (Chair)
- Department of Agriculture and Livestock (DAL)
- National Agriculture Quarantine Inspection Authority (NAQIA)
- National Disaster Management Office
- Papua New Guinea Institute of Medical Research (PNGIMR)
- World Health Organization (WHO)

The Committee may co-opt members from other Government agencies, UN agencies, NGOs, INGOs and private enterprise as and when considered necessary.

The Terms of Reference of the National Task Force are:

- Maintain technical leadership in animal and human health, maintain national and international surveillance, undertake preparedness measures as required and advise the National Government through the National Coordination Body of the potential threat to PNG.
- Coordinate the development of integrated preparedness plans, secure resources and coordinate the implementation of planned activities
- Liaise with the respective Central Agencies to ensure required resources by technical agencies are made available on timely basis and support technical staff in the implementation of planned activities
- Support provinces, hospitals and other agencies involved and ensure they are fully informed of the national strategic directions and that their input is appropriately coordinated
- Secure technical and financial support from local and international development partners as required and account for their use
- Monitor the progress of implementation of planned activities and provide regular written briefs to the Chairman of the Coordination Body and/or the Prime Minister
- Undertake other tasks as directed by the Prime Minister and/or NEC through the National Coordination Body.

#### Technical Working Group

The Technical Working Group was established between the NDoH, NAQIA and WHO by drawing on key technical and policy officers responsible for the prevention and control of avian and pandemic influenza.

The Terms of Reference of the TWG are to:

- Provide technical support and advisory services to the NFP and NTF
- Formulate technical and operational policies, budgets and SOPs for avian and pandemic influenza
- Support and monitor implementation of policies, guidelines and SOPs on avian and pandemic influenza in the field

- Evaluate the effectiveness of interventions to prevent and control avian and pandemic influenza
- Assist in the training of human health and veterinary staff in the prevention and control measures, including field teams
- Provide technical support to field teams, Provincial and District Health Authorities

The current core disciplines represented in the Technical Working Group are:

- Communicable disease control and field epidemiology
- Disease surveillance
- Project management
- Veterinary science
- Data management
- Laboratory science
- Adult and paediatric clinical case management
- Public Awareness and Communications
- Logistics
- Legal

Annex 1 illustrates the command and control structure for pandemic influenza response for the health sector. Annex 2 - Participating agencies lists the contact details of key personal in participating agencies.

## Part 2 – Key concepts

PNG response to an influenza pandemic will be a graduated response based on pandemic Phases. The Phases in this Plan are consistent with current World Health Organization global recommendations. The Plan also includes rapid response and containment activities in the event of signals of emerging pandemic influenza at source (see *WHO pandemic influenza draft protocol for rapid response and containment, Updated draft 30 May 2006* which provides details on the process for countries and WHO in the event of a credible signal of emerging pandemic influenza).<sup>1</sup> These activities include strengthening local, national and regional capacities for rapidly detecting, reporting and assessing any early signal of a potential influenza pandemic.

#### Overview of pandemic phases and response mechanism

The *National Contingency Plan for Pandemic Influenza* is based on the World Health Organization recommended six phase approach. Although A/H5N1 avian influenza is currently is novel influenza strain considered the highest risk for the emergence of pandemic influenza, the next pandemic virus may be a different strain that is not associated with disease in poultry. The sequence of progression of the next pandemic strain may also vary and the portal of entry of a pandemic strain into PNG may be difficult to predict. Therefore, PNG may need to move upscale and down scale in a non-sequential order.

Inter-pandemic period	<b>Phase 1</b> No new influenza virus subtypes have been detected in humans in the country. An influenza virus subtype that has caused human infection or diseases may or may not be present in animals. If present in animals, the risk of human infection or disease is considered to be low.	
	<b>Phase 2</b> No new influenza virus subtypes have been detected in humans in the country. However, a circulating animal influenza virus subtype poses substantial risk of human infection and disease.	
Pandemic alert period	<b>Phase 3</b> Human infection(s) with a new subtype but no human-to-human spread in the country, or at most rare instance of spread to a close contact.	
	<b>Phase 4</b> Small cluster(s) with limited human-to-human transmission but spread is highly localized in the country, suggesting that virus is not well adapted to humans.	
	<b>Phase 5</b> Larger cluster(s) but human-to-human spread still localized in the country, suggesting that virus is becoming increasingly better adapted to humans, but many not yet be fully transmissible (substantial pandemic risk).	
Pandemic period	Phase 6 - Pandemic phase Increased and sustained transmission in general population.	
Post-pandemic period	Return to inter-pandemic period.	

#### Table 1 - Description of the pandemic phases

<sup>&</sup>lt;sup>1</sup> WHO pandemic influenza draft protocol for rapid response and containment, Updated draft 30 May 2006 <u>http://www.who.int/csr/disease/avian\_influenza/guidelines/protocolfinal30\_05\_06a.pdf</u>

Notes on the Pandemic Phases

- The distinction between Phase 1 and Phase 2 is based on the risk of human infection or disease resulting from circulating strains in animals. The distinction would be based on various factors and their relative importance according to current scientific knowledge. Factors may include pathogenicity in animals and humans; occurrence in domesticated animals and livestock or only in wildlife; whether the virus is enzootic or epizootic, geographically localized or widespread; other information from the viral genome; and/or other scientific information.
- The distinction between phase 3, phase 4 and phase 5 is based on an assessment of the risk of a pandemic. Various factors and their relative importance according to current scientific knowledge may be considered. Factors may include, rate of transmission; geographical location and spread; severity of illness; presence of genes from human strains (if derived from an animals strain); other information from the viral genome and/or other scientific information.

At the time of writing, the world is in **global Phase 3** - human infection(s) with a new subtype (A/H5N1) but no human-to-human spread, or at most rare instance of spread to a close contact. A/H5N1 outbreaks in poultry have been detected in West Papua Province, Indonesia but no human cases of avian influenza reported.

#### **Operational concepts**

The control of communicable diseases, including the management of human epidemics, relies on prompt detection and reporting. To achieve this, a nationwide surveillance system for notifiable diseases is managed by the Disease Control Branch, NDoH. Cooperation between health service providers and health authorities is essential for the effective management of human epidemics and will be particularly important in the early detection and management of pandemic influenza.

In responding to a human epidemic, including influenza pandemic, several operational principles apply, including the following:

- Health care workers (HCWs) and pathology laboratories should report cases of notifiable diseases and unusual clusters of disease to the NDoH without delay if an epidemic is anticipated or suspected (refer Annex 1 Health sector command and control structure for avian influenza and pandemic influenza) for details of the line of reporting notifiable and epidemic-prone diseases). At the same time, if required, advice and support can be sought from the Disease Control Branch.
- Cases should be isolated and treated as appropriate.
- Contacts need to be traced, quarantined, or treated, as appropriate.
- The cause of the disease cluster or outbreak needs to be investigated and appropriate action taken, including the restriction of travel or closing of premises.
- Groups at risk of infection should use transmission-based precautions. This may include the use of personal protective equipment (PPE), prophylactic treatment, post-exposure prophylaxis (PEP) and/or immunisation where possible and appropriate.
- The public should be informed how to reduce the risk of infection and transmission.
- The human rights of potentially infected people should be observed wherever practicable, including obtaining information and consent.

#### **Basic Principles**

#### The pillars of the National Contingency Plan for Pandemic Influenza

• **Prevention:** Activities designed to strengthen border and other defences to best ensure that the disease cannot gain entry by preventable measures, e.g. trade or trafficking. In the context

of highly pathogenic avian influenza A/H5N1, humans are accidental hosts of this virus so prevention focuses on actions to reduce the risk of avian-to-human transmission.

• **Preparedness, Communication and Response Coordination:** Surveillance systems that provide continuous information to ensure the earliest warning possible to protect the poultry and human populations and to establish suitable resources reserves and coordination of available resources such that an effective response will be immediate and comprehensive if the disease is detected in human and/or poultry.

Preparedness is the ability to provide a timely response to an emergency. A prepared workforce and a prepared and resilient community provide the capacity to reduce the effect of human epidemic emergencies.

Preparedness depends on planning and operations. **Planning** is the use of knowledge and experience to predict and prevent or mitigate the effects of emergencies through organised action. **Operations** are the provision of human, technical, material, financial and logistical resources necessary to implement the *National Contingency Plan for Pandemic Influenza* and respond to the health threat posed by pandemic influenza.

- **Surveillance, Assessment and Diagnosis:** Comprehensive systems to ensure the earliest possible detection of infection and potential threat to protect the poultry industry, trade and the population.
- **Response and Containment:** Actions to limit the spread of the outbreak and to mitigate the health, social and economic impacts of a pandemic. Measures to contain pandemic influenza include case finding and case isolation, contact tracing and quarantine, the use of pharmaceutical interventions and public health measures such as social distancing, and health care-based and community-based infection control. In the absence of a pandemic vaccine and limited supplies and duration of use of antiviral drugs, infection control (the use of PPE, hand hygiene and cough etiquette and environmental hygiene to reduce environmental contamination by infective secretions) will be the most important control measures in most countries.
- **Recovery:** Preparation to ensure that if there is an outbreak, trade, production and normalcy is rapidly restored upon containment or eradication of the outbreak, and to ensure the needs of those directly affected by the outbreak are adequately addressed without delay.

#### Legal frameworks that apply to pandemic and avian influenza

#### Legal framework for the PNG pandemic response

The NDoH is a key combat agency for pandemic influenza. The responsibility for managing the human health effects of a pandemic is embodied in the following Acts:

- Public Health Act, 1987
- Quarantine Act, 1954
- Animal Disease Control Act, 1953
- Pharmaceutical
- Organic Law,

#### International Health Regulations (2005)

PNG is a State Party to the International Health Regulations (IHR), 2005. The IHR (2005) provide a legal framework for the international public health response to control cross-boundary infectious diseases and other public health events of international concern. The purpose and scope of the IHR (2005) "are to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with, and restricted to, public health risks and which avoid unnecessary interference with international traffic and trade." The IHR

explicitly recognise the need for intersectoral and multidisciplinary cooperation in managing risks of potential international public health importance, with specific reference to new subtypes of influenza with pandemic potential.

The revised IHR requires WHO Member States to assess, develop, strengthen and maintain their capacity at each level to meet the minimum core capacity requirements for disease surveillance and response i.e. mechanisms to detect, verify, notify and respond rapidly and effectively to emerging diseases and other public health emergencies of national and international concern.

Under the IHR (2005), each State Party is required to *notify WHO within 24 hours of assessment of public health information*, of all events which may constitute a public health emergency of international concern within its territory, as well as any health measure implemented in response to those events.

#### The Asia Pacific Strategy for Emerging Diseases (APSED)

The Asia Pacific Strategy for Emerging Diseases (APSED) has been endorsed by Member States of the WHO Western Pacific Region and the South East Asian Region as the bioregional strategic document to guide countries and regional partners in implementing the core capacity requirements of the IHR (2005) as they relate to communicable disease prevention and control.

In order to reduce vulnerability to emerging diseases, countries of the Region need to strengthen both public health systems for standard responses to disease threats and develop specific preparedness arrangements for specific threats such as avian influenza and pandemic influenza.

All countries are encouraged to implement the emergency arrangements for avian and pandemic influenza as soon as possible using a stepwise approach to building pandemic preparedness.

- Step 1 involves building capacity to rapidly identify, and respond to, avian influenza outbreaks in order to reduce the risk of spread to humans.
- Step 2 requires countries to have the ability to rapidly implement the WHO protocol for rapid response and containment to signals of emerging pandemic influenza at source.
- Step 3 involves preparedness for the appearance and spread of a pandemic strain of influenza (Phases 5 and 6) in order to reduce the negative consequences of a pandemic.

#### The Terrestrial Animal Health Code for Transboundary Animal Diseases

The Terrestrial Animal Health Code  $(2005)^2$  aims to assure the sanitary safety of international trade in terrestrial animals and their products through health measures to be used by national veterinary authorities to avoid the transfer of agents pathogenic for animals or humans, while avoiding unjustified sanitary barriers.

Highly pathogenic avian influenza is an internationally notifiable animal disease to the World Organisation for Animal Health (OIE). The relevance of the Terrestrial Code to human health is that there have been a number of occasions since 2003 when AI in poultry has only come to the attention of national veterinary authorities after human cases of A/H5N1 were reported.

#### Ethical considerations

The public health response to pandemic influenza raises a number of ethical issues that have no right or wrong answers.

<sup>&</sup>lt;sup>2</sup> OIE. Terrestrial Animal Health Code. <u>http://www.oie.int/eng/publicat/en\_code.htm</u>

- The disproportionate burden of pandemic risks to first responders (animal health, human health and emergency services personnel) during the course of an avian influenza and pandemic response.
- Deciding on priority groups for scarce resources (see table 2), including antivirals and pandemic vaccine when available.
- Using drugs and vaccines off-licence. This may apply to the use of antivirals in pregnancy and in children.
- Issues of informed and voluntary consent in the context of the mass administration of antivirals in the context of rapid containment and response and/or pandemic vaccines when available.
- Enrolment of critically ill patients in international clinical trials of treatment safety and efficacy that may have no direct benefit to the patient but will inform the evidence-base for clinical management of future cases.
- Quarantine, applied on a voluntary basis, is preferable to enforced quarantine and may be equally effective. The use of voluntary quarantine is also consistent with modelling studies that show that adherence to quarantine can be below 100% and still be effective. At the same time, national, provincial and district authorities should be legally prepared to enforce individual and community-based containment measures if warranted. This preparedness should include examination of the ethical dimensions of enforced quarantine or compliance with other recommended measures. Wherever possible, authorities should apply the principle of proportionality, whereby the least restrictive measures are applied first, followed by a graded application of more restrictive measures when evidence indicates their necessity.
- Stigma and discrimination of cases of avian influenza, emerging pandemic influenza and potentially West Papuan refugees, and the psychosocial and economic impact of public health measures on these groups.

An objective of planning for the pandemic influenza response is to identify all measures that can diminish as much as possible the impact of the pandemic on our whole population and to assess the benefits and burdens, (including the costs) of these measures.

#### Table 2 - Vaccination priority groups

- Health care workers
- Individuals working in services that are necessary for proper social and political administration (essential services)
- Individuals pertaining to vulnerable high-risk groups, e.g. immunocompromised patients
- Individuals living in closed communities, e.g. nursing homes
- Individuals in areas where there is considerable crowding and thus increased transmissibility, e.g. schools

# Part 3 - Health sector organisation and responsibilities

#### General

The organisation for dealing with outbreaks such as human cases of avian influenza and pandemic influenza is based on national-level organisation for policy determination, coordination and support, and on field organisation for managing the response at the outbreak site(s).

In general, the roles and responsibilities of the respective levels of government are as follows:

- The Government of PNG holds responsibility for the nationwide coordination of the pandemic influenza response, including surveillance, international liaison, and coordination of the use of antiviral medication and pandemic vaccines (infrastructure procurement, vaccine allocation, management and funding).
- Joint responsibilities of the NDoH, Provincial and District health authorities include ensuring distribution of plans to all organisations that may be involved in the pandemic response and liaison with these partners on an ongoing basis. They may also be involved in planning simulation exercises once plans are in place. Refinement of cost estimates and options for decision makers will also be a joint national, provincial and district responsibility.
- The Provincial and District authorities hold responsibility for adapting the *National Contingency Plan for Pandemic Influenza* to the local situation and mobilising their contingency plans and resources. Health emergency response commences at the local level and escalates through the Districts and Provinces to the national level of government.
- Local public health authorities are responsible for the first line response to human cases of avian influenza or emerging pandemic influenza with technical support from both the district, provincial and national levels as required. This involves liaising with local partners (e.g., emergency responders, hospitals, church health services, NGOs, INGOs, mortuary services) in advance of a pandemic to facilitate a coordinated response when pandemic influenza strikes in the community. It is likely that the local public health authorities, through existing or enhanced surveillance, may be the first ones to detect influenza in their community. It is essential that the lines of communication within the community and up the line to the District, Provincial Health authorities and the NDoH are clear and established in advance of a pandemic.

#### Pandemic Influenza National Focal Point

The Pandemic Influenza National Focal Point (PINFP) or National Focal Point (NFP) is the Director of Disease Control, Disease Control Branch, NDoH (or their delegate).

The responsibilities of the NFP are to:

- Manage the national arrangements for health emergencies such as avian influenza and pandemic influenza in PNG
- Provide overall direction for the prevention, control and mitigation of exotic disease outbreaks within PNG, and coordinate ground support for interventions
- Direct the activities of the National Incident Room
- Liaise with supporting GoPNG Agencies, NGOs, INGOs, industry and the private heath sector
- Coordinate avian influenza in humans and PI surveillance and disease investigations, including the deployment of field investigation teams
- Brief NDoH Executive and the Minister for Health
- Report to the National Task Force

• Provide media liaison and public information

The NFP requires discretionary powers to rapidly mobilise resources upon declaration of a disaster of national importance, including defining limits of how funds will be used. This is being considered currently.

#### National Incident Room (NIR)

The NIR will be staffed by officers of the Disease Control Branch (Disease Surveillance), including an epidemiologist, infection control specialist and a surveillance officer.

The National Incident Room is located as follows:

National Department of Health Disease Control Branch Waigani Drive Boroko, Port Moresby

*Role:* Under the direction of the NFP, outbreaks of human cases of avian influenza and pandemic influenza will be managed from the NIR.

#### Detailed functions

- Provide 24/7 coverage in the event of signals of avian influenza or pandemic influenza
- Maintain the national database on human cases of avian influenza and pandemic influenza
- Collate, analyse and interpret data collected by the sentinel surveillance systems and during field investigations, and data from near neighbour countries, and disseminate the information in situational reports to the NFP
- Systematic monitoring of reports from WHO, the Secretariat of the Pacific Community (SPC), the World Organisation for Animal Health (OIE) and the UN Food and Agriculture Organization (FAO)
- Collaborate with the NDoH HF radio network for field and hotline communications for avian influenza and pandemic influenza
- Provide assistance to Provincial and District Health Authorities with contact tracing and movement controls outside the outbreak area as indicated
- Collaborate in training of multidisciplinary field teams in avian influenza and PI response
- Liaise with the National Task Force through the NFP

#### **Provincial Health Authorities**

- Prepare provincial influenza pandemic plans, including budgeting, stockpiling of essential equipment (PPE etc), surge capacity requirements, identification of rapid response teams
- Conduct rapid assessment of signal of AI or PI and provide the NDoH with situational reports
- Adapt national pandemic guidelines and SOPs to local conditions
- Ensure the provincial information network is fully operational
- Implement and monitor hospital and community-based sentinel surveillance systems
- Disseminate and promote IEC materials for the prevention and management of AI and PI
- Work with the community, NGOs and INGOs to prepare for mass fatalities in the event of a severe pandemic

- Review provincial capacities and capabilities to provide welfare services and maintain the lifeline (water, food, shelter, communications, essential drugs) in the event of home isolation and quarantine
- Test and update provincial influenza pandemic plans as required, including testing reporting structures and mechanisms within the province and with the NDoH
- Ensure effective liaison between Provincial Health staff, NAQIA, DAL and the Department of Education
- Work closely with District Health authorities and the NDoH to ensure clear lines of communication and timely reporting

#### **District Health Authorities and Local Level Government**

- As above at the District level
- Implement and monitor the Health Centre Sentinel Surveillance System for ILI
- Work closely with Provincial Health authorities and the NDoH to ensure clear lines of communication and timely reporting
- Provide acute clinical care at the source of infection
- Manage health centre and community-generated medical waste

#### Hospitals

- Carry out sentinel surveillance for influenza-like illness (ILI) and pneumonia clusters within families
- Undertake clinical triage in the event of ILI and unexplained severe respiratory disease
- Undertake clinical case management of persons under investigation for AI or PI and confirmed cases, including provision of isolation facilities and acute care
- Provide staff for field hospitals or clinics if required
- Liaise with public health authorities
- Manage hospital-generated medical waste in the event of a pandemic
- Prepare the hospital to meet elevated needs during the pandemic period
- Plan and provide for the hospitalisation of increased number of patients during a pandemic
- Plan for surge capacity in case of staff shortages due to illness or illness among family members
- Train personnel in the use of PPE, infection control and other prophylactic measures
- Train personnel to safely collect clinical samples perform rapid diagnostic tests for influenza detection
- Plan for the safe clinical sample transportation to the designated national laboratory for initial typing (when available)

#### Laboratories

- Provide diagnostic facilities for influenza A and B in the regional centres
- While awaiting the development of influenza A and B diagnostics (ELISA) in PNG, develop close collaboration and information exchange with a regional WHO influenza reference laboratories.

- Develop A/H5, A/H7 and A/H9 diagnostic capacity in at least one laboratory within PNG
- Work with the Preventive Medicine Platoon, PNG Defence Force, to provide rapid transportation of critical human and animal specimens from field investigations to Port Moresby for dispatch to an international laboratory
- Maintain biosafety and biocontainment standards and train staff in biosafety
- Establish and coordinate laboratory-based sentinel surveillance for influenza

#### Non-governmental health services

Currently, an estimated 49% of rural health services are provided by Christian churches in PNG. In addition, churches and other NGOs provide a range of social welfare services.

- Church health services will provide the same function as government health services in the event of AI or PI
- Advocacy, health education and social mobilisation to promote safe behaviours (e.g. hand washing, cough etiquette, safe management of ill or dead poultry and wild fowl, food safety etc), and reduce risky behaviours (e.g. handling ill or dead birds, eating dead poultry etc)
- Support to families in safe burial practices
- Welfare services in maintaining the lifeline in the event of isolation and quarantine, including the provision of food, water, shelter etc.

### Part 4 - Roles and responsibilities of other agencies

#### **Department of Prime Minister and NEC**

The Department of the Prime Minister and NEC will provide national political leadership and coordination functions during a pandemic, especially once Phase 6 has been declared and in the recovery phase of operations.

- Responsible for declaring a State of Emergency
- Active and deactivate the Plan
- Announce Phase changes
- Identification and designation of financial resources
- Key role in risk communications, including outbreak communications to the media.

#### **Department of Agriculture and Livestock**

DAL is a support agency in the PNG national response to avian influenza.

- Regulatory framework for animal quarantine and communication with FAO and OIE
- Policy and advice concerning emergency animal diseases.
- Provincial offices of DAL may be combat agencies in selected provinces

#### National Agriculture Quarantine Inspection Authority

NAQIA is a key combat agency in the PNG national response to avian influenza.

- Provide technical advice and assistance in the investigation and management of domestic poultry infected with avian influenza and wild fowl in areas affected by highly pathogenic avian influenza.
- Provide diagnostic capacity at designated animal health laboratories
- Animal health surveillance
- Legal authority under the Animal Disease Control Act rests with the Chief Veterinary Officer
- Implement containment activities including regulating markets, movement controls, tracing forward and trace back, identification of containment zones, quarantine, stamping out activities and poultry vaccination policies if required
- Recovery phase activities to help restore the commercial poultry sector and small scale poultry production
- Work with the Department of Environment and Conservation for endangered species management
- Collaboration with the NDoH, FAO, OIE, WHO, AQIS and NAQS
- Key role in risk management, including risk communication.

#### **Department of Provincial and Local Government Affairs**

The Department of Provincial and Local Government Affairs is a support agency during a pandemic.

- Coordinate all aspects of provincial and district level responses and resources
- Oversight for the National Disaster Management Office.

#### National Disaster Management Office/National Disaster Centre

The National Disaster Management Office is a combat agency during a pandemic.

- Exercise disaster powers, including designation of disaster zones
- Manage the state of emergency
- Liaise with Provincial Disaster Managers in the response to emergencies
- Activate national contingency plans to enable use of public or private buildings for healthcare
- Training personnel in disaster management skills, including planning for emergencies.

#### **Department of Treasury**

The Department of Treasury is a support agency during a pandemic.

• Assist in the identification of resources.

#### **Department of Finance**

The Department of Finance is a support agency during a pandemic.

• Appropriate and distribute funds.

#### **Department of National Planning and Rural Development**

The Department of National Planning and Rural Development is a support agency during a pandemic.

• Coordinate international support and donor coordination.

#### Department of Justice and Attorney General

The Department of Justice and Attorney General is a support agency during a pandemic.

- Draft and enact laws and regulations
- Assist in the review of regulations to accommodate pandemic responses e.g. quarantine of asymptomatic contacts.

#### **Department of State Enterprises and Communications**

The Department of State Enterprises and Communications is a support agency during a pandemic.

- Link parties involved in the response and link responding agencies with the public and external stakeholders.
- Ensure communications throughout the pandemic via Telikom.

#### Papua New Guinea Institute of Medical Research

The PNG Institute of Medical Research is a support agency during a pandemic.

- Participate in surveillance
- Provide laboratory services
- Conduct operational research and surveys
- Provide technical support as required.

#### Department of Education

The Department of Education is a key support agency during a pandemic.

- Provide health promotion and risk reduction communications and materials through schools and the school network, and its collaboration with UNICEF
- Assist in social distancing initiative e.g. closure of schools
- Provide school facilities as venues for clinics, isolation units, etc.

#### **Department of Foreign Affairs and trade**

The Department of Foreign Affairs and Immigration is a support agency during a pandemic.

- Responsible for international treaty arrangements and national membership of international organisations e.g. FAO, WHO
- Develop and enact international border policies, and travel and transportation policies
- Assist to expedite the dispatch of critical specimens to international laboratories
- Provide special clearances for international assistance e.g. Global Outbreak Alert and Response Network teams
- Develop and enact policies for the repatriation of PNG nationals overseas when a pandemic is declared.

#### PNG Defence Force

The PNG Defence Force is a combat agency during a pandemic.

- Assist with the containment of avian influenza in poultry, including culling/stamping out activities
- Assist with disease surveillance
- Assist with the transportation of critical specimens, supplies and patients
- Provide isolation wards, field hospitals and assist in public health initiatives
- Provide logistical support for response activities
- Assist in civil security if required under established call-out arrangements.

#### Police - Royal PNG Constabulary

The PNG Police Force is a support agency during a pandemic.

- Assist in the maintenance of important services and in minimising societal disruption during a pandemic
- Coordinate emergency measures of social distancing, such as the prohibition of mass gatherings, work and school closures, restriction of movement for citizens entering or leaving the country
- Provide security to stockpile materials and response staff
- Maintain civil security.

#### **PNG Fire Service**

The PNG Fire Service is a support agency during a pandemic.

- Ensure provision of routine fire fighting services
- Assist with emergency responses if required.

#### PNG Ambulance Service

The PNG Ambulance Service is a support agency during a pandemic.

- Provide patient transport
- St John's Ambulance coordinates the national emergency communications system.

#### PNG Waterboard

The PNG Waterboard is a support agency during a pandemic.

- Maintain the water supply and ensure quality and quantity to affected areas during the pandemic
- Ensure water quality standards are maintained in unaffected areas.

#### **PNG Power**

The PNG Power is a support agency during a pandemic.

• Ensure the electricity supply is not disrupted to affected areas during the pandemic e.g. protecting hospital electrical supplies, isolation centres, clinics, laboratories, mortuaries and other critical infrastructure.

#### **Telikom PNG**

Telikom PNG is a support agency during a pandemic.

- Ensure communications throughout the pandemic
- Support key combat agencies by ensuring their lines of operational communications are not disrupted.

#### PNG Civil Aviation Authority

The PNG Civil Aviation Authority is a support agency during a pandemic.

- Monitor pratique on national carriers, and international carriers arriving in PNG under the IHR (2005)
- Maintain human health and animal quarantine teams at airports
- Assist in health screening at airports in collaboration with the NDoH.

#### **PNG Harbours**

PNG Harbours is a support agency during a pandemic.

- Monitor pratique on national conveyances (ships and other vessels), and international conveyances arriving in PNG under the IHR (2005)
- Maintain human health and animal quarantine teams at seaports
- Assist in health screening at seaports in collaboration with the NDoH
- Provide security and rapid clearance of stockpile materials arriving in PNG.

#### PNG Council of Churches

The PNG Council of Churches will provide both combat and support agency functions during a pandemic.

- Church health services will provide a similar function to the national health response infrastructure
- Provide welfare services, including relief supplies and protection of the lifeline in severely affected areas
- Provide health promotion and risk reduction communications and materials, in collaboration with the Department of Education, UNICEF and NGOs
- Support communities to comply with safe burial practices.

#### **PNG Red Cross**

The PNG Red Cross is a support agency during a pandemic.

- Provide welfare services, including relief supplies and protection of the lifeline in severely affected areas
- Support communities to comply with safe burial practices if required
- Collaborate closely with health and other welfare service providers.

#### World Health Organization (WHO)

WHO is a key combat agency during a pandemic.

- Provide global leadership in pandemic planning and response. The Director General of WHO declares Phase changes
- Provide technical support for pandemic planning and response, including the development and dissemination of guidance documents on pandemic planning and response
- Assist in the procurement of critical supplies for the national stockpile (including PPE, antivirals, laboratory reagents etc)
- Assist in risk assessments for public health events of international concern under the IHR (2005).
- Mobilise human and material resources for the implementation of the Rapid Response and Containment Strategy, including the global stockpile of antivirals and other supplies
- Mobilise resources of the Global Outbreak Alert and Response Network (GOARN) upon request from GoPNG
- Facilitate access to influenza diagnostics through regional and global reference laboratory networks
- Assist in risk management and all aspects of risk communication.

#### UN Children's Fund (UNICEF)

UNICEF is a support agency during a pandemic.

- Develop and disseminate risk communication materials and assist in social mobilisation
- Collaborate closely with health and other welfare service providers, including the provision of support to internally displaced populations and refugees.

## Part 5 – Preparedness and prevention

The Preparedness section of this plan addresses prevention and preparedness activities during the interpandemic period. Components for a comprehensive pandemic influenza plan including, surveillance, vaccine programs, the use of antivirals, health services, emergency services, public health measures and communications, has been addressed in terms of the current status and capacity development. Annex 4 - Background information on avian influenza A/H5N1 and pandemic influenza provides background information on avian influenza and pandemic influenza.

#### Preventing animal-to-human spread of avian influenza<sup>3</sup>

Avian influenza is a highly contagious disease of birds which is an accidental pathogen of humans and a small number of other animals. For unknown reasons, **children and young adults** appear to be particularly susceptible to A/H5N1 avian influenza.

- Exposure to sick or dead poultry and their faeces or dust/soil contaminated with faeces) can result in human infection.
- Preventing unprotected exposure to infected poultry, wild fowl and contaminated environments will prevent most human cases of avian influenza.
- Public health messages should emphasise the risks to children.

**Cullers and poultry transporters** should be provided with appropriate personal protective equipment:

- Protective clothing, preferably coveralls plus an impermeable apron or surgical gowns with long cuffed sleeves and an impermeable apron
- Heavy duty rubber work gloves that can be disinfected
- N95 or equivalent respirators are preferred<sup>4</sup>. Standard well-fitted surgical masks should be used if N95 respirators are not available<sup>5</sup>
- Goggles
- Rubber or polyurethane boots that can be disinfected or protective foot covers that can be discarded.

**All persons** who have been in close contact with the infected animals should wash their hands frequently with soap and water. Cullers and transporters should disinfect their hands after the operation.

**Environmental clean up** should be carried out in areas of culling, using the same protective measures as above.

All persons exposed to infected chickens or to farms under suspicion should be under close monitoring by local health authorities.

It is recommended that oseltamivir be readily available for the treatment of suspected A/H5N1 respiratory infections in cullers and farm workers involved in the mass culling.<sup>6</sup>

<sup>&</sup>lt;sup>3</sup> World Health Organization. WHO interim recommendations for the protection of persons involved in the mass slaughter of animals potentially infected with highly pathogenic avian influenza viruses, 26 January 2004

<sup>&</sup>lt;sup>4</sup> US NIOSH certified N95, European CE P2, or comparable national/regional standards applicable to the country of manufacture. Higher level particulate respirators may also be used.

<sup>&</sup>lt;sup>5</sup> In the control of the outbreak of avian influenza in the Netherlands in 2003, N95 or equivalent respiratory protection was used.

<sup>&</sup>lt;sup>6</sup> For treatment, oseltamivir phosphate (Tamiflu®): 75 mg capsule twice daily, for 5 days.

Cullers should also be vaccinated with the current WHO recommended influenza vaccine to avoid simultaneous infection by human influenza and avian influenza and to minimize the possibility of a reassortment of the virus' genes<sup>7</sup>

Additional health monitoring of chicken cullers, others involved in the process and their family members should be carried out. These individuals should report any relevant health problems respiratory complaints (influenza-like illnesses or eye infections) to a health care facility. Persons at high risk for severe complications of influenza (e.g. immunocompromised, over 60 years old, or with known chronic heart or lung disease) should avoid working with affected chickens.

Serological surveillance of exposed animal workers and veterinarians is encouraged.

In liaison with designated laboratories, full blood and post mortem specimens (intestinal contents, anal, nose and throat swabs, trachea, lung, intestine, spleen, kidney, brain, liver and heart) of animals (including pigs) should be collected for investigation of new viral isolates.

#### Surveillance and response

Disease surveillance is the systematic and ongoing collection, collation, analysis, interpretation and dissemination of data for public health action.

Public health surveillance utilises case definitions and case classification to determine whether an individual presenting with a set of symptoms and signs have a particular disease. This assessment relies on clinical information, epidemiological links and ultimately, laboratory tests. Refer to Part 6 of the present plan.

The country needs to implement and strength the current animal and human surveillance systems considering, early warning and sentinel systems for avian influenza and Influenza like illness (ILI) following the case definitions recommended by WHO.

The surveillance systems should be sensitive enough to determine the trend of the ILI, providing background epidemiological data on Influenza, the strains circulating in the country, identify severe cases of influenza and detect the presence of a potential pandemic influenza virus to guide the development of the national policy for control of influenza at different stages of the pandemic phases.

Details of the surveillance and response systems are currently been developed in the specific Agency Influenza pandemic preparedness plans and SOPs; NDoH and NAQIA for human and animal components respectively.

#### Health Services Emergency Planning

#### **Current Status**

Due to the broad range of activities, this section is an overview of some of the key issues that will be faced by health care service providers during a pandemic. Each administrative level of the PNG health system should develop operational plans and standard operating procedures to ensure service continuity following the NDoH plan and SOPs.

#### Infection Prevention and Control - General principles

#### Characteristics of the influenza virus

• The incubation period for influenza usually ranges from one to three days.

<sup>&</sup>lt;sup>7</sup> All concerned (persons at risk both environmentally and occupationally) should be vaccinated with the current WHO recommended influenza vaccine as soon as possible prior to anticipated risk exposure (2 weeks are required to develop preventive immunity by vaccination.). This does not specifically protect against A/H5N1.

- Influenza is spread from person-to-person by inhalation of small particle aerosols, by large droplet infection, by direct contact, or by contact with articles recently contaminated by nasopharyngeal secretions. Recent reviews of the data indicate that the relative importance of droplet, contact and airborne transmission in influenza is unclear. Direct contact via the conjunctiva and mucous membranes of the mouth and nose with respiratory secretions appears to account for most transmissions of seasonal influenza (spread within 1 metre of an infected person).
- Influenza is highly contagious; it can spread quickly in settings where large groups of people are gathered together, for example, among institutionalized populations.
- The period of communicability for influenza virus is during the 24 hours before the onset of symptoms, and during the most symptomatic period, usually three to five days from clinical onset in adults and up to seven days in young children.
- In adults and children, the amount of viral particles shed for instance, while sneezing or coughing is related to the severity of illness and temperature elevation. For those receiving antiviral therapy, the duration of virus excretion is likely to be shorter.
- Survival of the influenza virus, outside the body, varies with temperature and humidity. It generally survives 24-48 hours on hard, non-porous surfaces, 8-12 hours on cloth, paper and tissue, and five minutes on hands. Survival of the virus is enhanced under conditions of low humidity and in the cold.

#### Staff protection in health care settings

# Table 3 Essential list of PPE for barrier nursing practice, infection control and laboratory personnel Infection Control Environment

Infection Control Equipment					
Equipment	Number	Details			
Coveralls	30	10 large, 10 medium, 10 small (includes hood)			
		polypropylene			
Disposable Aprons (yellow)	200	30 large, 40 medium, 30 small			
Shoe covers	200 pair	Polypropylene			
Hair cover (bouffant)	200				
Safety glasses	30	Not adequate eye protection: see notes above.			
Non-fog goggles	50	2-lens			
UVEX goggles	10	Can be worn with glasses/spectacles			
N95 particulate mask	200				
Disposable gloves	500 pair	100 large, 200 medium, 200 small			
Surgical gloves	150				
Aprons: impermeable	200				
Rubber boots	10 pairs	2 L, 4 M, 4 S			
Biohazard disposal bags	100	Autoclavable			

# • During the next pandemic it will be imperative to keep health care workers as healthy as possible. Occupational health issues which need to be considered include: vaccination of health care workers, use of personal protective equipment (see table 3), work exclusion/fitness to work criteria, and work reassignments.

- The institutional infection control guidelines include: immunization, hand hygiene, use of personal protective equipment (masks, gloves, and gowns), patient isolation or cohorting, restriction of visitors, staff cohorting, environmental cleaning, and education for staff, patients and visitors.
- The community infection control guidelines contain sections relevant to the public, community-based health care workers, private medical and dental practices and traditional

healers. The issues addressed include: hand hygiene, the use of personal protective equipment (masks and gloves) and cohorting persons with influenza-like illness (ILI).

#### Environmental decontamination

The guidelines for environmental decontamination, including cleaning, disinfection and the management of medical waste are in the NDoH pandemic preparedness plan following WHO recommendations.

#### **Clinical Management of Influenza**

The clinical management of avian influenza and pandemic influenza guidelines provides detailed information on the clinical management of persons with A/H5N1 and clinical algorithms for the triage of persons under investigation for avian influenza or other novel influenza strains, these can be find in the NDoH pandemic plan.

The last two influenza pandemics occurred in 1957–1958 and 1968–1969. Therefore, the majority of currently practicing clinicians would have little or no experience with pandemic influenza disease and may not be aware that its clinical presentation may vary from seasonal influenza. Extensive training activities will be required for implementation. Institutions such SPC, WHO and AQIS have developed a work plan within the Pacific Regional Influenza Pandemic Preparedness Project (PRIPPP) 2006 – 2010, where comprehensive training programs are considered.

#### **Clinical triage**

A stepwise approach will be used to the clinical triage of persons presenting with severe unexplained acute respiratory illness. Once the National contingency plan for pandemic influenza is activated all patients presenting to a hospital with severe un explained acute respiratory disease should be placed in a separate room for triage, and examined with personnel using PPE for respiratory protection, at the isolation room.

If the patient answers "yes" to any of the epidemiological questions related to a suspected case of Influenza pandemic virus (or A/H5N1 virus), the attending clinician or health worker will notify the case to the authorities immediately and apply treatment (see table 4) following the recommended guidelines. Specific guidelines will be presented in the NDoH plan. Refer to Annex 6 - Clinical Triage

#### Table 4 - WHO recommended treatment regimens of oseltamivir

Adults: 75 mg twice daily for five days.

Children from 1 year or older: weight adjusted doses 30mg twice daily for  $\leq$  15 kg 45mg twice daily for >15 to 23 kg 60mg twice daily for >23 to 40kg 75mg twice daily for >40kg Children up to 1 year of age: not recommended

#### **Discharge policy**

Patient discharge procedures will depend on whether a patient under investigation for A/H5N1 avian influenza or who meets the criteria for a pandemic signal returns a positive laboratory result after testing at a WHO international influenza laboratory.

• Studies are required to provide better understanding of viral excretion patients in humans infected with the influenza A/H5N1 viruses. Until further evidence available, WHO

recommends that infection control precautions for adult patients remain in place for 7 days after resolution of fever.

- Previous human studies have indicated that children younger than 12 years can shed virus for 21 days after onset of illness. Therefore, infection control measures for children should ideally remain in place for this period.
- Once started on oseltamivir, the patient must complete the whole course following WHO recommended treatment regimens.

#### **Resource Management**

- Adequate resourcing and expertise are essential to preparedness for epidemics and other emergencies. In an influenza pandemic, large quantities of medical supplies and basic community support maybe required at short notice.
- Water, food, clothing and shelter supplies may be required in addition to medical equipment, drugs and health care workers, as well as psychosocial support and other aspects of social welfare. The NDoH maintains a knowledge base of the location and availability of medical supplies around PNG that may be called upon in an emergency, and has regular contact with Provincial Health Authorities which in turn communicate regularly with District health services. The non-governmental sector in PNG provides both health and welfare services and will play an important role in a pandemic response.
- The National Coordination Body is responsible for securing approval for and ensuring the availability of resources for pandemic response, including making personnel and funds available on timely basis to the technical combat agencies including the NDoH.
- Although the impact of a pandemic is unpredictable, for planning purposes it is advisable to expect a major disruption in critical community services. The health care system's response to this situation will be crucial. National, Provincial and District health care services and institutional planners will need to assess their health resource utilisation and their current capacity to cope during severe influenza epidemics and compare this to the estimated capacity required to response to a pandemic for their catchment area.
- It is expected that a substantial proportion of the work force may not be able to work for some period of time during the pandemic due to illness in themselves or in their family members. Health care workers are likely to be at higher risk of illness due to their exposures. During the 1957–1958 pandemic, the United Kingdom experienced an estimated 20% absenteeism rate in the general population and one-third of the staff in one hospital was ill during the peak of the pandemic.
- Successive pandemic waves leave little time for recovery. Each facility needs to evaluate its human resources. As health care and hospital workers encompass a vast number of different individuals and occupations, a list of health care workers has been developed to assist with planning. Emergency reallocation of staff and maintenance of staffing levels will be essential. Strategies to maintain well staff at work during a pandemic may include provision of child care, emotional/psychosocial support and grief counselling. The Health care authorities, at all administrative levels should identify partners to provide psychosocial and welfare support for staff as part of preparedness planning, e.g. churches, NGOs and INGOs.
- Surge capacity will be critical in the management of pandemic influenza. Resource planning at each administrative level should include:
  - Assessing current staffing levels, their distribution and functions.
  - Identifying critical/core functions that will need to continue during the pandemic and make provisions for their ongoing implementation. If possible, train additional

staff in these critical functions so that staff can be rotated to carry out those functions while avoiding burn-out.

- Identifying retired or retrenched staff willing to be mobilised in the event of a pandemic and remove any administrative blocks to rapid re-registration or activation.
- Identifying roles and responsibilities for students and other trainees commensurate with their level of training to support registered staff.
- Establishing a register of staff that has developed immunity to the pandemic influenza strain either through infection with the wild virus or vaccination with a pandemic vaccine. These staff can be redeployed to front line functions.
- Re-engineering the process of patient reception and triage to minimise the risk of staff exposure.
- Training volunteers and family members in basic infection control and the use of PPE to assist with basic patient care.
- The involvement of students, trainees and volunteers may require review of legal liability provisions and insurance of workers, temporary licensing of workers, suitable roles and levels of responsibility, and the content of training programs.
- The organisation, staffing, duties and procedures to be followed at the Pandemic Response NDoH, Provincial, District and local levels in response to human cases of avian influenza or PI are detailed in standard operating procedures.
- Pandemic influenza historically has been associated with excess mortality. It will be essential for jurisdictions to include a corpse management plan as part of their pandemic plan. Guidelines for the management of mass fatalities will be developed to assist with this process. Issues which are addressed include morgue capacity, corpse storage, transportation, management, burial/cremation, and grief counselling. Churches, community leaders and NGOs providing welfare services and psychosocial support will be particularly important in providing the pastoral care required by grieving relatives.

#### Training

Training of HCWs in emergency response is an essential requirement for preparedness. In preparation for a pandemic, HCWs must be familiar with the *National Contingency Plan for Pandemic Influenza* and their role in PNG's organised response to the emergency. Dealing routinely with small outbreaks, gives HCWs a framework of experience for dealing with large-scale human epidemic emergencies.

In the current context where outbreaks of A/H5N1 in poultry may lead to human cases of avian influenza, HCWs may be involved in response teams that include veterinarians or veterinary extension officers from NAQIA and/or DAL. Joint training will be provided to these teams on avian influenza response, including the correct collection, packaging and storage of critical diagnostic specimens, the conduct of rapid diagnostic tests and the correct use of personal protective equipment.

The *National Contingency Plan for Pandemic Influenza* makes frequent reference to refreshing HCW training in the correct use and safe removal of PPE and hand hygiene. This is to reinforce the importance of hand hygiene (washing with soap and water and/or the use of alcohol-based hand rubs) and PPE use in preventing transmission of influenza and other infectious diseases.

All health care and veterinary staff will be trained in the basic principles of epidemiology and disease surveillance.

#### **Emergency Services**

The objectives of emergency service planning are to:

- Encourage collaboration between emergency service personnel and public health authorities
- Ensure that the planned pandemic response will be coordinated across combat and support agencies
- Facilitate a continuous state of "readiness" through ongoing education, testing and revision of response plans.
- Emergency services personnel should be engaged in all levels of pandemic planning. While it is expected that health authorities will lead the pandemic response in terms of surveillance, case management, use of antivirals, vaccine usage and public health measures, emergency service providers will play a major role in protecting critical infrastructure, maintaining civil security, logistics, facilitating the health response e.g. protecting the stockpile, while carrying out their usual functions such as disaster management, community policing, fire fighting, etc.
- The deployment of emergency services to the pandemic response will be graduated in accordance with the PNG Pandemic Phases and will depend on the severity and impact of the pandemic.
- Each of the emergency services agencies has their own applicable legislation and this must be taken into consideration in pandemic planning. In addition, Provinces have their own emergency management arrangements. All planning will need to take such issues into consideration.
- Response plans will need to be tested, likely in the form of emergency exercises involving all partners, on an ongoing basis.

#### Public Health Measures

Certain public health decisions will need to be made at each level of government as the threat of the pandemic emerges. Local public health officials will be asked about what measures can be taken by the public and within the community in order to prevent or control pandemic influenza in their area. These decisions will range from population-based recommendations, e.g. whether to cancel public gatherings or close schools, to individual measures like whether members of the public should where masks. The effectiveness of these types of measures for the control of disease within a population has not, for the most part, been systematically evaluated. In addition, the potential impact of these measures will vary based on the phase of the pandemic in the particular community and the availability of other interventions such as vaccines and antivirals. The purpose and effectiveness of these measures may also be different in isolated communities compared to large urban centres. **Error! Reference source not found.** discusses public health interventions to limit the spread of pandemic influenza.

The objectives of public health measures planning are to:

- Make recommendations regarding public health measures such as quarantine, cancellation of public gatherings, and school closures
- Foster development of a common approach within PNG and also, if possible, between PNG and near neighbour countries and international partners, especially on issues for which there is a lack of scientific evidence to guide decision-making
- Encourage planning at all levels of government that will raise awareness regarding potential impact of these measures so that necessary partnerships and consultations with external stakeholders and take place during the inter-pandemic period.

Public health measures will be applied as part of a graduated response to an increasing pandemic risk, and will be consistent with the measures outlined in the *WHO Draft Protocol for Rapid Response and Containment* (17 March 2006 update). Strategies for the management of the risks of public health

measures to increase social distancing e.g. voluntary home quarantine, will be developed to ensure access to basic needs (food, water and sanitation) and essential services (power and communication).

#### Communications

#### **Operational Communications**

Operational communications are essential for emergency preparedness. Effective command, control and coordination rely on streamlined communications. This section describes intersectoral communications and communications within the health sector.

The objectives of intersectoral communications are to ensure that:

- All agencies are aware of the overall chain of command in the event of a pandemic and the roles and responsibilities of all participating agencies
- Animal health and public health responses to animal and human cases of avian influenza are coordinated to avoid gaps and duplications of effort, and to improve effectiveness
- All agencies are kept informed of key events and decisions in a timely fashion e.g. phase changes and moves from a local response to a national response.

The objectives of communications within the **health sector** are to ensure that:

- Reporting of unusual disease events up the chain of command is rapid and effective
- New intelligence, situational reports, key policy decisions and approval processes up and down the chain of command are effective and efficient
- All levels of the health response have sufficient information for effective public health action
- Field teams are adequately supported in their investigations
- HCWs have access to pandemic influenza protocols, standard operating procedures and expert advice to carry out the appropriate actions in a public health emergency. PNG maintains a strong network of health posts, primary care centres, District, Provincial and Reference hospitals, community nurses, health extension officers and other public health staff.
- In addition, vital communications links are maintained with national and international public health agencies through regular teleconferencing and correspondence.

#### Public communications

During a pandemic, it will be essential to inform both the public and health professionals about the symptoms and treatment of influenza, as well as when to seek advice and refer. Effective communications to reduce individual and community risks are essential to disease prevention. Effective risk communication builds public trust, empowers the public and other stakeholders to assist outbreak control efforts through the adoption of personal protective measures and compliance with community-based control efforts, reduces the social impact of disease outbreaks by strengthening community resilience, and reduces the economic and political impact of outbreaks by earlier recovery.

The objectives of public communication planning are to:

- Ensure that PNG's health partners are prepared to respond to the enormous public communications challenges that the pandemic will create
- Identify specific activities to promote consistent, coordinated and effective public communications
- Describe options to ensure that the public communications demands of various scenarios are met clarify what activities should occur during the specific phases of the pandemic

• Clarify what activities should occur during the specific phases of the pandemic.

Risk communication is one part of the risk management process and includes:

- Outbreak communications to health care professionals and the media
- Provision of Information, Education and Communication (IEC) materials. Fact sheets regarding the clinical features of influenza and secondary complications will be developed to assist health care providers with diagnosis, and the public with self-treatment. These fact sheets include information pertaining to children, adults and the elderly. Any educational materials require advanced preparation in addition to an efficient and timely distribution plan.
- Mobilising communities to work together to reduce their risk of avian influenza and pandemic influenza through communication for behaviour change i.e. reduce risky behaviours (e.g. unprotected contact with dead or sick poultry) and promote healthy behaviours (e.g. hand washing, food safety etc).

All key audiences (external, internal and international) must receive consistent, comprehensive and relevant information in a timely manner during any type of emergency.

## Part 6 - Rapid detection and response arrangements

# Avian influenza surveillance in migratory waterfowl and domestic poultry

The National Agriculture Quarantine and Inspection Authority (NAQIA) conduct the surveillance of avian influenza.

Two major migratory routes of water bird overlapped in Papua New Guinea, one major route takes mainly water birds from Central Asia down through Malaysia then across parts of Indonesia and the southern mainland of PNG over the Torres Strait to Australia and back again. Another route takes mainly water birds from northern China to the Philippines then across PNG to Australia. The wetlands in the Western Province, Sepik River Region, Gulf, Madang and Manus are popular migratory water bird landing places in PNG. There is evidence to support the hypothesis that A/H5N1has been spreading down through south-east Asia.

NAQIA has been conducting quarterly surveillance on avian influenza viruses in the wetlands of Western Province where migratory waterfowl land. There are no surveillance activities in other wetlands, such as in the Sepik River Region, Manus, Madang or Gulf provinces. Given the current high pandemic risk situation, PNG shall intensify virological surveillance of migratory birds in all wetlands of the Western Province, Sepik River Region, Gulf, Madang and Manus, on a weekly basis. NAQIA will develop a detailed plan for avian influenza surveillance among wild birds and domestic poultry.

PNG will greatly intensified its vigilance at the ports of entry, specifically watching for the import of bird products such as dried meat or feathers that could pose a threat of spreading bird flu. Swabs and blood samples will be systematically collected from poultry on farms, backyard poultry and imported poultry by NAQIA.

The aforementioned tests aim at isolating and identifying the avian influenza strains that may be circulating in poultry, and detecting any antibodies against A/H5N1. NAQIA will develop the laboratory capacity for preliminary diagnosis for avian influenza virus, and hence the detection and identification of avian influenza will be performed at the NAQIA laboratory with confirmation from an Australian laboratory (a FAO reference laboratory for avian influenza virus) working in cooperation with NAQIA. **Error! Reference source not found.** lists measures for the control of avian influenza in poultry farms and provides advice for people living in areas affected by avian influenza A/H5N1.

#### Public health surveillance

#### Surveillance objectives

The objectives of epidemiological surveillance for pandemic influenza in PNG are the following:

- Rapidly detect, diagnose, characterise and respond to any emerging pandemic influenza virus that may gain entry to the country
- Rapidly identify a possible new subtype with pandemic potential, as well as the distribution of new influenza virus strain(s)
- Monitor pandemic influenza activity trends in the entire geographical area of PNG
- Monitor the occurrence of influenza A/H5N1 infection in humans
- Identify and characterize any emergent influenza strain so as to inform control strategies
- Monitor changes in transmission patterns of influenza A/H5N1 viruses and detect potential human-to-human transmission of influenza A/H5N1 viruses

- Monitor unusual morbidity and mortality due to acute respiratory illness
- Contribute to the monitoring of outbreaks of HPAI in animal populations
- Contribute to regional and international laboratory surveillance of influenza strains through the rapid collection and transport of critical diagnostic specimens to WHO influenza reference laboratory network.

The NDoH Disease Control Program will develop the detailed human influenza surveillance plan.

#### Sentinel Surveillance System - Hospital-based Network

All major reference hospitals will be included in this system in Papua New Guinea. A specific form is to be filled in on a **weekly basis** to collect information on the total daily visits to health care workers for all causes, and the total number of patients diagnosed with **influenza-like illness (ILI)** in accordance with the WHO case definition, adopted by GoPNG.

Information on each patient diagnosed with ILI, such as name, age and sex will be collected. These forms are to be faxed every Monday to the Department of Health Disease Control Branch. The data collected will be analysed cumulatively.

# Sentinel surveillance system - Health Centre Network and village-based surveillance

A Health Centre Sentinel Surveillance System will be established in PNG. One health centre per province (total=20) will be selected as sentinel sites. The health centres will report on a **weekly basis** the number of cases of ILI accordance with the WHO case definition, adopted by GoPNG.

The specific ILI form will also include demographic data such as sex and age of patients. The data collected will be sent to NDoH Disease Control unit for analysis and reporting on a weekly basis.

Village-based surveillance will be critically important to the early detection of avian influenza in poultry and wild fowl as in event-based (cluster) surveillance of ILI and unusual severe respiratory disease in humans. Community leaders, village health volunteers, women's groups, school children, NGOs etc should be encouraged to report unusual disease events of clusters of deaths in humans or animals to their local HCWs as a matter of urgency.

#### Influenza surveillance - Laboratories

No laboratories in PNG currently have the capacity to diagnose A/H5N1 influenza. Either the Central Public Health Laboratory (CPHL) or the PNG Institute of Medical Research virology laboratory will be upgraded to include a Biosafety Level 3 (BSL3) cabinet to develop PCR diagnostic capacity in country. This is a longer term plan for strengthening diagnostic capacity in PNG for new and emerging infectious diseases such as avian influenza and PI. Resources required include biocontainment suits.

In the immediate term, laboratories will be involved in supporting field teams to collect critical human specimens safely, provide laboratory supplies, provide training in specimen packaging in accordance with UN and IATA regulations and facilitate transport to collaborating international laboratories. One person in each province is currently trained in IATA packing requirements.

WHO is assisting PNG in establishing the ILI sentinel surveillance system with the financial support of USAID, to improve the reporting and laboratory capacity within a period of 5 years. Testing for A/H5 or other novel influenza strains will continue to be carried out overseas for the foreseeable future.

The recommended laboratory procedures for the investigation of avian and emerging pandemic influenza can be found in the NDoH and NAQIA specific plans and SOPs, currently under preparation.
#### PNG case definitions for influenza

#### Case definitions in humans

Influenza-like illness (ILI) Sudden onset of fever  $>38^{\circ}$ C with cough and/or sore throat in the absence of other diagnoses

The onset of fever should be within 3 days of presentation and fever should be measured at the time of presentation.

#### Influenza Case

Patient with ILI and laboratory confirmation of influenza infection through virus isolation, rt-PCR, or antigen detection.

#### Severe Acute Respiratory Illness

In a patient with ILI and pulmonary infiltrates or evidence of an acute pneumonia on chest radiograph plus evidence of respiratory failure (hypoxemia, severe tachypnea).

#### Avian Influenza in humans

# Person under investigation (person in whom diagnosis of influenza A/H5 is being considered)

Any individual who has travelled in a country or in an area affected by HPAI outbreak and has been in contact with poultry/farm or persons with a history of influenza A/H5 infection presenting with fever (temperature above 38°C) and the following symptoms

- cough
- sore throat
- shortness of breath

and who is under clinical observation and laboratory investigations are under way.

#### Confirmed case of avian influenza

A confirmed case of influenza A/H5 infection is an individual, alive or deceased, in whom laboratory tests conducted at a WHO international influenza laboratory demonstrates one or more of the following:

- positive viral culture for influenza A/H5
- positive PCR for influenza A/H5
- positive IFA test for H5 antigen using H5 monoclonal antibodies
- 4-fold or higher increase in H5-specific antibody titre in paired serum samples

Laboratory testing to confirm a case relates to H5 only and not to the N glycoprotein. Although laboratory testing to determine the N-type should be completed at the reference laboratory, this should not delay reporting. Following the confirmation of a case of influenza A/H5 infection, genetic and antigenic characterisation of the virus strains should be performed at a WHO influenza reference laboratory.

A thorough field investigation of the first confirmed case in an area needs to be done, to assess the exposures and the likelihood of human-to-human transmission. Subsequent confirmed cases should also be investigated with priority given to:

- most recent date of onset
- resident in area without HPAI outbreak in animals
- health workers affected
- case that is contact of a confirmed case and with no other reported risk of exposure

- cluster cases
- sporadic cases with no reported risk of exposure.

#### Activation of the Plan

The trigger for the activation of this health Plan will be the first laboratory-confirmed case of A/H5N1 or another novel strain of influenza in a human. The National Coordination Body will be notified of the event through the normal chain of command and will, in turn, recommend activation of the Plan to the Prime Minister. Activation of the Plan is a Prime Ministerial responsibility. See also *Stepping down from the response*. Annex 3 presents the lines of reporting in the event of a laboratory-confirmed case of human AI or PI.

# Lines of reporting of laboratory-confirmed A/H5N1 or other pandemic-prone novel influenza strain

- Pandemic influenza and avian influenza A/H5N1 constitute public health events of international concern under the IHR (2005) and the Terrestrial Animal Health Code (2005). Human cases of A/H5N1 or other novel influenza strain require notification to WHO within 24 hours of recognition.
- In the event of laboratory-confirmed A/H5N1 or other novel influenza strain, the laboratory that has received the result from a WHO international influenza reference laboratory will notify the NFP and the attending physician urgently by phone or HF radio.
- The NFP is responsible for simultaneously notifying the Provincial Health Authority, the WHO Contact Point within the NDoH and the NTF, and activating the NIR.
- The NFP will coordinate ground support while the WHO Contact Point will coordinate international support.
- The NTF will notify the National Coordination Body which in turn notifies the Prime Minister and NEC who will activate the Plan.

#### WHO Protocol for Rapid Response and Containment

The WHO Draft Protocol for Rapid Response and Containment (17 March 2006 update) describes the steps needed to recognise a signal or "triggering" event for emerging pandemic influenza, the immediate actions that should follow recognition of the signal, and the actions that should be undertaken once the event has been verified and assessed and a decision made to launch a rapid containment operation.

This protocol applies to pandemic Phases 3-5 before novel influenza viruses such as A/H5N1 become human-adapted for efficient human-to-human transmission.

The components of the WHO Rapid Response and Containment protocol are:

- Detection and reporting
- Risk assessment and decision making
- Mobilising resources
- Implementation of the containment strategy
- Monitoring spread within the affected community for a refinement of the risk assessment.

The rapid response and containment of emerging pandemic influenza is a time-critical strategy that depends on:

- Rapid assessment, isolation and clinical management of patients with acute severe respiratory illness
- Rapid detection and reporting of clusters of unexplained acute severe respiratory illness to local, sub-national and national health authorities
- An initial epidemiological investigation to characterise the event depending on the local and/or national capacities
- Rapid laboratory confirmation of clinical and epidemiological findings
- Rapid and transparent communication between national health authorities and WHO to assess the risk of emerging pandemic influenza and the need for rapid containment
- Urgent implementation of traditional, non-pharmaceutical public health control measures, including the isolation of cases, tracing and voluntary home quarantine of their contacts, the use of personal protective equipment, public information and behaviour change communications (social mobilisation), to reduce personal and community risk of influenza transmission.
- Measures to increase social distancing as part of a graduated response to confirmed emergence of a novel influenza strain with pandemic potential.
- The administration of antiviral drugs to the ill and the population at risk of ongoing influenza transmission (targeted antiviral prophylaxis)
- Rapid augmentation by the international community of national capacities to implement both non-pharmaceutical and pharmaceutical control measures.

The *WHO Protocol for Rapid Response and Containment* strategy with specific reference to PNG will be also included in the NDoH specific plan and SOPs.

# Deactivation of the Plan - Stepping down from the pandemic response

Annex 3 - Activation and deactivation of the National Contingency Plan for Pandemic Influenza presents the flow of information leading to the deactivation of the *National Contingency Plan for Pandemic Influenza*.

An influenza pandemic is considered to be over when epidemiological data on influenza activity show rates of influenza at pre-pandemic levels. Experience from past pandemics shows that the pandemic strain of influenza virus becomes the dominant circulating strain, having replaced the pre-pandemic seasonal strains of influenza A (currently A/H3N2 and A/H1N1).

- The Director General, WHO, has the delegation to declare Phase changes and to announce end of the pandemic.
- The Technical Working Group will collect all available intelligence (national, regional and global) and make a recommendation to the National Task Force that the pandemic should be declared over.
- The NTF will in turn consult the National Coordination Body which will advise the Prime Minister to declare the pandemic (and state of emergency) over and indicate that all acute response personnel will "step down" Personnel involved in Recovery Phase activities (post-pandemic period) will not step down.
- Every ministry and agency involved, with a special emphasis in the health sector, should prepare an overall report that presents all the data collected during the pandemic period and all the control measures taken during its different periods and phases, accompanied by lessons learnt.
- The National Task Force will also prepare a report describing the effectiveness and gaps in the National Pandemic Influenza Contingency Plan. The experience acquired during the pandemic will be used to revise the Plan if required.
- Activities to assist a return to normal (Recovery Phase) will dominate the immediate postpandemic period, including rebuilding social, economic and political institutions. Welfare and other social support agencies and organisations will be called on to help families rebuild their lives and deal with the potential human, financial and material losses incurred during the pandemic.

### Part 7. Phases of Operation

#### Interpandemic Period, Phase 1

Overall goal - To strengthen influenza preparedness capacities

Component	Activ	/ities	Responsibility	Budget
1. Planning and	Coordin	nation		
Objectives	1. T 2. T 3. T	o develop a national influenza pandemic contingency plan o strengthen national capacity to respond to early reports of AI/PI o develop effective mechanisms for resource mobilisation		
Actions	1.1	Establish a National Influenza Pandemic Threat Response Coordination Body (NIPCB) for Influenza Pandemic preparedness and response	NIPCB	
	1.2	Establish a National Task Force (NTF) and Technical Working Group (TWG) and Secretariat for pandemic preparedness	NIPCB, NTF	300,000
	1.3	Advocate the importance of pandemic planning to relevant decision-makers	NTF &TWG	100,000
	1.5     Advocate the importance of particular pranting to relevant decision-makers       1.4     Develop and periodically update national preparedness plan		TWG, DoH, NAQIA	50,000
	1.5	Identify, brief regularly and train key personnel to be mobilised in case of emergence of a new influenza virus strain	TWG & NTF	250,000
	1.6	Review public health legislation to ensure the legal mandate for emergency powers, social distancing, border controls, quarantine and adherence with IHR (2005) for public health events of international concern	TWG, DoH, Legals	
	1.7	Ensure that antivirals and pandemic vaccine are licensed for use in PNG or that licensing can be arranged quickly. Review regulations regarding conditions of use of experimental drugs or off-license uses e.g. use in pregnancy and infants. Examine legal liability of GoPNG in use of antivirals (and/or pandemic vaccines) provided by the WHO global stockpile	TWG, DoH, Legals	
	1.8	Review whether import taxes apply to stockpile materials and equipment, including laboratory reagents and supplies, and waive if required	TWG, DoH	
	1.9	Establish a domestic stockpile of PPE, antibiotics, antivirals, hand hygiene products, bleach (seasonal vaccine, and pandemic vaccine if available) for rapid deployment when needed	NIPCB & NTF	4,000,000
	1.10	Identify sites for the storage and distribution of PPE, antivirals and/or vaccines at the local level, and procedures for mass distribution	NTF, TWG, DoH	
	1.11	Establish the security arrangements during the deployment of stockpile materials and for staff, including field security, safe storage of supplies in the field and when dispensing.	NIPCB & NTF	
	1.12	Identify critical infrastructure and life lines for protection during Phase 6, including the food supply, water and sanitation, communications, civil security, ports of entry and financial institutions	NIPCB & NTF	
2. Monitoring ar	ıd Asses	sment		
Objective	To det	ect animal and human infections with new influenza virus strains, identify potential animal sources of human infection and assess the r	isk of transmission to	humans
Actions	2.1	Strengthen national surveillance for the detection, characterisation and assessment of clusters of influenza-like illness and respiratory deaths	DoH & TWG	
	2.2	Implement animal and human surveillance to detect AI entry into high risk areas of PNG e.g. wetlands in Western Province and	NAOIA & DoH	

Component	Activ	rities	Responsibility	Budget			
-		Sepik river regions					
	2.3	Intensify surveillance for AI among migratory birds in high risk areas e.g. wetlands of Western Province and Sepik river areas	NAQIA	500,000			
	2.4	Strengthen national systems for influenza surveillance in both humans and animals	DoH, NAQIA	500,000			
	2.5	Develop laboratory capacity for the preliminary diagnosis of H5 influenza in both animals and humans	DoH and NAQIA	300,000			
3. Prevention and	d Contai	inment					
Objective	To dev	elop a strategy for public health response and interventions					
Actions	3.1	Develop national guidance for the use of public health interventions	DoH & TWG	10,000			
	3.2	Develop guidance and train staff in the control of AI in poultry if animal outbreaks occur, including safe culling practices and the use of PPE	NAQIA & DoH	10,000			
	3.3	Train staff in the signals of emerging PI and in rapid response and containment	DoH, NAQIA & DAL				
	3.4	Identify and train multisectoral local-level and national-level field teams for rapid response and containment	DoH				
	3.5	Develop procedures for the safe collection, storage and rapid delivery of critical specimens for confirmation of a new influenza virus at a WHO and/or FAO reference laboratory	TWG, DoH, NAQIA, Defence	50,000			
	3.6	Develop guidelines for the of use PPE and provide training in its use	DoH, TWG	50,000			
	3.7	Train staff in the safe use and disposal of PPE	DoH, NAQIA, Defence, others				
	3.8	Review the supply chain for the rapid deployment of PPE kits	TWG, DoH				
	3.9	Develop criteria for the deployment and use of antivirals during pandemic alert and pandemic periods, including identifying priority groups	DoH, TWG	10,000			
	3.10	Develop preliminary criteria for prioritising pandemic vaccine use, based on expected availability	DoH &TWG	10,000			
4. Health System	Respon	se					
Objectives	1. To ensure that up-to-date contingency plans and SOPs are in place for pandemic response in the health care sector     2. Ensure that clinical staff are aware of reporting requirements for ILI and AI     3. To ensure access to diagnostic tests and reference functions by building laboratory capacity within PNG and linking with international laboratories						
Actions	4.1	Produce and update interim guidelines and algorithms for case finding, triage, treatment and clinical management protocols and infection control	TWG, DoH	50,000			
	4.2	Identify additional sites for isolation facilities (started), fever clinics, and other methods of clinical assessment/health promotion of milder disease during phase 6 e.g. schools, churches, community centres					
	4.3	Identify hospitals with ventilators/critical care facilities and develop referral policies and protocols for patient transfer	TWG, DoH				
	4.4	Estimate pharmaceutical (antivirals, antibiotics, seasonal influenza vaccines) and material supply needs (PPE, laboratory reagents etc) and start arrangements to secure supplies	TWG, DoH				
	4.5	Increase awareness and strengthen training of health care workers in ILI, PI and infection control	DoH, NTF	250,000			
	4.6	Develop laboratory algorithms for the collection of critical human specimens in the field and within health care settings, and	TWG, DoH				

Component	Activ	rities	Responsibility	Budget			
-		confirm arrangements with international influenza laboratory for specimen transfer					
5. Communicatio	ons						
Objectives	1. T	o ensure rapid and effective command, control and coordination across the AI and PI response					
-	2. To maintain an appropriate level of awareness of AI and PI within government, and among essential partners and communities						
	3. T	o reduce individual and community vulnerability to AI and PI through effective health-promoting communications					
Actions	5.1	Establish phase-based national communication strategy for PI including outbreak communications and communications for	DoH, NAQIA	100,000			
		behaviour change/social mobilisation					
	5.2	Establish networks among key response stakeholders, including risk communicators, governmental departments and NGOs	DoH, NAQIA,	100,000			
			DAL,				
	5.3	Agree on the lines of urgent and routine intersectoral communications between key response (combat) agencies and support agencies and the overall coordination of operational communication	NIPCB, NTF				
	5.4	Disseminate SOPs on the lines of urgent and routine communications regarding AI and PI within the health sector	NDoH,				
	5.5	Develop Information, Education and Communication Materials (IEC) for AI virus among poultry and in humans, and for PI	NAQIA & DoH	250,000			
	5.6	Work with welfare agencies, NGOs and INGOs to build community resilience and self-sufficiency through health promotion and	DoH, TWG	250,000			
		health education as far as possible in the event of PI					
Total budget for	Phase 1			K7,140,000			

#### Interpandemic period, Phase 2

#### Overall goal - To minimise the risk of transmission of AI to humans, and detect and report such transmission rapidly if it occurs

Component	Act	ivities	Responsibility	Budget
1.Planning and C	oordina	tion		
Objective	To c	oordinate the implementation of measures to reduce the risk of animal-to-human transmission of AI with animal health authorities		
Actions	1.1	Activate joint mechanism between public health and animal health authorities and other relevant organizations	NIPCB, NTF	50,000
	1.2	Ensure rapid mobilisation and deployment of a multisectoral expert response team	NTF	200,000
	1.3	Establish a policy on compensation for loss of animals through culling, in order to improve compliance with emergency measures	NTF, NAQIA & DAL	10,000
	1.4	Establish contingency compensation fund for animal culling if HPAI is identified among domestic poultry	NIPCB, NTF	2,000,000
2. Monitoring an	l Assess	ment		
Objectives	1. To	o identify interspecies transmission at an early stage and notify WHO, FAO and other appropriate partners		
U	2. To	provide a risk assessment of ongoing transmission of avian influenza with pandemic potential to humans		
Actions	2.1	Implement enhanced animal and human surveillance based on WHO, FAO and OIE recommendations; report results rapidly and regularly to the above mentioned international bodies.	DoH, NAQIA, DAL	600,000
	2.2	Urgently transport critical samples from infected animals to OIE designated reference laboratories for identification and confirmation	NAQIA, DAL, DoH	100,000
	2.3	Conduct field investigations (epidemiological, laboratory) in the affected area to assess spread of AI in animals and the threat to human health	DoH, NAQIA	1,500,000
3. Prevention and	Contai	nment	·	-
Objectives	1.	To minimise the risk of human infection from contact with infected animals		
	2.	To review national availability of antiviral drugs		
	3.	To reduce the risk of infection in humans and minimise opportunities for virus reassortment		
Actions	3.1	Ensure optimal response to animal outbreaks, including measures to reduce infection risk in those involved in the response (education and training regarding potential threat; correct use of personal protective equipment; deployment of antivirals)	NAQIA, DoH	200,000
	3.2	Raise awareness of measures to reduce human contact with potentially infected animals	TWG	
	3.3	Expand the domestic stockpile of PPE, antibiotics, antivirals, hand hygiene products, bleach (seasonal vaccine, and pandemic vaccine if available) for rapid deployment when needed	NTF	10,000,000
	3.4	Update information on the available national supplies of antivirals	TWG	
	3.5	Update recommendations for prophylaxis and treatment with antivirals; consider implementation after a formal risk assessment	TWG	
	3.6	Ensure the antivirals component of a national or global stockpile can be deployed rapidly from a central location to affected areas and that staff are familiar with SOPs for deployment and use	TWG, DoH, DAL	150,000
	3.7	Audit stockpile of PPE and increase supplies based on the risk assessment	NTF, DoH, DAL	1,000,000
	3.8	Procure additional sterilisers, antibiotics and other medical supplies for the response to the AI outbreak in animals and humans	NTF, DoH, DAL	2,000,000

Component	Activities	Responsibility	Budget
4. Health System R	sponse		
Objective	To ensure that if human infections occur, cases will be quickly recognised and the health system will respond quickly		
Actions	4.1 Alert HCWs to consider avian influenza in ill patients with an ILI/pneumonia and epidemiological link to affected poultry/anim Activate protocols and algorithms for case finding, triage, treatment and clinical management, infection control and notification public health authorities	ls. DoH to	100,000
	4.2 Verify availability and distribution procedures for PPE, antivirals, and seasonal vaccine for HCWs with an occupational risk exposure. Consider triggers for implementation	of DoH	50,000
	4.3 Procure rapid diagnostic test kits and ensure rapid deployment of diagnostic tests when available	DoH, NAQIA	1,500,000
	ial DoH	4,000,000	
5. Communications			
Objectives	<ol> <li>To ensure that appropriate information is shared rapidly among health authorities, other partners and the public.</li> <li>To ensure that mechanism exist for coordinating communications between the animal and public health sectors</li> </ol>		
Actions	5.1 Update national health authorities, other partners and stakeholders, including risk groups and the general public with the most currinformation on virus spread and risks to humans	ent NIPCB, NTF	
	5.2 Address possible stigmatisation of individuals/population in contact with infected animals. Provide information on food safety	DoH, DAL	
	5.3 Provide information about the compensation scheme as required	DAL	
	5.4 Print and distribute IEC materials for the public	DoH, NAQIA, DAL, NFT, Education, C. of Churches, INGOs, NGOs	Refer to Phase 1
Total budget for Ph	use 2		K23,460,000

#### Pandemic Alert Period, Phase 3

#### Overall goal - To ensure rapid characterisation of the new virus subtype and early detection, notification and response to additional cases

Component	Activ	vities	Responsibility	Budget				
1. Planning and	Coordin	ation						
Objectives	<ol> <li>To ensure that imminent human health threats from AI or other novel influenza strains can be recognised and managed quickly</li> <li>To coordinate timely interventions that will reduce the risk of PI</li> </ol>							
	1.1	Continue to ensure optimal response to animal outbreaks, as in Phase 2	DAQIA, DAL	250,000				
	1.2	Mobilise the national response and provide guidance to relevant authorities in reviewing, updating and implementing contingency plans	NTF, TWG	250,000				
	1.3	Brief appropriate officials in all relevant government departments at national and provincial levels regarding the status of the incident(s) and potential need for additional resources and interventions	NTF, TWG	100,000				
	1.4	Notify WHO of the cases under investigation of AI and request an antiviral drug supply if required						
	1.5	Provide assistance to provincial and district level authorities in implementing interventions	DoH &NAQIA	250,000				
	1.6	Conduct a simulation exercise of the PI response system	NIPCB, NTF, DoH, DAL, NAQIA	100,000				
2. Monitoring an	d Assess	ment						
Objectives	1. To exclude human-to-human transmission and detect it as soon as it occurs							
	2. T	o detect and characterise cases, including risk factors for transmission						
Actions	2.1	Continue to conduct animal and human surveillance as in Phase 2	DoH, NAQIA	250,000				
Actions	2.2	Confirm and report animal and human outbreaks promptly using agreed channels and mechanisms	DoH, NAQIA, DAL	100,000				
	2.3	Determine the epidemiology of human cases (source of exposure, incubation period, infection of contacts (clinical and sub- clinical), period of communicability)	DoH and NAQIA	100,000				
	2.4	Establish a national case definition, based on WHO guidance	DoH					
	2.5	Assess clinical characteristics of infection in humans and share with relevant international partners	DoH, TWG	50,000				
	2.6	Ensure rapid dispatch of critical specimens to a WHO influenza reference laboratory for confirmation of a novel influenza strain, genetic analysis and susceptibility testing	DoH, TWG	50,000				
	2.7	Work with WHO to adapt minimum global dataset for human cases of AI for use in PNG	DoH					
	2.8	Identify priority geographical areas and risk groups for targeting with preventive measures.	DoH &NAQIA	50,000				
	2.9	Assess effectiveness of treatment protocols and infection control measures and revise if necessary	DoH & NAQIA	10,000				
	2.10	Conduct seroprevalence surveys in risk groups (cullers, contacts of clinical cases, persons with close contact to poultry) $\pm$	DoH, NAQIA, DAL,	40,000				
		expand to the general population to assess prevalence/incidence of symptomatic and asymptomatic infection	PNGIMR					
3. Prevention and	l Contai	nment						
Objectives	1. T	o prevent animal-to-human transmission						
	2. T	o prevent human-to human transmission through infection control						
	3. Т	o limit morbidity and mortality associated with existing human infections						

Component	Activ	/ities	Responsibility	Budget
Actions	3.1	Rapidly detect and isolate clinical cases under investigation for avian influenza/novel strain in isolation rooms or single rooms	DoH, TWG	50,000
	3.2	Trace close contacts during the patient's first two weeks of illness. Arrange voluntary home quarantine of symptomatic persons for one week after the last date of exposure	DoH, TWG	100,000
	3.3	Administer antiviral drugs to cases and, if domestic supplies permit, targeted prophylaxis of close contacts	DoH	50,000
	3.4	Apply strict infection control and the use of personal protective equipment in health care facilities during the delivery of health care to cases and persons under investigation for AI/novel influenza	DoH	20,000
	3.5	Deploy supplies of antivirals for post-exposure (and possibly pre-exposure) prophylaxis for individuals who are likely to be exposed to AI/novel strain	DoH	50,000
	3.6	Reassess the availability of antivirals and organise supplies with partners	NTF, DoH, TWG	
	3.7	Train family carers in basic infection control and provide PPE (masks, gloves, gowns)	DoH, Council of Churches, INGOs, NGOs	
	3.8	Continue to ensure optimal response to animal outbreaks as in Phase 2	NAQIA, DAL	250,000
4. Health System	4. Health System Response			
objectives	2. 1 3. 1	To prevent nosocomial transmission and laboratory infections To ensure heightened awareness among health-care workers regarding the possibility of cases and/or clusters		
Actions	4.1	Treat cases in accordance with international good practice and monitor clinical outcomes	Clinicians and Hospital Authorities	
	4.2	Provide public and private health care providers with the national case definition, protocols and clinical algorithms to assist with case-finding, clinical case management, infection control and surveillance	DoH, TWG	50,000
	4.3	Assess capability/capacity for implementing infection control procedures for ill patients and upgrade urgently if inadequate. Implement infection control consistent with existing WHO guidance	DoH, NAQIA, TWG	300,000
	4.4	Health care workers and first responders should be equipped with N95 respiratory masks; these should be fit-tested and training in their use provided. If respiratory masks are not available, standard well-fitted surgical masks should be used.	DoH	
	4.5	Monitor implementation and adherence with infection control procedures to prevent nosocomial transmission, and investigate reasons behind non-adherence	DoH	
	4.6	Train HCWs to detect/identify clusters of cases in the community and in health care settings	DoH	100,000
	4.7	Establish fever screening of exposed HCWs for at least 7 days after the last unprotected exposure	DoH	
	4.8	Ensure compliance with standards for biosafety in laboratories, and for safe specimen handing and shipment	DoH	50,000
	4.9	Develop or review contingency plans for hospital and health centre surge capacity in the event of health facility overload with influenza patients and the worried well, and identify alternative strategies for case isolation and management	Hospital Authorities	

Component	Activ	vities	Responsibility	Budget				
5. Communicatio	ns							
Objectives	1. T 2. T is	<ol> <li>To communicate with the public regarding possible outbreak progress and contingency plans</li> <li>To ensure rapid sharing of appropriate information among health authorities and other relevant government departments and other partners, including what is known and what is not known.</li> </ol>						
Actions	5.1	Promote hand and cough hygiene intensively	DoH, Education, Council of Churches, INGOs, NGOs	100,000				
	5.2	Review and update information and communication materials (IEC) for the news media, general public, health workers and policy-makers	DoH, NAQIA, TWG	10,000				
	5.3	Work with partners to ensure consistent messages are delivered	NFT, TWG, DoH, Education, Council of Churches, INGOs, NGOs	50,000				
	5.4	Provide regular updates to WHO and other international and domestic partners on the evolving national situation	DoH, DAL, NAQIA	10,000				
Total budget for 1	Phase 3			K2,790,000				

#### Pandemic Alert Period, Phase 4

#### Overall goal - To contain the new virus within limited foci or delay spread to gain time to implement preparedness measures, such as vaccination

Component	Activ	ities	Responsibility	Budget			
1. Planning and Coordina	ation						
Objectives	<ol> <li>To ensure the systems exist to detect and characterise outbreaks, and assess the risk of escalation into a pandemic</li> <li>To coordinate the implementation of procedures that will delay or contain the spread of human infection within limited foci</li> </ol>						
Actions	1.1	Review national pandemic contingency planning arrangement.	NIPCB, NTF				
	1.2	Ensure highest levels of political commitment for ongoing and potential interventions/control measures	NIPCB, NTF				
	1.3	Activate procedures to obtain additional resources. Consider invoking emergency powers	NIPCB, NTF				
	1.4	Ensure cross-border collaboration with surrounding countries for information-sharing and coordination of responsible sectors	NIPCB, NTF, TWG	100,000			
2. Monitoring and Assess	ment						
Objectives	1. To assess the extent of human-to-human transmission						
	2. To detect, notify and characterise additional clusters (including the identification of risk factors and other data concerning transmission as requested by WHO)						
	3. To assess the threat to human health, the impact of any control measures and identify the resources required for enhanced control						
Actions	2.1	Describe and reassess the epidemiological, virological and clinical features of infection and identify possible source(s) of transmission	DoH, TWG	100,000			
	2.2	Report this information on cases and clusters through the agreed mechanism to WHO and other appropriate organisations	DoH, NAQIA	20,000			
	2.3	Expand activities already under way in Phase 3. Adjust case definitions if necessary	DoH, NAQIA	100,000			
	2.4	Investigate the sustainability of human-to-human transmission	DoH, TWG	50,000			
	2.5	Forecast likely impact of the spread of infection	TWG, NTF				
	2.6	Enhance surge capacity of surveillance for both animals and humans	DoH, NAQIA, TWG	200,000			

Component	Activ	ities	Responsibility	Budget			
3. Prevention and Contain	iment						
Objectives	1. To 2. To 3. To	To contain or delay human-to-human transmission To limit morbidity and mortality associated with existing human infections To increase readiness for pandemic vaccine deployment					
Actions	3.1	Rapid detection and isolation of persons infected with AI/novel strain in isolation rooms or single rooms.	DoH, NAQIA	250,000			
	3.2	Trace close contacts during the patient's first two weeks of illness. Arrange voluntary home quarantine of symptomatic persons for one week after the last date of exposure	DoH	250,000			
	3.3	Apply restrictions on the movement of persons in and out of the initially affected area	DoH	300,000			
	3.4	Screen travellers departing from areas where clusters of human cases are occurring	DoH	200,000			
	3.5	Deploy current antiviral stockpile and related medical supplies to provincial hospital(s) to facilitate rapid implementation of rapid containment	DoH	10,000			
	3.6	Use antivirals early for the treatment of cases, and give antiviral prophylaxis to their close contacts based on the risk assessment and severity of illness in humans	DoH	50,000			
	3.7	Continue to ensure optimal response to animal outbreaks as in Phase 2	NAQIA, DAL	100,000			
	3.8	Procure prototype pandemic vaccine, if available	DoH	4,000,000			
	3.9	Deploy prototype pandemic vaccine to pre-identified priority groups	DoH	250,000			
4. Health System Respons	e						
Objectives	1. To 2. To 3. To	<ol> <li>To prevent nosocomial transmission</li> <li>To maintain biosafety</li> <li>To ensure health system capacity is available and used optimally</li> </ol>					
Actions	4.1	Update and reinforce messages to HCWs to consider influenza infection in ill patients, and report findings to public health authorities	DoH	50,000			
	4.2	Update the national case definition, protocols and algorithms for case finding, clinical case management, infection control and surveillance as required	DoH	100,000			
	4.3	Activate contingency plans for surge capacity should influenza patients and the worried well overload health facilities, and implement alternative strategies for case isolation and management	DoH	1,000.000			
	4.4	Re-emphasise infection control measures and distribute supplies of PPE, sterilisers, disinfection materials etc	DoH	100,000			

Component	Activ	ities	Responsibility	Budget			
5. Communications							
Objectives	1. To de 2. To	b ensure rapid sharing of appropriate information among health authorities, other relevant government expartments and other partners, including what is known and what is unknown b prepare the public and partners for a possible rapid progressions of events and possible contingency measures					
Actions	5.1	Update national authorities, other partner organizations/stakeholders and the public on domestic and international epidemiological situation and known diseases characteristics	NTF, TWG	50,000			
	5.2	Explain rationale and update public on all aspects of outbreak response and likely next steps	DoH	100,000			
	5.3	Update IEC materials for community protection and self-protection	DoH, NAQIA	100,000			
	5.4	Re-emphasise infection-control measures in the community and health care settings	DoH	100,000			
	5.5	Continue intensive promotion of hand and cough hygiene	DoH	100,000			
Total Budget for phase 4	•	•		K6,681,000			

#### Pandemic Alert Period, Phase 5

#### Overall goal - To maximize effort to contain or delay spread, to possibly avert a pandemic, and to gain time to implement pandemic response measures

Component	Activ	vities	Responsibility	Budget			
1. Planning and Coo	ordination						
Objective	To coordinate and ensure efforts to delay or possibly avert a pandemic						
	1.1	Designate special status to the affected area if needed in order to facilitate control interventions (e.g. state of emergency)	NIPCB, NTF	50,000			
	1.2	Adjust and maximise efforts and resources to reduce the burden of disease and contain or delay the spread of infection	NIPCB, NTF	10,000			
2. Monitoring and A	ssessment						
Objectives	1. To 2. To	o determine pandemic risk and exclude spread to other countries o determine and monitor public health measures required for pandemic response					
Actions	2.1	Expand and enhance activities in Phase 4	DoH, NAQIA	250,000			
1010115	2.2	Enhance surveillance for ILI nation-wide	DoH, NAQIA	250,000			
	2.3	Maintain a line listing of cases and contacts, including linked clinical, epidemiological and laboratory data. Ensure the system requirements to go from case-based data to aggregate data in Phase 6	DoH, TWG	400,000			
	2.4	Implement real-time monitoring of essential resources (medical supplies, pharmaceuticals, infrastructure, vaccines, hospital capacities and human resources)	DoH, NAQIA	100,000			
	2.5	Conduct enhanced surveillance for respiratory diseases through surveys in affected and adjacent areas	DoH, NAQIA	100,000			
	2.6	Adjust forecasts of the likely impact of both infection spread and control measures.	DoH, NAQIA, TWG				
	2.7	Revise containment measures if necessary based on international guidance/recommendations	DoH, NAQIA, TWG				
3. Prevention and Co	ontainment						
Objectives	1. T 2. T	To make massive efforts to contain or delay efficient human-to-human transmission and the onset of a pandemic To limit morbidity and mortality associated with current human infections					
Actions	3.1	Implement the WHO Protocol for Rapid Response and Containment in collaboration with WHO if the risk assessment determines that containment is feasible. Otherwise, apply measures to slow the spread of the virus beyond the source area and reduce morbidity and mortality	DoH	600,000			
	3.2	Rapidly detect and isolate persons infected with AI/novel influenza strain in isolation rooms or single rooms if available. Alternatively cohort confirmed cases	DoH, NAQIA				
	3.3	Apply social distancing measures (closure of schools, workplaces, public gatherings etc) if indicated by	DoH, civil security and				

Component	Activ	vities	Responsibility	Budget
		the risk assessment	welfare agencies	
	3.4	Ensure lifeline to persons in home quarantine (food, water, fuel, communications, drugs for chronic	DoH, civil security and	
		medical and psychiatric conditions etc)	welfare agencies	
	3.5	Strengthen movement restrictions on entry into and exit from the initially affected area.	DoH	500,000
	3.6	Screen travellers departing PNG	DoH	250,000
	3.7	Reassess deployment of existing antiviral stocks to provincial hospitals and local health facilities to facilitate rapid implementation of targeted antiviral strategies	DoH	
	3.8	Evaluate the efficacy and feasibility of rapid response and containment, including targeted antiviral prophylaxis for the purpose of attempting to contain outbreaks.	DoH	100,000
	3.9	Plan for pandemic vaccine distribution and accelerate preparations for mass vaccination campaigns should it become available	DoH	400,000
	3.10	Review and revise the priority groups for pandemic vaccination based on availability and evidence of safety and efficacy	DoH, TWG	
	3.11	Reassess the availability of PPE, antivirals, antibiotics, sterilisers, and ventilators, and procure them if necessary	DoH	2,000,000
	3.12	Develop or revise guidelines for the management of mass fatalities	DoH, mortuary services, welfare and civil security agencies, Defence	
4. Health System Respon	nse			
Objectives	1. T	o prevent nosocomial transmission		
	2. T 3. T	o maintain biosafety o ensure health system capacity is available and used optimally		
Actions	4.1	Update and reinforce messages to HCWs to consider influenza infection in ill patients, and report findings public health authorities	to DoH	100,000
	4.2	Update the national case definition, protocols and algorithms for case finding, clinical case managemer infection control and surveillance as required	t, DoH	50,000
	4.3	Review and revise contingency plans for surge capacity should influenza patients and the worried we overload health facilities, and implement alternative strategies for case isolation and management	ll DoH	1,000,000
	4.4	Activate fever clinics for the triage of patients with ILI and confirm alternative sites for screening (e. schools, community centres etc)	g. DoH, Council of Churches, NGOs, INGOs	
	4.5	Review and revise the triage of mild-moderate cases for home care if surge capacity exceeded	DoH, Council of Churches, NGOs,	

Component	Acti	Activities		Budget
•			INGOs	3
	4.6	Activate outreach services to review patients on home care	DoH, Council of Churches, NGOs, INGOs	
	4.7	Re-emphasize infection control measures and ensure continuing supply of PPE and other infection control equipment	DoH	100,000
	4.8	Ensure provision of PPE to principal home carer(s)	DoH, Council of Churches, NGOs, INGOs	
5. Communications				
Objectives	1. 2. 3. 4.	To ensure rapid sharing of appropriate information among health authorities, other relevant government departmer known and what is not known To engage affected individuals and communities in rapid response and containment measures To prepare the public and partners for a possible rapid progression of events and contingency measures To minimise transmission through health promotion and behaviour change communications	nts and other partners, in	cluding what is
Actions		Update national authorities, other partner organisations/stakeholders and the public on the domestic and international epidemiological situation and known diseases characteristics	NIPCB, NTF	
		Explain the rationale for containment measures and update the public on all aspects of the outbreak response and likely next steps	TWG, DoH, NAQIA	
		Update IEC materials and methods on measures for community-protection and self-protection	TWG, DoH	
		Continue intensive public communications on infection control measures within the home and community, including safe burial practices, and within health care settings	DoH, Council of Churches, NGOs, INGOs	
Total Budget for phase 5				K6,610,000

#### Pandemic Period, Phase 6

Overall goal - To minimize the impact of the pandemic

Component	Activitie	2 <b>5</b>	Responsibility	Budget
1. Planning and Coordination				
Objectives	<ol> <li>To pro and mi</li> <li>To ens</li> <li>To dra</li> </ol>	<ol> <li>To provide leadership and coordination of the multisectoral resources to minimise morbidity and mortality; maintain essential services, minimise social disruption, and minimise the economic impact of a pandemic</li> <li>To ensure rational access to finite national resources, including pharmaceutical supplies and vaccines (when available).</li> <li>To draw lessons from the ongoing pandemic response in order to improve response strategy and inform future planning</li> </ol>		
Actions	1.1 F	inalise revision of official guidelines and recommendations if required	NTF, TWG	50,000
	1.2 P	Provide guidance to local authorities in all sectors on the implementation and evaluation of the proposed nterventions	NIPCB, NTF, DoH, NAQIA, TWG	100,000
	1.3 U s	Jse surveillance and resource utilisation data, and lessons learnt from the first pandemic wave, to plan for the second and subsequent waves of the pandemic	NIPCB, NTF, all sectors	120,000
2. Monitoring and Assessment				
Objectives	<ol> <li>To mo of finit</li> <li>To ass</li> </ol>	<ol> <li>To monitor the epidemiological, virological and clinical features, and the course and impact of the pandemic nationally in order to forecast trends and optimise the use of finite resources</li> <li>To assess the effectiveness of interventions used to date in order to guide future actions</li> </ol>		
Actions	2.1 C	Continue enhanced surveillance measures as in Phase 5. Monitor the geographical spread of PI, the population at risk of mortality and highest morbidity, and risk factors for mortality and morbidity	DoH, TWG	200,000
	2.2 N a a	Monitor and assess the national impact of PI on essential services (morbidity, mortality, workplace ibsenteeism, availability of essential services staff, health care supplies, bed occupancy/availability, idmission pressures etc.)	NIPCB, NTF, all sectors	250,000
	2.3 A	Assess the need for emergency measures e.g. use of legal powers to maintain essential services	NIPCB, NTF, all sectors	100,000
	2.4 M a d	Move from case-based and virological surveillance to aggregate data collection as diseases activity intensifies and becomes more widespread. Modify the case definition to reflect the increased specificity of clinical liagnosis of PI and epidemiological data in the absence of virological confirmation	DoH, TWG	50,000
3. Prevention and Containment				
Objectives	<ol> <li>To delay spread using public health interventions, while limiting social and economic disruption</li> <li>To minimise morbidity and mortality through the rational use of available pharmaceutical and non-pharmaceutical prevention and control measures (vaccines, infection control, social distancing, and antivirals)</li> </ol>			
Actions	3.1	Implement pandemic vaccine procurement plans if a supply is not already available. Update vaccine recommendations, including priority groups, dosage and schedule based on new knowledge and WHO	DoH	500,000

Component	Activities		Responsibility	Budget
		recommendations. Finalise and activate logistical and security arrangements for stockpile deployment and mass administration		
	3.2	Health care workers and first responders should be equipped with N95 respiratory masks; these should be fit-tested and training in their use should be provided. If respiratory masks are not available, standard well-fitted surgical masks should be used.	DoH	100,000
	3.3	Patients and persons seeking care in areas with cases should wear surgical masks.	DoH	250,000
	3.4	Persons with fever and respiratory symptoms and their contacts should be asked to undergo voluntary home confinement.	DoH	200,000
	3.5	Populations in areas with cases should be asked to defer non-essential travel to affected other parts of the country	DoH	100,000
	3.6	Provide incoming travellers with health alert notices describing symptoms and where to report should these symptoms develop	DoH	100,000
	3.7	For persons known to have been exposed in an aircraft or aboard a large cruise ship, consideration can be given to recommended daily fever checks among passengers and crew and prophylactic treatment with antiviral drugs, when available	DoH	200,000
3.8		As soon as available, implement pandemic vaccine programme as availability/resource permit; evaluate safety and efficacy; monitor supply	DoH	100,000
	3.9	Review/update recommendations for use of antivirals based on WHO recommendations; availability and resources	DoH, TWG	50,000
	3.10	Implement 'social distance' measures such as close school, ban public gathering, meeting etc	NIPCB, NTF	100,000
	3.11	Implement distribution plan; monitor supplies	DoH	200,000
4. Health System Response				
<i>Objectives</i>	<ol> <li>To optimize patient care with limited resources</li> <li>To reduce overall impact of the pandemic (morbidity and mortality)</li> <li>To manage demand on health systems in order to maximize sustainability of the response</li> </ol>			
Actions	4.1 Imp and addi peop	lement in full pandemic contingency plans for health systems and essential services, at national, provincial district levels where affected; monitor health system status; adjust triage system if necessary; deploy tional workforce and volunteers; ensure staff support; provide medical and non-medical support for ill ble in alternative (non-medical-care) facilities	NIPCB, NTF, DoH, TWG	2,000,000
	4.2 Kee	p emergency coordinating arrangements and chains of command for health system fully functional.	NIPCB, NTF	100,000
	4.3 Kee antii	p case definition, protocols and algorithms for case-finding, management (including appropriate use of biotics to treat suspected bacteria infections), infection control and surveillance updated.	DoH, TWG	50,000

Component	Acti	ivities	Responsibility	Budget
	4.4	Maintain health care worker vigilance for the onset of cases and clusters	DoH	100,000
	4.5	Maintain capability/capacity for infection control for ill patients, and implement infection control consistent with latest WHO guidelines, maintain staff competency in use of personal protection equipment (conduct drill)	DoH, TWG	250,000
	4.6	Implement vaccination campaign according to priority status, in line with plan and availability	DoH, NTF	1,000,000
5. Communications				
Objectives	1. 2. 3. 4.	To ensure public access to regularly-updated official national sources and focal points for credible, consistent information open and accessible channel for advice to the public on specific subject (e.g. travel, social gathering, etc.) To achieve public acceptance and support for national response and contingency measures. To ensure rapid sharing of information regarding progress of the pandemic among health authorities, other relevant g	ation related to pandemic ) overnment departments and othe	r partners.
Actions	5.1	Keep news media, public, professional partners and other stakeholders informed about progress of pandemic in affected countries; prepare audiences for imminent onset of pandemic activity.	NTF, TWG, DoH	100,000
	5.2	Redefine key messages; set reasonable public expectations, emphasize need to comply with public health measures.	NTF, TWG, DoH	100,000
	5.3	Redefine communication strategies and systems in anticipation of imminent pandemic, update IEC materials.	NTF, TWG, DoH	400,000
	5.4	Inform public about interventions that may be modified or implemented during pandemic, e.g. prioritization of health services and supplies, travel restrictions, shortage of commodities	NTF, TWG, DoH	250,000
Total budget for phase 6				K7,120,000
Summary of budget for all 6 ph	ases			K53,801,000

# Annex 1 - Health sector command and control structure for avian influenza and pandemic influenza



## Annex 2 - Participating agencies

Agency	Responsible Officer	Address	Contact Phone number
National Department of	Depute Secretary	Box 807 Waigani NCD	3013775
Health	technical division	5 <sup>Th</sup> floor	
	Director of	Box 807 Waigani NCD	3013738
	Communicable diseases	3 <sup>rd</sup> Floor	
Port Moresby General	CEO	Free Mail Bag Boroko	3248210
Hospital		NCD	
Department of	Secretary	Box 2033, Port Moresby	3214096
Agriculture and Livestock		NCD	
(DAL)			
National Agriculture	Chief Veterinary	Box 741, Port Moresby	3259977
Quarantine Inspection		NCD	
Authority (NAQIA)			
National disaster	Director General	Box 4970, Boroko	3011053
Management Office		NCD	
PNG Defence Force	Director of Medical	Free Mail Bag, Boroko	3251164
	Services	NCD	
United Nations (UN)	Office of the Resident	Level 14, Deloitte tower,	3212811
	Coordinator of the	Douglas street, Port	Fax: 3211224
	United Nations in PNG	Moresby	
World Health	WHO representative	Box 807 Waigani NCD	3013698
Organization (WHO)	and CSR Officer	4 <sup>Th</sup> floor	
United Nations	UNICEF representative	Level 7, Deloitte tower,	
Children's Fund	-	Douglas street, Port	
(UNICEF)		Moresby	
Office for the	Humanitarian Affairs	Level 14, Deloitte tower,	3212811
coordination of	Officer	Douglas street, Port	Fax: 3211224
Humanitarian Affairs		Moresby	
(OCHA)			

## Annex 3 - Activation and deactivation of the National Contingency Plan for Pandemic Influenza

Figure 1 Plan activation - Lines of disease reporting in the event of laboratoryconfirmed A/H5N1 or novel influenza strain





Figure 2 Lines of disease reporting for Plan deactivation

### Annex 4 - Background information on avian influenza A/H5N1 and pandemic influenza

#### The epidemiology of pandemic influenza

Pandemic influenza poses one of the greatest public health risks and has previously caused the most devastating epidemic in human history.

#### Influenza virus characteristics

- There are three different antigenic types of the influenza virus A, B, and C. Type A and B viruses cause epidemics every winter (seasonal influenza), while type C is of little epidemiological importance since it causes mild or asymptomatic disease.
- The surface proteins of type A influenza viruses are subject to slight but constant antigenic changes, called "antigenic drift", which is the reason why influenza viruses are different from season to season. Type B influenza viruses do not have subtypes nor are they subject to antigenic drift.
- The globally circulating strains of the influenza virus affecting humans since the 1970s are A/H1N1 and A/H3N2. The WHO convenes a panel of experts annually to determine the composition of the next year's influenza vaccine composition that consists of A/H1N1, A/H3N2 and influenza B.
- The natural reservoir of influenza A viruses are wild waterfowl, especially ducks, which excrete large quantities of virus into the environment. Wild birds usually do not become ill, unlike domestic poultry such as chickens which suffer from severe disease and mortality as high as 100% if infected with highly pathogenic avian influenza strains.
- Humans, domestic ducks, pigs, chickens, turkeys, horses, whales, and seals are also susceptible to influenza A. Pigs infected with influenza virus may present with symptoms similar to humans (cough, fever, and runny nose). The disease is rarely transmitted from animal to human. Type B influenza viruses do not affect animals.
- More recently, A/H5N1 has infected wild captive *Felidae* (and domestic cats. In 2004, concurrent with outbreaks of A/H5N1 in poultry, a total of 147 of 441 tigers (*Panthera tigris*) and two leopards (*P. pardus*) kept in the zoo in Suphanburi, Thailand, died after an acute respiratory illness with high fever or were euthanised to prevent possible spread to other zoo animals. The animals had been fed raw chicken carcasses that were contaminated with the A/H5N1 virus. Cats have been infected in Europe after eating dead wild birds.
- Until the emergence of A/H5N1, deaths in waterfowl infected with the virus was very rare but it is proving highly pathogenic to some species of wading birds.
- Subtypes of A viruses are distinguished according to two surface proteins found haemagglutinin (H) and neuraminidase (N). There are 16 different haemagglutinin subtypes (H1-H16) and 9 different neuraminidase subtypes (N1-N9). Among these subtypes, only H1, H2, and H3 from the haemagglutinin group and N1 and N2 from the neuraminidase group had been known to affect humans. Since 1997, humans have also been infected in a limited way by subtypes H5, H7, and H9 without any confirmed cases of human-to-human transmission. The rest of the subtypes have been identified in influenza viruses isolated from diseased waterfowl, horses, pigs, and other animals.
- Pandemics occur when significant antigenic changes in type A viruses, called "antigenic shifts", occur. These events are unpredictable but occur about three times a century. When such antigenic shifts occur, a new virus strain appears against which there is no immunity in the human population.

#### Influenza pandemics in the 20th century

There have been 31 influenza pandemics recorded in historical records, three of which occurred during the 20th century in 1918, 1957 and 1968. An estimated 50 million people died from influenza during the 1918-19 pandemic and 1-4 million people in 1957 and 1968. In addition, seasonal influenza affects large numbers of people on a yearly basis and localised epidemics result in excess all-cause mortality.

The A/H1N1 strain, which has recently been found to have originated in water fowl, caused the most devastating human epidemic in recorded history, the so-called "Spanish flu". The 1957 (Asian influenza) and 1968 (Hong Kong influenza) pandemics where caused by A/H2N2 and A/H3N2 viruses respectively, originating from genetic material reassortment of avian influenza viruses and circulating human influenza viruses. In 1976, A/H1N1 that circulated widely until 1957 resurfaced causing severe disease in certain susceptible populations (people born approximately after 1957). A/H5N1 appeared as the cause of human disease in Hong Kong in 1997. To control the outbreak that resulted in 18 cases and six deaths, control measures aimed at reducing exposure of humans to potential H5-positive poultry were instituted and included culling of all poultry in Hong Kong, the segregation of waterfowl and chicken, the introduction of import control measures for chickens and waterfowl and central slaughtering of waterfowl.

#### Transmission

Influenza is an acute viral respiratory infection that cannot be clinically distinguished with certainty from other acute respiratory infections. Laboratory tests are necessary to confirm the presence of influenza virus. The disease caused by influenza viruses is usually mild, transmitted from one person to another via droplets from respiratory secretions produced during sneezing or coughing. It may also be transmitted through immediate contact, i.e. hands or face, with an infected individual or with surfaces infected with the respiratory secretions of a patient.

#### **Clinical manifestations**

Influenza symptoms include high fever, cough, sore throat, runny nose, headache, myalgia, and often malaise. Most patients recover fully within 1-2 weeks. In comparison to other respiratory infections, such as the common cold, influenza can cause severe complications, including bacterial pneumonia particularly in children, the elderly and other high-risk groups.

#### Complications

Pneumonia is the most common complication of influenza and may be either primary viral pneumonia or secondary bacterial pneumonia. *Streptococcus, Haemophilus* and *Staphylococcus* most commonly cause bacterial pneumonia. Bacterial pneumonia usually affects people with underlying chronic pulmonary diseases, such as chronic bronchitis, asthma, and cystic fibrosis. Viral pneumonia is less common, but may progress rapidly and lead to acute respiratory failure and death.

Other complications of influenza infection include arrhythmias, myocarditis, pericarditis, encephalitis and transverse myelitis, and Reyes syndrome that occur especially in children under treatment with salicylates.

#### Avian Influenza

Avian influenza is transmitted to vulnerable poultry after coming into contact with nasal, pulmonary secretions and faeces of ailing or infected fowl. Transmission most commonly occurs through the faecal-oral route. Recent data show that domestic ducks may also be infected without showing any signs of disease; thus in certain circumstances, they can play a crucial part in disseminating the virus.

Subtypes H5 and H7 of the virus cause severe disease in domestic poultry, hence they are characterized as "highly pathogenic". Other subtypes may induce milder disease.

#### Transmission of avian influenza to humans

The avian influenza virus usually does not affect humans. Since 1997 though, there have been incidents of transmission of this virus to humans. Contact with infected birds, their faeces or inhalation

of infected dust particles has been implicated, while typically there is none or very rare human-tohuman transmission (e.g. under certain circumstances of close contact in a health care setting).

Symptoms of the human infection with avian influenza are of a flu-like illness (fever, sore throat, and myalgia) with conjunctivitis. Bacterial or viral pneumonia, acute respiratory failure, and other serious or even lethal complications may occur.

Public Health services monitor closely such cases due to the concern of human-to-human transmission and the possible connection with influenza pandemic.

#### The global situation and public health risks

Although avian influenza does not usually affect humans, several localised outbreaks have occurred since 1997. In comparison to historical data, the epizootic of the Asian strain of HPAI A/H5N1 since 2003 differs significantly with respect to the speed of international spread with development of endemicity in Asia, the virulence of the virus to some species of wild wading birds, and the increasing number of clusters of human cases.

Some characteristics of recent outbreaks suggest that the complex ecology of influenza is undergoing changes that may increase the risk of the emergence of a new pandemic strain.

- Asymptomatic infection in domestic ducks that may lead to outbreaks in chickens and humans.
- Evidence that some species of migratory waterfowl are carrying A/H5N1 over long distances and introducing the virus to poultry flocks in areas that lie along their migratory routes. Evidence supporting this altered role began to emerge in mid-2005 and has since strengthened. Genetic analyses of isolates from Mongolia, Kazakhstan, Romania, Russia and Turkey show a close genetic relationship to wild bird isolates from the Qinghai Lake outbreak, China.
- Outbreaks of A/H5N1 have recurred despite aggressive control measures, including the culling of millions of poultry since December 2003.
- Some cases of infection have been reported among people not directly exposed to ailing or dead poultry infected with A/H5N1 virus. This suggests a risk for a larger part of the population in South East Asia, especially children and young adults residing in rural areas.

# Annex 5 - Advice for people living in areas affected by avian influenza A/H5N1

Table 5 Exposures that may have put a person at risk of becoming infected with influenza A/H5N1 $^{8}$ 

Countries and territories where influenza A/H5 viruses have been identified as a cause of illness in human or animal populations since 1 October 2003	Countries and territories where influenza A/H5 <sup>9</sup> viruses have NOT been identified as a cause of illness in human or animal populations since 1 October, 2003
<ul> <li>During the 7 days before the onset of symptoms, one or more of the following:</li> <li>Contact (within 1 meter) with live or dead domestic fowl (e.g. chicken, ducks, geese, turkeys, guinea fowl) or wild birds;</li> <li>Exposure to settings where domestic fowl were or had been confined in the previous 6 weeks;</li> <li>Contact (within touching or speaking distance) with a person for whom the diagnosis of influenza A(H5N1) is being considered;</li> <li>Contact (within touching or speaking distance) with a person with an unexplained acute respiratory illness that later resulted in death.</li> </ul>	<ul> <li>History of travel, during the 7 days before the onset of symptoms, to a country or territory with reported highly pathogenic avian influenza (HPAI) activity due to influenza A(H5N1) in the animal populations, AND one or more of the following:</li> <li>Contact (within 1 meter) with live or dead domestic fowl (e.g. chicken, ducks, geese, turkeys, guinea fowl) or wild birds in any settings;</li> <li>Exposure to settings where domestic fowl were or had been confined in the previous 6 weeks;</li> <li>Contact (within touching or speaking distance) with a confirmed human case of influenza A/H5 infection;</li> <li>Contact (within touching or speaking distance) with a person with an unexplained acute respiratory illness that later resulted in death.</li> </ul>
During the 7 days before the error of surrent	<ul> <li>During the 7 days before the onset of symptoms, one or more of the following:</li> <li>Living in an area in which there are rumours of deaths of domestic fowl;</li> <li>Occupational exposure (domestic fowl worker, domestic fowl processing worker, domestic fowl culler, worker in a live animal market, chef working with live or recently killed domestic fowl, dealer or trader in pet birds, health care worker).</li> </ul>

During the 7 days before the onset of symptoms, having worked in a laboratory where there is processing of samples from persons or animals suspected of having HPAI.

# Avian influenza A (H5) in humans and in poultry - food safety and general hygiene

Avian influenza is an infectious disease of birds. Migratory waterfowl - most notably wild ducks - are the natural reservoir of avian influenza viruses, and these birds are also the most resistant to infection. Domestic poultry, including chickens and turkeys, are particularly susceptible to epidemics of rapidly fatal influenza. Avian influenza viruses rarely affect humans and do not normally infect species other

<sup>&</sup>lt;sup>8</sup> A/H5 is one of the subtype

<sup>&</sup>lt;sup>9</sup> A (H5N1) indicates the N glycoprotein type

than birds and pigs. Its ability to cause severe disease in humans has now been documented on two occasions (Hong Kong SAR, 1997 and The Netherlands, 2003). Investigation of these outbreaks determined that close contact with live infected poultry was the source of human infection. The people living in an area affected by highly pathogenic avian influenza (HPAI) virus should follow the advices as detailed bellow.

#### Food safety – Preparing and cooking poultry

- Proper cooking kills the virus.
- Any poultry product that has entered the food chain whether whole refrigerated or frozen carcasses or products derived from these must be well cooked prior to consumption. A minimum temperature of 70°C must reach the centre of the product, which would make it safe for human consumption.
- The same applies to eggs. Eggs from infected birds can harbour the virus both outside and within the shell and should therefore be cooked before consumption.
- Sick birds, or birds from flocks in which one or more birds are sick, should never be slaughtered for consumption and their eggs should not be marketed for human or animal consumption.
- For consumption purpose of healthy poultry, the slaughter should preferably take place in a confined area away from the kitchen; children should be kept away. It is important to use hot water for scalding. After slaughter, cleaning and disinfection of the area, including safe disposal of the feathers and animal remains, are equally important.

## Raising poultry at home - contact with chicken, duck or other poultry in an area with HPAI

Avian influenza (bird flu) in birds has two forms.

- First form causes mild illness, sometimes expressed only as ruffled feathers or reduced egg production.
- The second form, which is of greater concern, known as "highly pathogenic avian influenza". This form is extremely contagious in birds and rapidly fatal, with a mortality approaching 100%. Birds can die on the same day that symptoms first appear.

In order to avoid infection from the poultry the following should be practiced:

- Constantly monitor the health condition of your domestic free-range poultry flocks (e.g. chickens, ducks, geese, turkeys, guinea fowl) or wild birds
- If a family identifies a sick or dead bird within its small flock; inform the nearest veterinary department immediately to identify the cause
- Dispose the dead bird through burial wearing mask, goggles, gown, rubber boots and gloves.
- Do not sell in the market any fowl from your free-range poultry including eggs when one or more birds are sick or dead.
- Avoid contacts with chicken, ducks and other poultry as much as possible. Children should not have contact with poultry or any other affected birds.
- Avoid contact with any poultry/farm where animal have been sick or thought to have bird flue. Do not bring (live or dead) chickens, ducks or other poultry even you think they are healthy.
- If you do come into contact with an environment that has had sick/dead chickens, ducks and other poultry, wash your hand well and monitor your temperature for 7 days. If you develop a high temperature (>37.5°C) consult a physician.

- If you have had contact with any dead birds that have died from avian flue or if you have had contact with the dropping of these birds consult your doctor to see whether treatment is needed.
- Whenever you have contact with poultry, the chicken shed/pen or anything with faeces on it make sure you are protected by a mask, goggles, gown, rubber boots and gloves.
- If you don't have these items, try to improvise as much as possible; for example use a cloth around the mouth and nose, plastic bags to cover the hands and shoes, overalls that can be washed, etc.
- Preferably one designated adult person wearing protective above protective apparel should carry out the slaughter, dispose of the bodies and clean up the area. Make sure that children are not involved.
- After the area has been cleaned, remove all the protective apparel and wash your hand, cloths and if possible your body. A shower is the best alternative.
- If possible wash cloths in hot or warm soapy water. Hang them in the sun to dry.
- Discard gloves, plastic bags and any other disposable materials.
- Clean all reusable items such as rubber boots, goggles etc. Always wash hand after handling these items.

#### How to decontaminate the yard/chicken pen

- After culling the poultry, the area must be cleaned.
- Wear all the protective apparel outlined above before staring the cleaning process.
- Burial of the dead chickens must be done safely. Mass burial of chicken carcasses and contaminated materials in the best and cheapest option.
- Collect any faeces scattered around the yard into a pile to be buried. The faeces should be buried at a depth of at least I meter.
- Try to move droppings without raising too much dust causing dried droppings to possibly blow into your face/eyes/mouth.
- Remove as many of the droppings as possible from the chicken coup/shed and bury as above.
- Clean all areas very well with detergent and water.
- Discard all disposable items used to protect you such gloves, plastic bags, masks, etc. Place reusable items into a bowl with detergent and water to be washed.
- Wash hands very well with soap and water.
- Shower/wash body using soap and water and wash hair.
- Taking care not to recontaminate yourself, wash clothes worn during the cull/clean up use detergent and hot or warm water.
- Dry cloths in the sun.
- Any item that be used again such as rubber gloves or boots should be washed very well (twice) detergent and water.
- Always wash hands after handling contaminated items.

#### Contaminated shoes and footwear

- After walking around contaminated areas such as farms with chickens, backyards with chickens, or markets, you should clean your shoes as carefully as possible.
- Take care when cleaning shoes not to flick any particles into your face. Wear a plastic bag over your hands and shield your eyes and mouth when cleaning dirty or muddy shoes.
- Leave the dirty boots and shoes outside the home until they have been thoroughly cleaned.

#### Visiting friends and relatives

- Avoid contact with patients known to have HPAI, especially when they are infectious.
- If you must visit a patient who has HPAI follow the advice from the hospital staff to wear protective clothing, a mask, gloves etc.
- You will need to wear special protective clothing when you have direct contact with patient or the patient's environment.
- The personal protective equipment you will need to wear will include mask, gown, gloves and goggles.
- You should receive advice on the proper way to put on protective clothing, especially on how to fit the mask to your face.
- When you leave the HPAI patient's room you must remove these and wash your hand very well for at least 2 minutes with soap and water.

#### General advice about the respiratory hygiene

- Anyone with flu-like illness should be careful with secretions from the nose and mouth.
- Children are especially prone to touch their face, eyes and mouth with unwashed hands (eg when they have a cold, after playing). Teach children the importance of hand washing after coughing, sneezing and playing.
- Cover the nose and mouth when coughing or sneezing use a tissue and throw it in the waste once used. Teach children to do this as well.
- Always wash hands after any contact with respiratory secretions as these can spread disease.
- Be careful with respiratory secretions (e.g. coughing and sneezing) when around other people, especially small children. It may be best to avoid contact with individuals who are more at risk of becoming ill (small children or people with other illness) until flu-like symptoms has resolved.
- See your doctor if the illness is severe.
- Avoid contact with secretions of other people who have flu-like illness.
- Ask other people, especially children, to cover their nose and mouth when coughing or sneezing and to use a tissue (when available).

## Annex 6 - Clinical Triage

The following flow charts show a stepwise approach to assessing patients for avian influenza.

#### Figure 3 Triage of patients presenting to Health Posts and Rural Health Centres





#### Figure 4 Triage of patients presenting to hospitals

# Figure 5 Triage of patients presenting with unexplained severe respiratory disease during enhanced surveillance for avian influenza or pandemic signals



## Annex 7. Glossary of Terms

Airborne transmission	Transmission by air of infectious agents from aerosolized respiratory secretions (fine droplets that can stay suspended in the air).
Alcoholic hand rub	A waterless, antiseptic hand rub product that is applied to all surfaces of the hands to reduce the number of micro-organisms present.
Animal health emergency	In this plan animal health emergencies are those caused by exotic diseases such as highly pathogenic avian influenza A/H5N1 or serious endemic diseases.
Cleaning	The physical removal of foreign material, e.g., dust, soil, organic material such as blood, secretions, excretions and micro-organisms. Cleaning physically removes rather than kills micro-organisms. It is accomplished with water, detergents and mechanical action. In certain settings, (e.g., central service or dietetics), the terms decontamination and sanitation may be used for this process. Cleaning reduces or eliminates the reservoirs of potential pathogenic organisms. Cleaning agents are the most common chemicals used in housekeeping activity.
Cluster	Several cases presenting with a similar clinical illness closely related in time and place. Experience to date with human infections of A/H5N1 infections to date suggest that a cluster of 5 closely related cases (including the index case) in which human-to human transmission is suspected would be an unusual event.
Cohort	Two or more patients exposed to, or infected with, the same organism who are separated physically (e.g., in a separate room or ward) from other patients who have not been exposed to, or infected with, that organism.
Cohort staffing	The practice of assigning specific personnel to care only for patients/residents known be exposed to, or infected with, the same organism. Such personnel would not participate in the care of patients/residents who have not been exposed to, or infected with, that organism.
Combat	To take steps to eliminate or reduce the effects of a hazard on the community.
Combat Agency	An organization that because of its expertise and resources, is responsible for performing a task or activity such as provision of clinical and public health services during an epidemic, control of emergency animal diseases, etc. An emergency operation such as the control of avian influenza and pandemic influenza will involve a number of combat agencies.
Command	The direction of members and resources of an organisation in the performance of the organisation's role and tasks. Authority to command is established in legislation or by agreement within an organisation. <i>Command</i> relates to organisations and operates vertically, within an organisation.
Communicability, Period of	The period that a case of disease is infectious to others.
Contact tracing	See Tracing.
Contamination	The presence of an infectious agent on surfaces, in clothes, bedding, toys, surgical instruments or dressings, or other inanimate objects or substances including water and food.
Control	The overall direction of emergency management activities in a designated emergency. Authority for control is established in legislation or in an emergency management plan and carries with it the responsibility for tasking and coordinating other organisations in accordance with the needs of the situation. <i>Control</i> relates to situations and operates horizontally, across organisations.
Control Area (CA)	In the management of emergency animal diseases such as highly pathogenic avian influenza, the Control Area is a declared area, surrounding the Restricted Area, in which
less stringent conditions apply to the movement of specified animals and animal products. The CA is declared by NAQIA.

- Coordination The bringing together of organisations and elements to ensure effective emergency management response and is primarily concerned with the systematic acquisition and application of resources (organisation, staff and equipment) in accordance with the requirements imposed by the threat or impact of an emergency/disaster. Coordination relates primarily to resources, and operates *vertically, within an organisation* as a function of the authority to *command*; and *horizontally, across organisations*, as a function of the authority to *control*.
- Cough etiquette A term used to describe safe behaviours when coughing or sneezing and includes covering the nose and mouth when coughing/sneezing, disposing of contaminated tissues or handkerchiefs safely and not spitting out respiratory secretions. Cough etiquette must be followed by hand washing or disinfection with an alcohol rub.
- Decontamination Cleaning and disinfection operations to eliminate an infectious agent.
- Disease surveillance A program of monitoring and investigation designed to establish the presence, extent of, or absence of a specific disease.
- Disinfection Destruction of pathogenic micro-organisms on inanimate objects by the use of physical or chemical agents.
- Droplet transmission Transmission (within one metre) of infectious agents in droplets from respiratory secretions.
- Endemic The constant presence of a disease or infectious agent within a given geographic area in humans; it may also refer to the usual prevalence of a given disease within an area. The equivalent term for animals is enzootic.
- Enzootic See Endemic.
- Epidemic The occurrence in a community of cases of an illness where the frequency is clearly in excess of normal expectancy. The number of cases indicating an epidemic will vary according to the infectious agent, size and type of the population exposed, previous experience or lack of exposure to the disease, and time and place of the occurrence. The equivalent term in animals is epizootic.
- Epizootic See Epidemic.
- Fomite transmission Any inanimate object (surfaces, clothing, crockery, books, toys etc) that can transmit infectious agents from one person to another.
- "Function" Coordinator The person appointed by an agency or committee to be the Coordinator of all activities associated with a particular function, e.g. Welfare Coordinator etc., and includes coordinating the functions of other organisations that support that particular function, e.g. Council of Churches, International Red Cross.
- Graduated response The escalating process linked to Pandemic Phases by which additional support and resources will be mobilised at local, district, provincial and national levels to meet emergency needs.
- Hand hygiene A general term that applies either to hand washing, an antiseptic handwash, an antiseptic hand rub, or a surgical hand antisepsis.
- Health care associated Infection contracted as a result of health care. Includes iatrogenic infections resulting from medical procedures and nosocomial infections resulting from the patient's presence in a health care establishment.
- Health care facility The setting within which health care is provided (e.g. acute care, community care, long-term care, private office practice).
- Health care worker Refers to all health care professionals, including students and trainees, and employees of health care establishments, who have contact with patients or with blood or body

	substances from patients.
Highly pathogenic avian influenza (HPAI)	HPAI is an internationally notifiable disease of domestic poultry and other fowl caused by various influenza A strains (notably H5 and H7 strains) and resulting in significant stock losses. All outbreaks of HPAI should be immediately reported to the OIE under the Terrestrial Animal Health Code (2005). Water birds, especially ducks, are the natural reservoirs of HPAI strains.
Host	A person or an animal, including birds and insects, that affords subsistence or lodgement to an infectious agent. A host may become ill because of the infection.
Incubation period	The time that elapses between infection and the appearance of symptoms of a disease.
IEC	Information, Education, Communication materials for health promotion and behaviour change communication.
Infected Area (IA)	An area immediately surrounding an infected premise. The IA is declared by NAQIA.
Infected Premises (IP)	Premises in which an exotic disease or its infective agent exists or is believed to exist. IPs are subject to full disease control measures.
Informed and voluntary consent	A voluntary decision is one made without undue pressure, and without coercion, force, or persuasion against one's will.
International Health Regulations (2005)	The International Health Regulations (2005) are an international legal instrument which is legally binding on all WHO Member States who have not rejected them (or, subject to the procedure foreseen in the IHR, who have made reservations) and on all Non-Member States of WHO that have agreed to be bound by them.
Isolation	Separation of ill or contaminated persons or affected baggage, containers, conveyances, goods or postal parcels from others in such a manner as to prevent the spread of infection or contamination (IHR 2005).
Mask	A barrier covering the nose and mouth to protect the mucous membranes from micro- organisms contained in large droplet particles (> 5 microns in size) generated from a source person during coughing, sneezing, or talking and during the performance of certain procedures that generate droplets (e.g., suctioning) or are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions. Masks may also be used to contain large droplet particles generated by coughing or sneezing persons. The term mask in this document refers to surgical masks, not to special masks, such as high efficiency masks or respirators e.g. NIOSH N95 respirators.
Movement control	Restrictions placed on movement of animals, animal products, feed, fittings, vehicles or people to prevent the spread of disease.
National Incident Room	A facility where designated NDoH staff will be located in the event of pandemic influenza and from which coordination of all support to the National Focal Point is managed.
Negative pressure	Used to denote airflow that is negative in relation to surrounding air pressure; that is, air flows in from the surrounding area. Usually created by mechanical airflow devices (e.g. exhaust fans).
Notifiable disease	Disease or condition that, by law, must be notified to health authorities.
Operations	Refers to the activities directed at controlling and eradicating a disease.
Pandemic	A global epidemic of human disease, notably influenza.
Pandemic Influenza National Focal Point	The person designated to coordinate all technical support for the health sector response to pandemic influenza.
Personal hygiene measures	General measures taken by an individual to decrease their risk of transmitting contagion to others and/or themselves.
Personal protective equipment	Attire used by the worker to protect against airborne or droplet exposure and exposure to

	blood and bloody body fluids, i.e., masks, eye goggles, face shields, gloves and gowns.
Precautions	Interventions implemented to reduce the risk of transmission of micro-organisms from patient to patient, patient to health care worker, and health care worker to patient.
Public health event of international concern	A likelihood of an event that may affect adversely the health of human populations, with an emphasis on one which may spread internationally or may present a serious and direct danger (IHR 2005).
Quarantine	The restriction of activities, and separation from others, of asymptomatic suspect persons to prevent the possible spread of infection or contamination (IHR 2005).
Reservoir	Any person, animal, insect, plant, soil or substance in which an infectious agent normally lives and multiplies, on which the infectious agent depends primarily for survival, and where the infectious agent reproduces itself in such a manner that it can be transmitted to a susceptible host. The reservoir is subclinically infected by the agent. Some species of wild water birds, especially ducks, are the natural reservoir of influenza viruses.
Restricted Area (RA)	A declared area, encompassing infected and contact premises considered to be at risk, in which stringent conditions apply to the movement of specified animals, animal products, feed, fittings and vehicles and to the operation of risk enterprises. The IA is declared by NAQIA.
Seasonal influenza	Circulating strains of human influenza (currently A/H1N1, A/H3N2 and influenza B) that cause seasonal epidemics of various size and severity. Seasonal influenza can be prevented by annual vaccination, especially among high risk groups e.g. persons with chronic medical conditions, the elderly, residents of long-term care facilities, etc.
Social distancing	General social measures intended to decrease transmission of communicable diseases by decreasing the number of contacts within the transmission range of the contagion (i.e. 1-2 metres for contagions transmitted by large droplets. Examples of social distancing include cancellation of public gatherings, school and workplace closures, scaling down or stopping public transport.
Stamping out	Eradication procedures based on the slaughter of all infected and suspect animals.
Stockpile	In the context of pandemic influenza planning, a national reserve of essential equipment, drugs (and/or vaccines when available) including personal protective equipment, antivirals, antibiotics, laboratory reagents and other materials needed to combat the disease.
Support Agency	That organisation whose response in AI/PI is either to restore essential services (e.g. PNG Power, PNG Waterboard, Main Roads Department etc) or to provide such support functions as welfare, transport, communications, logistics and supplies, etc.
Support plan	A plan detailing the role, type and extent of resources committed, and internal procedures for a supporting functional area or agency.
Surgical mask	Refer mask.
Surveillance	The ongoing scrutiny of all aspects of occurrence and spread of a disease that is pertinent to effective control. This includes the systematic collection and evaluation of morbidity and mortality reports, and of other relevant epidemiological data.
Suspect animals	Animals showing clinical signs of disease, e.g. of HPAI, requiring differential diagnosis, or animals that may have been exposed to an infectious agent, or things which may have been contaminated with an agent e.g. contaminated feed or environment.
Targeted antiviral prophylaxis	The administration of antiviral drugs to the ill and the population at risk of ongoing influenza transmission
Tracing	The process of locating persons, animals or things that may be implicated in the spread of disease so that appropriate action can be taken. <i>Contact tracing</i> is the term used in public health.

ransmission, Modes of	Any method by which an infectious agent is spread from a source or reservoir to a person or between persons. For human influenza, modes of transmission include droplet transmission, transmission by direct or indirect contact with the source of infection (fomites) and less commonly, airborne transmission.
Triage	A French word meaning "to sort", used to describe the way in which patients are assessed and managed on entry into health care facilities. Triaging a patient involves identifying specific departments or areas of a hospital or health centre that the patient is sent to in order to receive the care they need based on their clinical assessment. In the context of communicable diseases, triage is also important to ensure isolation facilities, the appropriate levels of PPE use among health staff and transmission-based infection control.
Voluntary home quarantine	Voluntary community adherence to the restriction of activities and separation from others recommended by health authorities in order to reduce the risk of influenza transmission. See also Quarantine.