



Forward

The National Influenza Pandemic Preparedness and Response Plan (NIPPRP) is a framework for action set out for all-of-government and society approach to be taken to prepare for and respond to an influenza pandemic. The importance of public contribution and compliance?

The Ministry of Health leads the Government's response to a pandemic. It is the responsibility of other agencies to plan for and respond to a pandemic in their respective sectors and settings, based on the direction set out by the Ministry of Health.

Pandemics by their nature are unpredictable in terms of timing, severity and the population groups that are most affected. This version of the National Influenza Pandemic Preparedness and Response Plan (NIPPRP) establishes a framework for action that can readily be adopted and applied to any pandemic, irrespective of the nature of the virus and its severity.

This plan updates the 2011 version to reflect legislative changes and new terminology. The key decisions, public health interventions and phases of the plan remain valid and are based on revision of the plan following extensive consultation carried out in 2018-19. It takes into account lessons learned in the pandemic influenza A (H1N1) 2009 response and the ongoing COVID-19 pandemic. It is a working document to give direction to future responses.

The risk of a global pandemic has not declined and the severity of its impact, and those most vulnerable will only be known at the time, that is why, this living document is very critical.

This edition of the NIPPRP reflects the sophistication of a third-generation, risk-based plan that promotes collaboration across all levels of government, agencies and organisations when planning for, responding to and recovery from a pandemic event. Aspects of this plan are directive, requiring entities and organisations across government, within the health and disability sector and in the community to enter into arrangements and partnerships, develop plans, manage risks, and build capabilities to strengthen the resilience of Bhutan.

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Secretary

Ministry of Health

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LIST OF ABBREVIATIONS

AI	Avian Influenza
BAFRA	Bhutan Agriculture and Food Regulatory Authority
DDM	Department of Disaster Management
DoL	Department of Livestock
DoPH	Department of Public Health
DDMC	District Disaster Management Committee
DDMO	Dzongkhag Disaster Management Officer
HEMC	Health Emergency Management Committee
HPAI	Highly Pathogenic Avian Influenza
IOC	Incident Operation Centre
MoAF	Ministry of Agriculture and Forests
MoF	Ministry of Finance
MoH	Ministry of Health
MoHCA	Ministry of Health of Health and Cultural Affairs
NCAH	National Center for Animal Health
NDMA	National Disaster Management Authority
NEOC	National Emergency Operation Centre
NIPPRP	National Influenza Pandemic Preparedness and Response Plan
OIE	World Animal Health Organization
PPE	Personal Protective Equipment
RRT	Rapid Response Team
SOP	Standard Operating Procedures

1. INTRODUCTION

Influenza pandemics are rare and unpredictable, but recurring events, with the potential for significant consequences on human health and social and economic well-being. In light of lessons learned in the 2009 influenza pandemic, WHO revised its interim pandemic risk management guidance. The revised guidance acknowledges that the development of a pandemic is a continuum, rather than a series of clear phases.

This plan has been reviewed in the context of the new guidance through multi-sector workshops carried out in the previous years to ensure that the measures called for are aligned with the new guidance and still relevant to the capabilities and capacities available for management of an event.

At the time of this revision, the current threat landscape places the world and Bhutan between the **inter-pandemic to alert phase** of the continuum. There remains an ongoing threat of avian influenza (H5N1) in domestic poultry, but to date, there has been no indication of an increasing tendency for human transmission. In addition, there have not been significant numbers of exported cases of influenza (H7N9) in humans, nor have infected poultry been detected outside of China. However, in spite of no imminent threat, continued surveillance is necessary for the early detection and response of novel strains as they may develop.

In an effort to facilitate planning and preparedness approach, and to avoid duplication, the institutional arrangement of the National Influenza Pandemic Preparedness Plan is adopted from the Health Emergency and Disaster Contingency Plan. As for preparing for any threat to public health, operational reviews of seasonal influenza outbreaks and the conduct of exercises to validate the contents of this plan and measures called for, should be considered key elements in the implementation of this plan.

The current ILI sentinel surveillance system should be continued to establish seasonal influenza trends (if any) and to identify clusters of outbreaks of influenza-like illness and identify the circulating influenza strain. Severe Acute Respiratory Illness (SARI) surveillance is integrated into hospital surveillance to detect any increase in severe cases which could indicate an epidemic or a change in virulence. The Royal Centre for Disease Control should investigate reports of SARI that exceed threshold levels to determine if there is an increase in seasonal influenza virulence or the emergence of a novel strain of influenza.

2. SITUATIONAL ANALYSIS

Influenza is a contagious viral disease of the respiratory tract which has threatened the health of humans and animals for centuries. Influenza pandemics are characterized by the global spread of a novel type of virus that have been reported to arise through either genetic re-assortment, or genetic mutation of combination of both or emergence of new virus. A pandemic entails not only the emergence of a new viral subtype, but also the capacity of that virus to spread efficiently from person to person and cause significant human illness.

Till date, the emergence of several new influenza A virus subtypes has caused four pandemics, all of which had spread around the world within a year of being clinically recognized. These were:

- 1918-1919 (H1N1 "Spanish Flu")
- 1957-1958 (H2N2 "Asian Flu")
- 1968-1969 (H3N2 "Hong Kong Flu")
- 2009-2010 (H1N1 commonly known as "Swine Flu")

The swine flu is the first influenza pandemic of the 21st century resulting from the emergence of the new A (H1N1) pdm09 virus subtype. The triple re-assortment virus contained a unique combination of gene segments from avian, swine and human influenza viruses and established sustained human-to human transmission. This is now a regular human flu virus and continues to circulate seasonally worldwide. The Spanish flu was the most severe pandemic killing about 50 million people worldwide.

Bhutan is endemic to avian influenza. Since the first outbreak of the HPAI caused by H5N1 in 2010 in Bhutan, 14 separate outbreaks have occurred as of 2019. All these outbreaks have occurred mostly along the Southern districts bordering India and in free ranging poultry population. These outbreaks were successfully contained in poultry with no human transmission reported. These outbreaks were managed effectively taking One Health approach. However, Bhutan still remains vulnerable to HPAI with high risk of transmission to humans due to close interaction between animals and humans.

In humans, the outbreaks of influenza typically occur in winter, with an additional peak in the late summer, often affecting all age groups. According to Bhutan's annual Health Bulletin 2018 report, an acute respiratory infection has been responsible for the highest burden of disease, affecting diverse age groups in the country.

Since the 16th century, influenza pandemics have been described at intervals ranging between 10 and 50 years with varying severity and impact. As influenza viruses are unpredictable, it is uncertain what combination of changes will allow the next pandemic influenza virus to emerge.

Bhutan is particularly vulnerable to invasion from organisms beyond our borders. Few of the risk factors that can trigger influenza pandemics posing increasingly challenges includes:

- **Globalization and the expansion of tourism, trade and market access:** Globalization increases the volume and range of products traded internationally. There will be an increase in the number of aircraft, vehicles and passenger movements, along with the change in origin of trade and passenger across border and thereby increasing the risk of pests and diseases entering and establishing in Bhutan.
- **Increased agricultural expansion and intensification:** Bhutan is gearing toward achieving food self-sufficiency in 2040. This requires a shift in the agricultural production system from conventional and marginalized farming system to farm intensification system. These requires import of agricultural inputs which will open up pathways for the increased risk for influenza especially through import of livestock inputs. The trend towards larger and often more concentrated livestock farms may create closer environment for interaction between animal, and human thereby increasing the risk for new pests and diseases for pandemic potential.
- **Increased urbanization** with increasing population density makes the inhabitants vulnerable to pandemics and poses challenges in surveillance and response. Overall, it increases the pathways for emerging diseases.
- **Climate change** - Climate change may cause shifts in the potential range, habitat, spread and effects of pests and diseases. Climate change will result in bringing biodiversity pressures and altering the geographical distribution of pests and diseases globally, including within and in the vicinity of Bhutan thereby increasing the risk for emerging diseases.
- **Changing in Land use** - Changes in land use increases the interface between urban and rural areas and the natural environment, and make pest and disease management more complex. Population spread into new habitats, the urbanization of rural regions, and increasingly intensive agriculture all complicate the ability to contain a pest or disease incursion and the risk of zoonoses. (e.g. the emergence of Nipah virus in Malaysia was the outcome of change in land use). In addition, Bhutan is considered as “hotspot” for emerging and re-emerging zoonotic diseases in the region.

- **Unauthorized routes** - The unauthorized land incursions across the international border increases the risk of pests and diseases, being imported into the country. Bhutan has numerous unauthorized routes at the southern and northern border which serve as the routes for illegal import of animal and their products.

3. ONE HEALTH APPROACH

The health of the human, animal and environment are inextricably linked. About 60% of the pathogen that cause human diseases has origin in animal of which 75% of the emerging diseases are of animal origin. Most of the emerging and re-emerging diseases has the potential to cause pandemic causing high morbidity and mortality in humans, social disruption and economic loss. Therefore, it is essential to find effective strategies to control them at their source to reduce their potentially devastating impact on health. Learning from the past experience, the synergies between animal health and human health, applied at the local, national and worldwide level, has undoubtedly contributed significantly in controlling the diseases with pandemic potential. Bhutan's One Health Strategic Plan 2018 – 2023 covers the 7 strategic areas namely institutional setup and networking, disease surveillance system; disease outbreak preparedness and response; capacity building; collaborative research; communication and advocacy and engagement of wildlife and environment. These strategic areas are supported by specific objective with action plan for implementation.

In an effort to confront future influenza pandemics, the Ministry of Health revised the National Influenza Pandemic Preparedness and Response plan to 2020 edition using one health approach.

4. PURPOSE OF NIPPRP

A severe pandemic can overwhelm the resources of a society due to the exceptional number of people affected. For this reason, countries need to develop contingency plan to limit morbidity and mortality of influenza and its complications during a pandemic and to decrease social disruption and economic loss. The purpose of the NIPPRP are:

- To define preparedness activities that should be undertaken before a pandemic that will enhance the effectiveness of a pandemic response.

- To establish coordination, communication and information sharing mechanism at local, regional and national levels with relevant stakeholders with defined roles, responsibilities and actions.
- To outlines interventions that should be implemented as components of an effective influenza pandemic response.
- To guide local and national health care system to respond to pandemics.

5. SCOPE OF NATIONAL INFLUENZA PANDEMIC PREPAREDNESS & RESPONSE PLAN

The NIPPRP outlines all of government measures that will be considered for preparedness and response to influenza pandemics. The approach in the NIPPRP will serve as the foundation for responses to other pandemics due to other emerging infectious diseases, such as Coronavirus Disease 2019 (COVID-19), Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS-CoV). In addition, the incident command structure shall be directly adopted to any pandemics. The target users of this documents are government for decision making, health professional for preparedness and response and public for coordination and communication. However, the plan is not relevant to epidemics in which the spread is predominantly faecal-oral.

The plan will be a living document that will be periodically tested through simulation/exercise and updated from time to time as per the need.

6. HUMAN HEALTH SYSTEM

The health system in Bhutan is financed and managed by the government. Health services are free as enshrined in the Constitution, Section 21 of Article 9 which states: “The State shall provide free access to basic public health services in both modern and traditional medicines”. In line with the national health policy, the engagement of the private sector in health-care delivery is limited to pharmaceutical retail shops and selective diagnostic centres.

The organogram of the Ministry of Health is illustrated under Appendix 1. The MoH is the central authority responsible for the development of health policy and delivery of quality and comprehensive health-care services, including health promotion, disease prevention, curative and rehabilitative services. The Department of Medical Services (DMS) looks after the palliative and curative services and the Department of Public Health (DoPH) is responsible for health promotion, disease prevention and control programs and rehabilitative services.

Department of Medical Supplies and Health Infrastructure (DoMSHI) coordinates procurement of drugs, equipment, laboratory & hospital supplies and distribution of supplies to the districts.

The health care service in Bhutan is provided through a three-tiered network consisting of a National Referral Hospital, Regional Referral Hospitals, District Hospitals and Primary Health Care Centres. There is one national referral hospital, two regional referral hospitals, 46 hospitals, 186 Primary Health Centres, 53 sub-posts and 3 Thromde clinics (Annual Health Bulletin, 2020). In addition, there are 12 private diagnostic testing centres in Bhutan. Though the health workforce numbers have steadily increased, shortages still remain stark. While the human resource Master Plan (2013–2023) estimates a staff requirement of more than 10 000, as of 2017 their strength was just over 4000 including the administrative staff. In 2017, the number of doctors and nurses per 10 000 population was 3.3 and 14.1, respectively. The Chief Medical Officer (DMO) and the District Health Officers (DHO) look after the health care service.

The Drug Regulatory Authority (DRA) safeguards the human and animal health against harm resulting from spurious quality of medical products. Similarly, the Essential Medicine and Technology Division (EMTD) regulates the quality of equipment, diagnostics and medical devices.

Relevant ministries, nongovernmental organizations (NGOs), civil society organizations (CSOs) and International Organizations play pivotal roles in contributing to national and international goals and targets.

6.2 Health Care Services at National Level

Jigme Dorji Wangchuk National Referral Hospital (JDWNRH)

The Jigme Dorji Wangchuk National Referral Hospital (JDWNRH) serves as the National Referral Hospital in the country. It would act as the nodal hospital for providing technical backup to other hospitals during a pandemic, which would include medical specialists and treatment of severe cases.

6.3 Health Care at the Regional Level

Mongar and Gelephu Regional Hospitals provide referral services to districts in eastern and southern regions. These two Regional Referral Hospitals would act as the nodal hospital for providing technical backup to district hospitals within their region during a pandemic, which

would include manpower (relevant experts) and for treatment of severe cases. The laboratories of the regional referral hospitals has been upgraded and equipped to test clinical samples for influenza or any other emergent pathogen of pandemic potential.

Each hospital has its own incident command system, which addresses operations, planning, logistics, administration and finance. The incident command system at each hospital is integrated with regional plans.

6.3 Health Care at the District Level

The district hospital is headed by Chief Medical Officer, assisted by nurses, technicians, support staff and a District Health Officers. The District Hospitals provides local response and treatment of cases during an outbreak. The district hospital is equipped to collect and send clinical samples to the laboratories of Regional Referral Hospitals or the PHL for testing for influenza.

6.4 Health Care at the Sub-District Level

The Primary Health Centre (PHC) provides primary health care including treatment of common ailments and MCH services. Each PHC has one Health Assistant, one basic health worker, one ANM and one supporting staff. PHCs monitor their catchment areas and report any upsurge in ARI illnesses to the district health authorities on a weekly basis. Any unusual increase in the cases are investigated by District health officials led by the Chief Medical Officer (CMO).

6.5 Additional support services

While no additional healthcare personnel are available in the country, a few groups exist that could be called upon to assist with the response to a pandemic:

1. Khesar Gyalpo University of Medical Sciences of Bhutan – Research and HR capacity building
2. De-Suung (Guardians of Peace) - volunteers throughout the country who help with crowd management, and providing shelter and food
3. Spiritual groups, such as monks, who could provide spiritual support
4. Bhutan Red Cross, with personnel that are capable of supporting emergency services

7. LABORATORY SURVEILLANCE

The Royal Centre for Disease Control (RCDC) serves as the National Influenza Reference Laboratory for the country. The RCDC provide services in influenza diagnostics and render technical support to the regional and district laboratories. The influenza lab is well - equipped with BSL-3 containment facility and Real-Time PCR to handle highly pathogenic influenza virus samples and also to detect and identify different types/strains of influenza virus. In the field, influenza rapid diagnostic test kit is used for any suspect case and confirmed by RT-PCR at the national level. The RCDC share influenza virus isolates and representative clinical samples are sent to the WHO Collaborating Centre or the WHO Reference Laboratories for molecular characterization of virus and confirmation. The RCDC lab is supported by the laboratories in Mongar, Phuentsholing and Gelephu which are equipped with RT-PCR to handle influenza virus samples.

7.1 National Early Warning Alert and Response Surveillance (NEWARS)

The National Early Warning Alert and Response Surveillance (NEWARS) is web-based and mobile SMS reporting system introduced in 2014 as the national surveillance and response system for early detection and efficient response for diseases of public health concern.

NEWARS constitute indicator-based surveillance (IBS) and event-based surveillance (EBS). Indicator-based surveillance involves reporting of cases and deaths of 11 diseases weekly and 15 diseases which needs to be reported immediately as per the case definitions. Event-based Surveillance involves ad-hoc reporting of any ‘unusual’ event, or cluster of cases or death.

The NEWARS reports are published as monthly disease epidemiology report and quarterly bulletin in RCDC web.

7.2 Surveillance for influenza-like illness (ILI) and Severe Acute Respiratory Illness (SARI)

The NEWARS is supplemented by routine influenza sentinel surveillance systems (Influenza-Like Illness and Severe Acute Respiratory Infection) which are hospital-based to monitor type of influenza, seasonal trends, and severity of influenza illness and to detect outbreaks of influenza like illness. The Royal Centre for Disease Control (RCDC), initiated sentinel surveillance for influenza like illness (ILI) in 2008 and severe acute respiratory illness (SARI) in 2012. Based on the geographical and demography, nine hospitals for ILI and eleven hospital sites for SARI were selected as sentinel sites. From the sentinel sites, the data for SARI and ILI are submitted daily and weekly respectively through web-based. These data are used to monitor the trends and detect the outbreak and initiate response.

During the pandemic, ILI and SARI sentinel surveillance will be extended to all the health centre in the country and at the point of entry (airport & ground crossing) for early detection and response. The surveillance reports are published on weekly basis in RCDC web.

8. ANIMAL HEALTH CARE SYSTEM

The divisions related to animal health of the Ministry of Agriculture and Forests (MoAF) are shown under Appendix 2. The health of the human, animal and environment are inextricably linked. About 60% of the pathogen that cause human diseases has origin in animal and so does 75% of the emerging diseases. Most of the emerging and re-emerging diseases has the potential to cause pandemic causing high morbidity and mortality in humans, social disruption and economic loss. The robust surveillance system in animal health will help in stopping the diseases at origin through early detection and response action.

8.1 Department of Livestock

The Department of Livestock is the main agency responsible for animal health, and production including Feed and Fodder Development. The institutions responsible for animal health services delivery in the country include the National Centre for Animal Health (NCAH), four Regional Livestock Development Centres (RLDCs), 3 satellite laboratories, the National Veterinary Hospital (NVH), 20 District Veterinary Hospitals, and 175 Livestock Extension Centres. All animal health services including medicines and drugs are provided free by the Government. The veterinary services include treatment of sick animals, vaccinations, de-worming, and sterilization of animals.

8.2 Bhutan Agriculture and Food Regulatory Authority

The Bhutan Agriculture and Food Regulatory Authority (BAFRA) was established as the competent authority for Biosecurity and Food Safety including the regulation for import and export of animal, plant and their products including food commodities. In addition, BAFRA is also responsible for implementing a ban on movement of animal and animal diseases within the country during outbreaks of notifiable diseases, and monitoring of commercial livestock farms. BAFRA has established comprehensive animal quarantine stations at 6 major entry points.

9. LEGAL FRAMEWORK

In a pandemic response, the Government will use legislative provisions in a way that is proportionate and appropriate to the emerging pandemic.

The development and implementation of the NIPPRP are based on the following existing policy and legislations:

i. *The Constitution of the Kingdom of Bhutan*

The Article 33, section 22 of the Constitution of the Kingdom of Bhutan articulates that “The Druk Gyalpo may, on the written advice of the Prime Minister, proclaim that a public emergency or calamity, which threatens or affects the nation as a whole or part thereof, exists in which case the Government may take measures to the extent strictly required by the exigencies of the situation.” Further, section 7 under Article 33 states “Where a Proclamation of Emergency is in operation, the enforcement of the rights conferred by this Constitution under sections 2, 3, 5, 12 and 19 of Article 7 may be suspended.”

ii. *Penal Code (Amendment 2011)*

Any individuals not complying and failing to cooperate shall be liable for the offence of Criminal Nuisance as per the Section 410 and for the offence of Obstruction of Public Service as per the Section 424 of the Penal Code (Amendment 2011).

iii. *The Health Bill 2020*

The National Health Bill is currently in draft stage. The Health Bill should ensure that all the legislative requirements for the health emergencies including pandemic are incorporated in line with the constitution, penal code of Bhutan and IHR.

iv. *Disaster Management Act of Bhutan 2013 and its rules and regulations 2014*

The Disaster Management Act of Bhutan 2013 (Chapter 6, section 67 & 76) mandates agencies notified by NDMA to prepare, implement, review and update emergency contingency plans. The Chapter 10, section 111 of the Act also mandates the Health Ministry to manage emergency medical services during disaster.

v. *National Health Policy 2011*

The National Health Policy 2011 established the mandate that all health facilities should institute appropriate systems of care to deal with emergencies, disasters, epidemics and outbreaks.

vi. *The Livestock Act of Bhutan, 2001*

The act captures the component of prevention and control of zoonosis including novel pathogens that have the potential to cause epidemics and pandemics in the animal population.

vii. *Health Emergency and Disaster Contingency Plan, 2016*

The Health Emergency and Disaster Contingency Plan (HEDCP) 2016 was developed based on mandates described in the Disaster Management Act of Bhutan 2013. The plan was developed in order to enhance preparedness and response capacity for health emergencies and disasters in the health sector. The plan delineates health emergency preparedness and response action at different levels of health institutions, and responsibilities in terms of who, what resources and when.

As opposed to the NIPPRP, the HEDCP addresses broader health emergency situations, including “any sudden public health situation endangering the life or health of a significant number of people and demanding immediate action.” This could include natural disasters, such as earthquakes, flash floods, and fire; bioterrorism; an epidemic or pandemic; biological toxin, or radio-nuclear disaster.

viii. *The International Health Regulation (2005)*

Bhutan is legally binded to the International Health Regulation (2005) which is designed to help protect all States from the international spread of disease, including public health risks and public health emergencies.

Bhutan will adjust and align domestic legislations, policies and administrative arrangements for the NIPPRP in consistent with the IHR 2005 to the extent possible.

10. GOVERNANCE FRAMEWORK

The NIPPRP is a part of Bhutan's broad emergency management framework, which is governed by Acts and regulations. The relationship between health emergency planning and disaster planning is detailed in the Health Emergency and Disaster Contingency Plan (2016), which provides overarching direction to the health sector in the case of health emergencies and natural disasters.

For proper planning, coordination and communication, a systematic institutional arrangement has been developed to facilitate effective implementation of measures related to prevention and control of influenza pandemic. The lead agencies are identified, and their roles defined as per the existing mandates of each agency.

This incident command system is kept the same for pandemic events as outlined in the Health Emergency and Disaster Contingency Plan (2016). An influenza pandemic would be considered a national disaster and therefore, the National Disaster Management Authority (NDMA) will be the highest decision-making body chaired by the Hon’ble Prime Minister. In addition, the existing

Health Emergency Management Committee (HEMC) is the highest decision-making body on health chaired by the Hon'ble Health Minister for emergency response which will oversee the prevention and control of pandemic influenza.

As prevention and control of pandemic influenza requires a whole of the society approach, all the government agencies, civil society organizations, private entities and the general public will play an important role. The preparedness and response will be led by the Ministry of Health, Ministry of Home and Cultural Affairs, Ministry of Agriculture and Forests, and Ministry of Finance in case of a pandemic.

Standard operating procedures (SOPs) have been developed for rapid response teams for responding to influenza pandemic clearly establishing roles and responsibilities, and every agency and individual involved in emergency management will be ensured that they are fully trained and equipped to initiate their actions immediately. SOPs for rapid response teams have been adapted from the 2011 NIPPRP, COVID-19 National Preparedness and Response Plan (COVID-19 NPRP) and other sources.

Incident Command System

In line with the Disaster Management Act of Bhutan 2013, the National Disaster Response Coordination Committee (NDRCC) shall be activated to coordinate and manage the pandemic response based on the stages of the pandemic of the country. During the preparedness phase or in the case of Public Health Emergency of International Concern (PHEIC) both within and outside the country, the Health Emergency Management Committee (HEMC) shall coordinate and manage the response measures for health emergency events (until declaration of pandemic by WHO). Maintaining consistency and to operationalize the national actions, the districts shall also activate the district level Incident Command System (ICS) on the directives of NDRCC or HEMC.

This incident command system will govern the preparedness and response management of all the major epidemic and pandemic events.

The following are the ICS at different levels:

10.1 National Disaster Management Authority (NDMA)

The National Disaster Management Authority (NDMA) is the highest decision making body on disaster management in the country. In times of national emergency, the National Disaster Response Coordination Committee (NDRCC) shall be activated.

Similarly, the implementation of response management during influenza pandemic shall be directed by NDRCC once a pandemic is declared by the WHO. The NDRCC shall function from the National Emergency Operation Centre (NEOC). Both the NDMA and NDRCC shall be chaired by the Prime Minister and shall include members as stipulated in sections 7 and 8 of Chapter 2 of the Disaster Management Act 2013. The organogram for NDRCC is as given in Figure no.1

National Disaster Response Coordination Committee at the NEOC

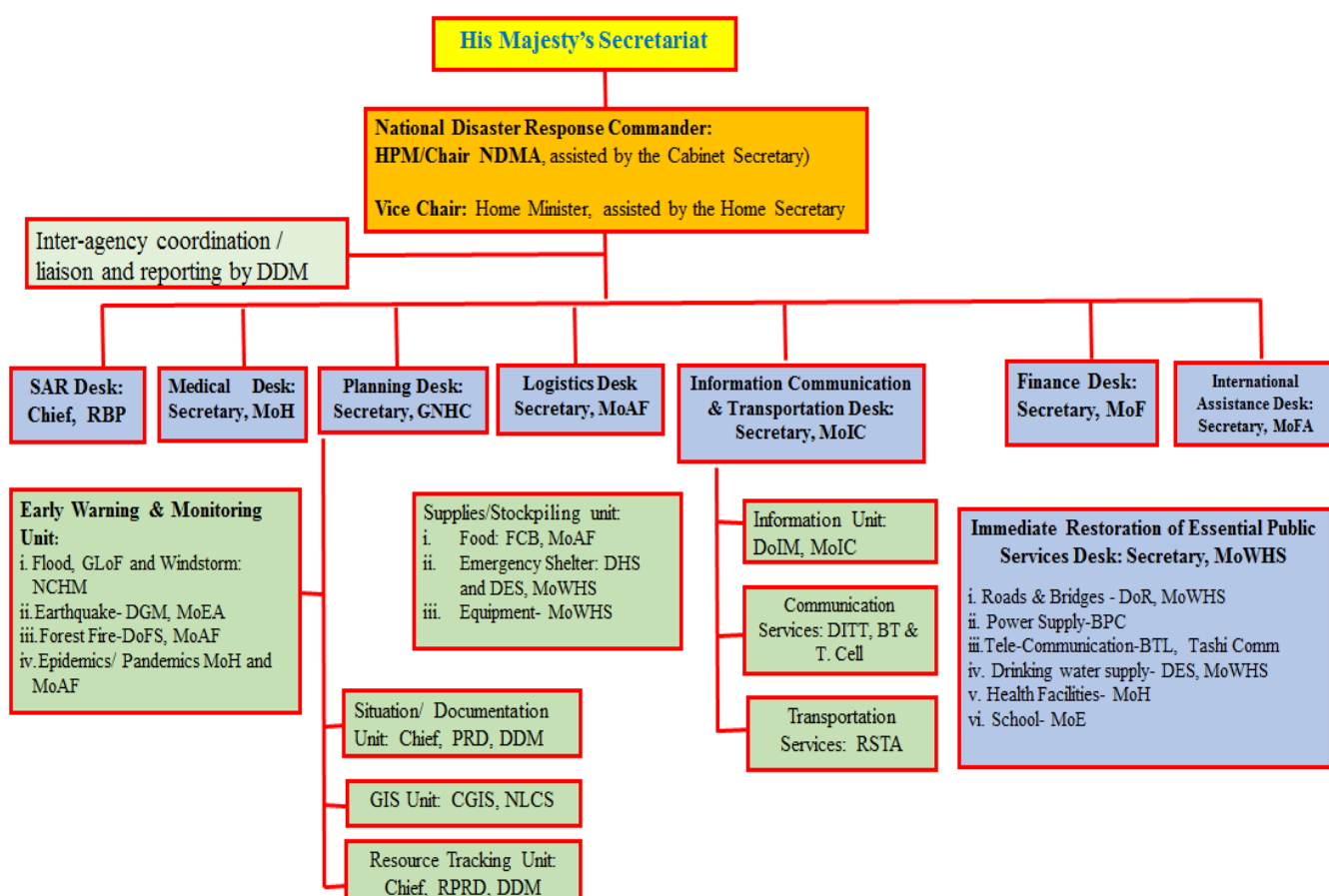


Figure 1- Organogram of NDRCC

Roles for NDRCC:

- Make policy decisions for the implementation of the NIPPRP as recommended by the HEMC;
- Declare different Phases of pandemic based on the recommendations of the HEMC based on evolving risk assessments
- Mobilize required resources for implementation of the NIPPRP as recommended by HEMC;

- Make national level executive/policy decisions (Eg. travel ban, national lock down, closure of schools, institutes, etc)
- Ensure inter-sectoral collaboration and partnership with international, regional and bilateral agencies
- Direct specific roles and responsibilities of the Ministries and other stakeholders involved in support and coordination at the national level.
- Coordinate and provide direction for multi-sectoral response at national and local level
- Declaration of the subsidence of outbreak/pandemic

I. Meeting and procedures:

1. The NDMA shall meet once a year and as and when required;
2. The Chairperson of the NDMA may call a special meeting, if:
 - i. The Influenza Pandemic reaches to pandemic phase;
 - ii. A written request is made by the HEMC; or
 - iii. The Chairperson considers necessary.

A simple majority shall constitute a quorum for convening the meeting. The NDMA shall seek technical recommendations from experts within MoH and other relevant stakeholders for decision-making processes.

10.2 Health Emergency Management Committee

Health Emergency Management Committee (HEMC organogram in Figure 2) shall be the highest decision-making body in the health sector for any health emergency (including health emergencies arising from disaster). The HEMC shall be responsible for the command, control and coordination during preparedness, response and recovery operations. The HEMC shall function from the Health Emergency Operation Centre (HEOC). The HEOC shall be activated during:

- i. Declaration of Public Health Emergency of International Concern (PHEIC) by WHO
- ii. Declaration of outbreak within by RCDC

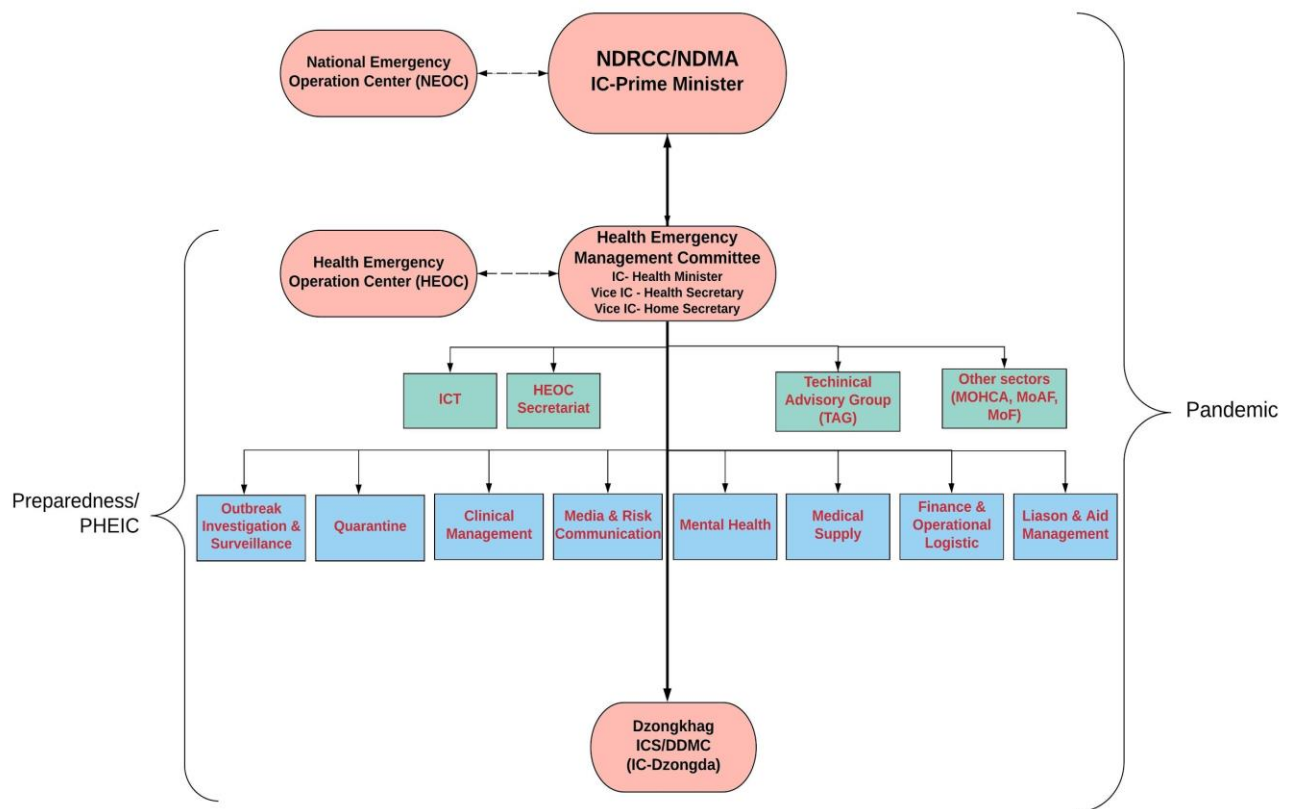


Figure 2: Command structure for Health Emergency Management Committee

I. TERMS OF COMPOSITION OF HEMC:

1. Hon'ble Lyonpo, Hon'ble Minister, Chairperson
2. Hon'ble Secretary, MoH, Vice Chairperson
3. Hon'ble Secretary, MoHCA, Vice Chairperson
4. Hon'ble Secretary, Ministry of Finance
5. Hon'ble Secretary, Ministry of Agriculture and Forestry
6. Chairperson, Technical Advisory Group
7. Head, Department of Medical Services
8. Head, Department of Traditional Medicine Services
9. Head, Department of Medical Supplies & Health Infrastructure
10. Head, De-Suung Office
11. Head, Department of Disaster Management

12. Head, Department of Public Health
13. Head, Directorate of Services
14. Representative, JDWNRH
15. Representative, KGUMSB
16. Representative, Royal Bhutan Army
17. Representative, Royal Bhutan Police
18. Head, Royal Center Disease Control
19. Executive Secretary, Bhutan Red Cross Society
20. Chief, Policy and Planning Division
21. Chief, Communicable Disease Division
22. Chief, Health Emergency Management Division- Member Secretary
23. Co-opt members from the relevant agencies shall be considered as and when required.

II. TERMS OF REFERENCE OF HEMC:

a. Preparedness

- Approve the plan, policies, guidelines, hazard/risk maps and SOPs on health emergencies
- Coordinate with NDMA on the emergency management
- Declaration of major epidemics and outbreaks of public health concern in the country
- Update and recommend declaration of different phases of pandemic in the country
- Take decision on travel advisory/ press release
- Ensure the adequacy, timeliness, and relevance of communication activities are in place
- Ensure that appropriate training of relevant staff and stakeholders are conducted, and medical equipment, supplies and facilities are in place
- Review, monitor and verify the readiness and implementation of the contingency plan
- Liaise with UN and other international agencies for fund mobilization and technical assistance
- Identify the key stakeholders for effective implementation of the Health Emergency and Disaster Contingency Plan

b. Response phase

- Activate HEOC
- Activate District Rapid Response Team or Emergency Medical Team (EMT) in affected area
- Review and provide policy and technical decision related to all response measures (case notification, isolation, quarantine, case management, travel advisory, movement restriction, logistic support)
- Coordinate and manage the containment of the pandemic in close coordination with NDRCC
- Issue executive orders for enforcement of response activities
- Mobilize resources related to the health (technical & financial support) from national and international partners.
- Give direction and approval for the press release(s)
- Declare the subsidence of outbreak/pandemic in consultation with the Technical Advisory Group (TAG) and WHO
- Authorize issuance of the IHR notification to the WHO Country Office
- Provide updates to NDMA/NDRCC
- Maintain liaison with relevant sectors including government, international organizations and non-governmental organizations
- Deactivate ICS and conduct debriefing.

Modus Operandi

The HEMC shall meet as and when there are outbreaks in neighbouring countries with potential for importation into the country or when there are serious public health threats in the region. A simple majority shall constitute a quorum and as far as possible all the members shall be present. In addition, technical experts shall be invited for the meeting. However, during the response phase the HEMC shall meet daily. The HEOC Secretariat shall be responsible for the conduct of the meeting.

Incident Commander

Incident Commander - Hon'ble Health Minister

Vice-Incident Commander - Hon'ble Health Secretary

Vice- Incident Commander – Hon'ble Home Secretary

I. TERMS OF REFERENCES OF IC:

- Act as the overall commander of HEOC
- Chair the HEMC meeting(s)
- Establish immediate priorities
- Take critical decision and give directions
- Update His Majesty's Secretariat, Cabinet and NDMA/NDRCC
- Act as the Media spokesperson(s)
- Ensure team member of HEMC carry out their TOR

HEOC Secretariat

The HEOC secretariat should play a key role in conducting the HEMC meetings and liaising with other agencies in carrying out the mandates and decisions of the HEMC and other mandates as per the TOR.

I. TEAM COMPOSITION OF HEOC SECRETARIAT:

1. Chief Program Officer, Communicable Disease Division
2. Chief Program Officer, Emergency Medical Services Division
3. Chief Program Officer, Health Promotion Division
4. Program Officer, EPR, EMSD
5. Program Officer, International Health Relation, EMSD
6. Program Officer, Zoonotic and Avian Influenza Program, Communicable Disease Division
7. ICT Associate, ICTD

II. TERMS OF REFERENCE FOR HEOC SECRETARIAT:

a. Preparedness phase

- Ensure that HEOC is equipped and functional at all times
- Facilitate to conduct simulations and mock drills on different types of disasters and health emergencies
- Facilitate other relevant programs to develop guidelines and SOPs for emergencies
- Ensure health facilities to develop emergency and disaster contingency plan(s)
- Maintain the hazard/risk maps

b. Response phase

- Organize and arrange the HEMC meetings
- Record, maintain and circulate minutes of meeting
- Communicate preparedness & response plan with other stakeholders
- Coordinate and facilitate the capacity building of health workers on emergency and disaster management
- Receive early warning information from RCDC and dzongkhag
- Liaise (Point of contact) with other relevant sector
- Facilitate the conduct of the research on health emergency management in close collaboration with academia
- Collect and compile reports from the field and relevant agencies
- Analyse and provide data for decision making
- Integrate information and prepare regular situation reports to HEMC/HEOC

Technical Advisory Group

The Technical Advisory Group (TAG) shall comprise of following technical personnel in providing technical assistance to HEMC:

I. TEAM COMPOSITION OF TAG:

1. Epidemiologist
2. Public Health Expert
3. Microbiologist
4. Bio-statistician
5. Veterinary Expert
6. Laboratory Expert

7. Infectious disease expert
8. WHO Technical Officer
9. Health Economist
10. Representative from NOHTC
11. Clinical expert
12. Program Officer (relevant)

II. TERMS OF REFERENCE FOR TAG:

- Provide technical guidance to the HEMC for health emergency management
- Develop, review and update on outbreak, epidemic or pandemic situation (national & global)
- Review and recommend the requirement of emergency equipment, medicines and supplies for health emergency management
- Conduct risk assessment and management on the event
- Review and recommend health emergency and disaster plans, guidelines, and SOPs
- Any other technical task assigned by the HEMC

Outbreak Investigation & Surveillance

(From Disease Outbreak investigation and control manual, 2015)

I. TEAM COMPOSITION OF OUTBREAK INVESTIGATION & SURVEILLANCE:

1. Epidemiologist from RCDC- Team Leader
2. Microbiologist/Virologist
3. Laboratory technologist/technicians
4. Clinicians
5. Concerned Program officers
6. Other relevant agency (Livestock, BAFRA, RVP) on need base.

II. TERMS OF REFERENCE FOR OUTBREAK INVESTIGATION & SURVEILLANCE:

- Provide regular update to HEMC on surveillance activities, and outbreak investigation activities in the field level

- Assess and provide technical backstopping for surveillance activities, and outbreak investigation activities
- Coordinate and implement surveillance activities, and outbreak investigation at national level
- If requested/needed, mobilise national level experts for surveillance activities, and outbreak investigation including confirmation of the outbreak
- Review, verify, and advise the disease investigation and control measures implemented by DHRRT
- Develop guideline for surveillance activities, and outbreak investigation and submit to TAG
- Recommend additional resources for rapid response including supplies and medicines
- Make a detailed investigation report with recommendations for follow up by the concerned authorities.

Clinical Management

I. TEAM COMPOSITION OF CLINICAL MANAGEMENT:

1. Medical Superintendent, JDWNRH - Team Leader
2. Clinical Microbiologist, JDWNRH- Co-Team Leader
3. Clinical Pharmacologist, JDWNRH
4. Chest Physician, JDWNRH
5. Medical Specialist, JDWNRH
6. Head Of Department, Paediatrician, JDWNRH
7. Emergency Physician, ED, JDWNRH
8. Nursing Specialist, JDWNRH
9. Co-opt members at Team Leader's discretion

II. TERMS OF REFERENCE FOR CLINICAL MANAGEMENT:

- Provide regular update to HEMC on the readiness of the contingency plan related to case management, and isolation
- Review and adapt evidence based clinical management guidance for COVID-19

- Maintain and update report to HEMC on the number of cases, hospitalized, recovered and deaths
- Assess and appraise the need to mobilize surge capacity (HR, medical supplies and facilities)
- Review and update guideline and SOPs for triage, case management, and isolation
- Advise and provide technical backstopping on patient triage, case management, infection control measures, and isolation
- Identify alternate site(s) for case management, in case the primary site is inaccessible or unsafe or if the health facility is overwhelmed

Quarantine

I. TEAM COMPOSITION FOR QUARANTINE:

1. Head, Department of Medical Services - Team Leader

2. Chief Program Officer, HCDD
3. Program Officer, HCDD
4. Program Officer, EMTD
5. Representative, Royal Bhutan Police
6. Co-opt team members will be determined based on the relevant background

II. TERMS OF REFERENCES FOR QUARANTINE:

- Provide regular update to HEMC on the readiness of the quarantine management
- Maintain and update report to HEMC on number of people quarantine, quarantine places and compliance
- Appraise issues and recommendations related to the quarantine management to HEMC
- Review and update guideline and SOPs for quarantine management
- Advise and provide technical backstopping on quarantine management

Media & Risk Communication

I. TEAM MEMBERS FOR MEDIA & RISK COMMUNICATION:

1. Director, Department of Public Health- Team leader

2. Chief Program Officer, Health Promotion Division
3. Officials, Health Promotion Division
4. Program Officer, Planning and Policy Division
5. Other team members will be determined based on the relevant background
6. Co-opt members at Team Leader's discretion

II. TERMS OF REFERENCES FOR MEDIA AND RISK COMMUNICATION:

- Provide regular update to HEMC on the status of risk communication
- Develop and disseminate relevant risk communication materials
- Conduct periodic awareness through talk show, announcement, and social media
- Manage and verify the rumours and misinformation
- Produce and disseminate timely press releases and information including FAQ
- Arrange and coordinate the press conferences
- Conduct daily media monitoring
- Update website and MoH's social media platforms

Logistic for Medical Supply & Infrastructure

I. TEAM COMPOSITION FOR LOGISTIC FOR MEDICAL SUPPLY & INFRASTRUCTURE:

- 1. Head, Department Of Medical Supplies and Health Infrastructure - Team leader**
2. Chief, Medical Supplies and Procurement Division
3. Chief, Medical Supplies and Depot Division
4. Chief, Essential Medicines and Technology Division
5. Chief, Biomedical Medical Engineering Division
6. Chief, Health Infrastructure Development Division, DOMSHI
7. Program Officer, Medical Supply and Quantification Unit, HCDD, DMS
8. Co-opt members at Team Leader's discretion

II. TERMS OF REFERENCES FOR LOGISTIC FOR MEDICAL SUPPLY & INFRASTRUCTURE:

- Compile, review and recommend the requirement of equipment, supplies and other materials
- Provide regular update to HEMC on the status of logistic and supplies
- Maintain up to date inventory of equipment, supplies and other materials required to effectively respond to health emergency or disaster
- Ensure availability and timely supply of adequate medical supply
- Develop standard for building disaster resilient infrastructure
- Liaise with other agencies (RBP/Dzongkhag) for additional vehicle if required

Finance & Operational Logistic:

I. TEAM COMPOSITION FOR FINANCE & OPERATIONAL LOGISTIC

1. *Director, Directorate Of Services- Team leader*
2. Chief Planning Officer, Planning and Policy Division
3. Chief Finance Officer , DOS
4. Chief Human Resource Officer, Human Resource Division
5. Finance Officer, DOS
6. Planning Officer, PPD
7. HROs, HRD
8. Administrative Assistants, DoS
9. Co-opt members at Team Leader's discretion

II. TERMS OF REFERENCES FINANCE & OPERATIONAL LOGISTIC:

- Explore and mobilize necessary financial arrangement for the emergency management
- Provide regular update to HEMC on the status of financial arrangement and expenditure
- Assess and compile proposed budget requirement from the sections under HEMC
- Maintain proper record of all financial expenditures occurred during the emergency management and recovery phase
- Delegate administrative and financial authorities to work in emergencies with minimum procedure under overall guidance and supervision of the designated officials
- Responsible for arrangements for adequate food/water supplies at the incident

Liaison and Aid management

I. TEAM COMPOSITION FOR LIAISON AND AID MANAGEMENT:

1. Chief, Planning and Policy Division
2. Planning Officer, PPD
3. Finance Officer, DoS
4. Human Resource Officer, HRD

II. TERMS OF REFERENCES FOR LIAISON AND AID MANAGEMENT:

- Maintain law and order during the implementation of outbreak response activities
- Ensure effective implementation of movement restrictions, social distancing, lock down other regulatory activities

District Disaster Management Committee

The District Disaster Management Committee (DDMC) at the district level shall function as Incident Operation Centre at the field level for coordination and implementation of rapid response and control measures. The DDMC shall be chaired by the Dasho Dzungda. The DDMC shall be responsible for providing field level information and updates on the epidemic status, progress on response and control activities to the HEMC. In addition, it will ensure that all policy decisions and directions for response and control activities are conveyed to different Rapid Response Teams (RRTs).

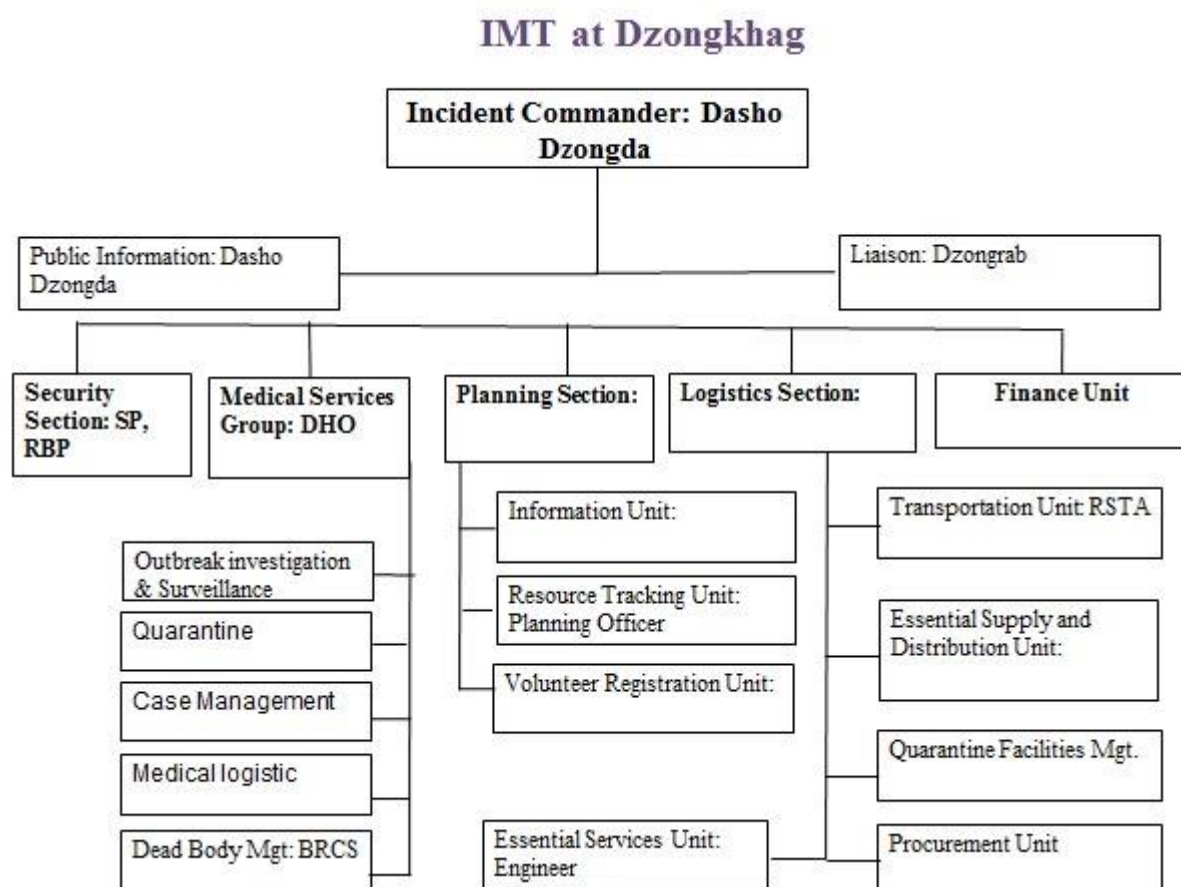


Figure 3: DDCM Organogram

Modus Operandi

Upon receiving an executive order from the HEMC, the RRT will be activated within 6 hours and start implementing the response measures.

The DDMC will convene one to twice daily meetings as deemed appropriate and accordingly update the information to the HEMC.

I. TERMS OF REFERENCES FOR DDMC:

- Identify and set up Incident Operation Centre upon direction from the NICC
- Convene the meeting to decide on the operation and ensure that all required manpower, materials and equipment including transport, refreshment facilities are ready for disease control operations
- Mobilize ad hoc emergency fund requirement during the operation
- Facilitate and mobilize logistics for RRTs such as manpower, PPE, transportation, foods, facilities, etc
- Provide direction to RRTs to implement the respective activities

- Oversee and ensure implementation of disease response and control measures by the respective RRTs
- Ensure the close coordination amongst different RRTs for smooth, effective and efficient operations
- Coordinate and provide daily feedback and information updates to NICC
- Provide specific risk communication including limited/selected press releases

11. INTER-SECTORAL APPROACH

Each Government agency, informed and directed by the Ministry of Health as lead agency, is responsible for leading planning, preparedness and response in their respective sectors it serves. Agencies also plays an important role in intelligence: for example, by tracking workforce or student absence, movements at the border and impacts on the economy and critical infrastructure. For the purposes of emergency management, it is important that agencies carry out these responsibilities in a well-coordinated fashion.

The Ministry of Health engages with the wider government sector, which coordinates 11 core areas established to plan for and respond to a pandemic. These work areas addresses critical areas of the national pandemic response. Lead agencies have responsibility for particular core areas within which agencies with operational roles in a pandemic response will work together (or will establish new work streams where appropriate) to ensure an integrated and coordinated interagency response (see Table 1).

Table 1:

Sl. No	Lead Agency	Core Area
1	Ministry of Health	Health
2	Ministry of Agriculture and Forest	Food and essential services
3	Ministry of Home and Cultural Affairs, RBP, RBA and DeSsung	Law and order and border security

4	Ministry of Education	Education
5	Ministry of Economic Affairs, Royal Monitory Authority	Economy
6	Ministry of Foreign Affairs	External Affairs
7	Ministry of Woks and Human Settlement	Infrastructure, water and sanitation
8	Ministry of Information and Communication	Tele- communication

12. PHASES OF PANDEMIC INFLUENZA: BHUTAN AND THE WORLD HEALTH ORGANIZATION

The grouping and description of pandemic phases have been revised to make them easier to understand, more precise, and based upon observable phenomena. In nature, influenza viruses circulate continuously among animals, especially birds. However, according to WHO such viruses might theoretically develop into pandemic viruses in the following phases (Table 2);

Table 2:

Phase 1	No viruses circulating among animals have been reported to cause infections in humans.
Phase 2	An animal influenza virus circulating among domesticated or wild animals is known to have caused infection in humans, and is therefore considered a potential pandemic threat.
Phase 3	An animal or human-animal influenza reassortant virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks.
Phase 4	Characterized by verified human-to-human transmission of an animal or human-animal influenza reassortant virus able to cause “community-level outbreaks.” The ability to cause sustained disease outbreaks in a community marks a significant upwards shift in the risk for a pandemic.
Phase 5	Characterized by human-to-human spread of the virus into at least two countries in one WHO region. While most countries will not be affected at this stage, the declaration of Phase 5 is a strong signal that a pandemic is imminent.
Phase 6	Characterized by community level outbreaks in at least one other country in a different WHO region in addition to the criteria defined in Phase 5 . Designation of this phase will indicate that a global pandemic is under way.

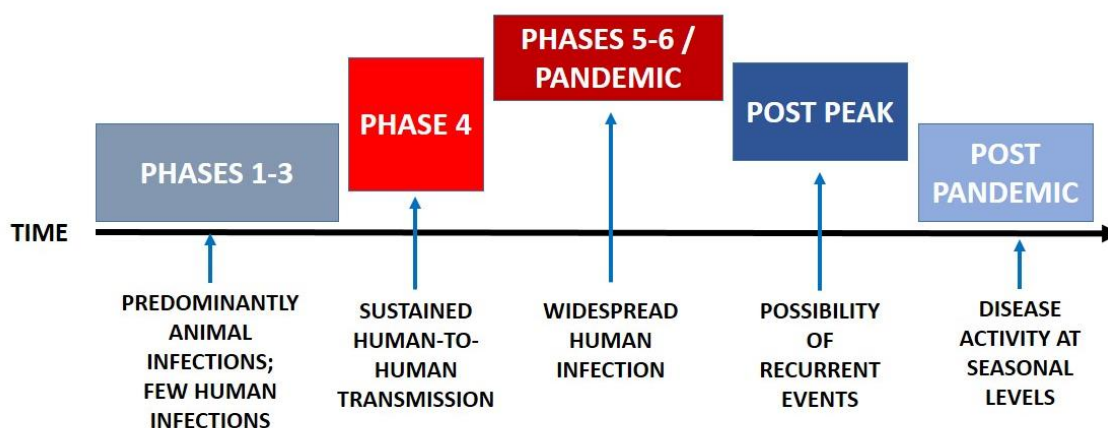


Figure 3: WHO Pandemic Influenza Phases (2009)

As shown in the above figure 3, phases 1–3 occurs predominantly in animals and correlate with preparedness, including capacity development and response planning activities, while Phases 4–6 indicates human to human transmission and clearly signal the need for response and mitigation efforts. Furthermore, periods after the first pandemic wave are elaborated to facilitate post pandemic recovery activities.

During the **post-peak period**, pandemic disease levels in most countries with adequate surveillance will have dropped below peak observed levels. The post-peak period signifies that pandemic activity appears to be decreasing; however, it is uncertain if additional waves will occur and countries will need to be prepared for a second wave.

In the **post-pandemic period**, influenza disease activity will have returned to levels normally seen for seasonal influenza. At this stage, it is important to maintain surveillance and update pandemic preparedness and response plans accordingly.

12.1 Phases in National Influenza Preparedness and Response Plan relating to WHO equivalent phases

In order to facilitate smooth implementation of actions in different phases, the NIPPRP is organized into five phases which are aligned with WHO pandemic phases as presented in below in Table 3. It summarizes the different phases of a pandemic in Bhutan, demonstrates how they align with WHO phases, and describes Bhutan-specific trigger points for identifying transition into each phase.

Table 3: Summary of phases in the NIPPRP an in the context of WHO Pandemic Phases

Bhutan phase	Bhutan situation and triggers	WHO Pandemic Phases	Global situation
Planning (Green)	No human cases of novel influenza virus in Bhutan. Seasonal influenza within endemic threshold level	Phase 1	No viruses circulating among animals have been reported to cause infections in humans.
	An animal Influenza virus subtype of specific pandemic threat that is known to cause human infection may be present in animals, the risk of human infection or disease is considered to be low	Phase 2	An animal influenza virus circulating among domesticated or wild animals is known to have caused infection in humans, and is therefore considered a potential pandemic threat.
	An animal Influenza virus subtype with potential pandemic threat is circulating in animals at moderate to high level and with limited human infection; without evidence of sustained human-to-human transmission. Seasonal influenza causing unusual pattern of morbidity and mortality in specific age groups	Phase 3	An animal or human-animal influenza re-assortant virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks.

Prevention (Yellow)	Cases in multiple countries but no confirmed cases in the country	Phase 4	Characterized by verified human-to-human transmission of an animal or human-animal influenza reassortant virus able to cause “community-level outbreaks.” The ability to cause sustained disease outbreaks in a community marks a significant upwards shift in the risk for a pandemic.
Rapid containment (Orange)	One or more isolated cases in the country without community transmission	Phase 5	Characterized by human-to-human spread of the virus into at least two countries in one WHO region. While most countries will not be affected at this stage, the declaration of Phase 5 is a strong signal that a pandemic is imminent.
Full response (Red)	Multiple cases with local transmission in the country	Phase 6	Characterized by community level outbreaks in at least one other country in a different WHO region in addition to the criteria defined in Phase 5 . Designation of this phase will indicate that a global pandemic is under way
Recovery	Pandemic over and/or population protected by vaccine	Post Peak and Post Pandemic	Pandemic disease levels in most countries with adequate surveillance will have dropped below peak observed levels.

			Pandemic activity appears to be decreasing; however, it is uncertain if additional waves will occur and countries will need to be prepared for a second wave. Influenza disease activity will have returned to levels normally seen for seasonal influenza.
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12.2 Action Plan based on different phases of pandemic

The Action Plan is the core activities of the NIPPRP. It outlines the phases of a potential pandemic wave in Bhutan aligned with the phases identified by the World Health Organization (WHO), and provides guidance on actions that need to be considered for each phase and the responsible agencies. The specific areas of intervention and actions under each phases are described for the following parameters:

1. Preparing for emergency
2. Surveillance, investigation and assessment
3. Health Services and clinical management
4. Public health interventions

Phase 1: Planning

Interventions in this phase will be focused on the following areas:

1. Preparing for emergency - Planning, coordination, resources, legal and policy issues, ethical issues, risk communication and community engagement, intervention at point of entry, and travel restrictions
2. Surveillance, investigation and assessment – enhancing laboratory capacity, influenza surveillance, outbreak investigation, planning of surveillance during pandemic phase, monitoring the pandemic, risk and severity assessment
3. Health Services and clinical management – health service continuity, facilities, personnel/ human resource, essential medicines and medical devices supplies, excess mortality, clinical management, infection prevention and control in health care settings
4. Public health interventions – capacity building, medical counter measures, community mitigation and risk communication

Areas of intervention	Action	Responsibility	Authority
1. Preparing for emergency			
1.1 Planning	• Review and revise National Influenza Pandemic Preparedness and Response Plan periodically • Establish roles and responsibilities of different stakeholders at all levels of pandemic response • Develop risk assessment plan • Assess in-country vulnerabilities and capacities, identification and mapping of available resources and supply systems in health and other sectors • Conduct regular exercises to test the plans using pandemic scenarios • Develop checklist to assess and evaluate pandemic preparedness	DOPH	MoH
1.2 Coordination	• Establish linkage and activation of NDMA during pandemic phase • Constitution of Health Emergency Management Committee (HEMC) for management of pandemics • Designate National One Health Technical Committee (with co-opt members) as technical advisory committee for NIPPRP • Constitution of Health Emergency Operation Center (HEOC) and Rapid Response Teams (RRT) at different levels including their roles and responsibilities	DOPH/ DMS	MOH

	- Clearly delineate the roles of human health and establish coordination between the human and animal health in the event of Influenza outbreak with potential pandemic threats - Follow IHR communication protocol to communicate with relevant sector and WHO - Develop SOP for coordination and communication mechanisms with neighboring countries and other international stakeholders		
1.3 Resources	- Assess human resource requirements for pandemic preparedness and response - Develop training needs assessment and plan for pandemic - Provide regular and relevant training to the health workers - Develop funding mechanisms for pandemic response activities at all levels - Develop plan to select, procure, stockpile, distribute and deliver antivirals, essential pharmaceuticals, personal protective equipment, diagnostics tests and vaccines - Develop an inventory and estimate of the medicines and supplies required for different phases of pandemic - Develop a deployment plan to deliver all essential medicines and supplies including pandemic influenza vaccines at all levels - Develop surge capacity and deployment plan at all levels	DoMSHI/ DoS	DoPHMOH

	• Develop logistic plan for all pandemic phases including ambulance and transportation services		
1.4 Legal and policy issues	• Review and develop the legal provision for all public health measures that are likely to be implemented during a pandemic response, such as: Isolation or quarantine of infected individuals; travel or movement restrictions; closure of educational institutions; and prohibition of mass gatherings; off-license use of drugs and vaccines; compulsory vaccination; and use of private facilities in coordination with relevant stakeholders • Develop vaccination policy for prioritization of target/high risk groups including health workers during pandemic • Establish regulatory pathways to expedite the importation, marketing authorization and licensing of pandemic influenza vaccine during a pandemic emergency • Establish bilateral or regional agreements with neighboring countries on public health emergencies to address trans-border issues including interoperability of plans	DoPH, MOH	MOH
1.5 Ethical issues	• The HEMC shall ensure to uphold the principles of ethics at all stages of pandemic based on best practices	HEMC	NDMA

1.6 Risk communication and community engagement	Review and update existing risk communication plan in the context of pandemics (See Risk Communication Guideline for Health Sector in Public Health Emergency and Disaster 2019)	DMS/DoPH	MOH
1.7 Intervention at point of entry	- Develop surveillance plan at PoEs during the early stage of a pandemic to mitigate the risk of importing or exporting cases of pandemic influenza - Identify and develop adequate facilities at PoEs required for screening, isolation and quarantine of travelers (See SOP for quarantine and isolation) - Develop capacity at PoEs to identify and, where required, transport travelers with suspected pandemic influenza infection to designated health facilities - Conduct regular simulation exercises to test and update public health emergency contingency plans, procedures and infrastructure at PoEs - Develop appropriate risk communication messages for travelers, staff and crew	DMS/ DOPH	MOH
1.8 Travel restrictions	- Develop plan and procedure for effective implementation of travel restrictions based on the available evidence and country's specific situations - Ensure plans for timely communication of any travel restrictions to WHO in accordance with the IHR (2005)	DOPH/ DMS	HEMC

2. Surveillance, investigation and assessment

2.1 Enhancing laboratory capacity	• Maintain existing Influenza Surveillance network with WHO National Influenza Center (NIC) and reference laboratories • Maintain BSL-III laboratory to undertake influenza detection and characterization. • Ensure uninterrupted laboratory supplies • Provide appropriate biosafety and biosecurity training to staff (refer to Biosafety Guidelines) • Training of district laboratory technician on sample collection, storage, shipment and performance of rapid field test. • Identify needs for additional facilities, trained staff, equipment (including personal protective equipment [PPE]) and reagents to operate during a pandemic • Develop logistic and human resource capacity for packaging and transport of specimens and viruses in accordance with existing local and international SOPs/protocols/guidelines. • Develop mechanism for sharing of laboratory findings to HEMC and relevant stakeholders. • Develop protocols to test influenza specimens and indicate when testing should be discontinued. • Ensure timely and effective information sharing between Animal and Human health on influenza strains among animals	RCDC, DoPH	MoH
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2.2 Influenza Surveillance	● Maintain seasonal Influenza Surveillance for ILI and SARI ● Maintain existing surveillance systems and capacities to monitor and characterize influenza activity, linking epidemiological and virological information. ● Strengthen systems to manage and report surveillance data. Ensure that influenza surveillance data are reported regularly (e.g. weekly) ● Share representative clinical specimens or virus isolates of seasonal influenza specimens with WHO collaborating centers twice a year. ● Monitor the situation across the border and overseas ● Review ongoing surveillance of influenza-like illness and SARI surveillance ● Establish timely and systematic information exchange between animal or wildlife and human health surveillance units. ● Ensure reporting capacities and coordination with the national IHR focal point in case there is need to notify WHO of cases of novel influenza virus infection, under the requirements of the IHR (2005). ● Establish clear mechanisms to report signal events to local, subnational and national public health authorities. ● Strengthen indicator-based and event-based surveillance systems in NEWARS and capacities across health facilities to detect signal events for immediate notification to public health authorities	RCDC	MOH
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	● Establish trigger criteria to investigate unusual cases or clusters of non-seasonal influenza and other emerging acute respiratory diseases ● Share animal samples with international collaborating laboratories for confirmation, characterization, and development of diagnostic reagents and to develop a candidate vaccine for animal / human species. ● Ensure reporting capacities and coordination with the national IHR focal point to notify WHO of any laboratory-confirmed case of human influenza caused by a novel influenza virus, or virus of pandemic potential, under the requirements of the IHR (2005). ● Develop surveillance strategies to detect further cases of human-to-human transmission of novel influenza. Prepare surveillance systems to be prepared to collect and report pandemic influenza case data. ● Establish protocols for active case finding (e.g. contact tracing and chart review). ● Enhance laboratory capacity to confirm novel or pandemic influenza cases at the start of a pandemic, or ensure access to laboratories able to perform this test. ● Establish a process to review case definitions and public health interventions, based on surveillance findings and pandemic progression ● Establish reporting formats and channels to share surveillance analysis with decision-makers and stakeholders.		
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	• Ensure timely data submission to international influenza databases (e.g. FluNet, FluID). • Develop a mechanism to collect and share samples with influenza laboratories in the GISRS, under the pandemic influenza preparedness framework.		
2.3 Outbreak investigation	• Establish multidisciplinary outbreak investigation and rapid response teams (including terms of reference) (see SOP for rapid response team). • Ensure that the National and District Health Rapid Response Team (DHRRT) have appropriate capacities and training. • Establish trigger criteria to investigate unusual cases or clusters of non-seasonal influenza and other emerging acute respiratory diseases. • Ensure protocols and SOPs for outbreak investigation are in place. • Ensure the field investigations in affected areas as per the existing outbreak investigation guidelines. • Develop and ensure active surveillance systems in locations where cases reside, where animal outbreaks are occurring or where the source of infection is suspected. If needed, target surveillance at groups with greater occupational risk of exposure.	RCDC	MOH
2.5 Monitoring the pandemic	• Maintain reporting capacities and coordination with the national IHR focal point to report weekly updates of the pandemic situation to WHO, under the requirements of the IHR (2005).	DMS (IHR)/DoPH	MOH

	• Develop surveillance strategies to monitor the pandemic and transition phases. Include criteria to trigger changes in strategy (e.g. when to discontinue case-based reporting and when to monitor for trends). • Establish mechanisms to review and adapt WHO case definitions for pandemic influenza, and to update national clinical and laboratory diagnostic algorithms. Global guidance will be issued by WHO and can be adapted for local use. • Establish mechanisms to review control measures, public health interventions and pandemic response plans, based on surveillance analysis. Include in surveillance analysis approaches to understand pandemic burden and risk by gender and in vulnerable populations. • Thoroughly document the evolution of the pandemic including changes in population susceptibility, epidemiological and clinical features, geographical spread, trends and impact. • Develop reporting frameworks and protocols to regularly communicate surveillance data, analysis and situation reports to pandemic event management and decision-makers. • Ensure timely data submission to international influenza databases (e.g. FluNet and FluID).		
2.6 Risk and severity assessment	• Develop SOPs to conduct systematic pandemic risk and severity assessments, and share assessment findings to national authorities and WHO.	DMS/ DOPH	MOH

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| | <ul style="list-style-type: none"> ● Enhance capacities for pandemic risk and severity assessment including human resources (e.g. epidemiology, virology, clinical and risk communication). Identify support for a surge of patients and service users, if necessary. ● Develop mechanisms to use the findings of global risk assessments performed by WHO, using the tool for influenza pandemic risk assessment (TIPRA) to inform public health actions in the national context. ● Identify parameters to assess indicators of pandemic influenza severity (transmissibility, seriousness of disease and impact) using the pandemic influenza severity assessment (PISA) framework and the risk assessment SOP . Determine thresholds or defined ranges for each parameter using historical data. ● Establish mechanisms to adapt and review case definitions for pandemic influenza, and to update clinical and laboratory diagnostic algorithms. ● Establish mechanisms to review control measures, public health interventions and pandemic response plans, based on pandemic risk and severity assessment findings. ● Ensure timely data submission to international influenza databases (e.g. FluNet and FluID). | | |
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3. Health services and clinical management

3.1 Health service continuity	● Develop pandemic business continuity plans at all levels of health facility to ensure the continuation of essential health services ● Develop a clearly defined channel of communication framework to ensure timely and accurate information communication between pandemic response authorities and health facility ● Review standards and regulatory frameworks to ensure quality and safety of care during a pandemic ● Establish financing mechanisms to finance essential health services during a pandemic at the health facility ● Review and develop reporting format to monitor the status of essential health service delivery during a pandemic	DoPH/DMS	MoH
3.2 Facilities	● Map existing health-care facilities in terms of level of care, number of beds, isolation and intensive care and mortuary capacity ● Ensure isolation facilities are available at all level of facilities ● Identify public facilities that may be used as alternative health-care facilities (e.g. schools, community halls and military barracks). Determine the level of care that can feasibly and safely be provided in these facilities ● Review the Hospital Contingency Plans (HCP) for providing essential health services during the pandemic.	DMS	MOH

3.3 Personnel /Human Resource	● Review current status and distribution of specialist, MOs, nurses and other health care workers at each level of health facility. ● Develop plan to mobilize health professionals from other districts during surge capacity ● Review policies to manage and retain staff during emergencies, such as insurance, incentives, sick leave, occupational health and safety etc. ● Develop services to support response staff (e.g. health monitoring, counselling, stress management, psychosocial support and pandemic vaccine provision)	DOS/ DMS/DoPH	MoH
3.4 Essential medicines and medical Supplies	● Identify items, quantities of medicines and medical device supplies required to maintain essential health services ● Develop national lists of medicines, medical devices and other supplies needed to respond to pandemic influenza based on WHO guidelines; ● Review current stockpile of Antiviral drugs and plans for distribution and use of antiviral drugs in various pandemic scenarios, and stockpile of additional medicines and equipment including: ○ Antibiotics to treat influenza complications; ○ Antipyretics; and ○ Hydration, oxygen and ventilation support. ● Project additional medicines, medical needs during a pandemic	DOMSHI	MOH

	• Develop plans to manage stocks of the medicines and medical supplies at different level of health facilities, taking into consideration possible supply and transport disruptions during a pandemic		
3.5 Excess mortality	• Review SOPs/guidelines for management of dead bodies • Map locations and storage capacities of mortuary facilities in hospitals. • Identify resources and alternative sites for emergency mortuary facilities	DMS/DoPH/ DoMSHI	MOH
3.6 Clinical management	• Review and revise clinical management guidelines for patients with suspected or confirmed pandemic influenza infection • Ensure that clinical management guidelines are distributed to all health-care facilities • Train all the hospital staff on clinical management and infection control • Develop or update protocols to treat and manage potentially infectious patients in the community	DoPH/DMS	MOH
3.7 Infection prevention and control in health-care settings	• Strengthen or establish national and hospital IPC programmes, with trained Personnel • Revise and synchronize existing IPC guidelines and protocols in the context of pandemic	DMS	MOH

	• Ensure that health-care workers, laboratory personnel and volunteers receive appropriate IPC education and training • Ensure that patients and visitors are given clear instruction on appropriate IPC measures • Ensure availability of supplies needed to implement recommended IPC measures (e.g. PPE and hand hygiene supplies)		
4. Public health interventions			
4.1 Capacity building	• Review the capability and preparedness of existing facilities for continuity of services • Develop mobilization plan for staff and supplies from health and non-health agencies • Prepare training materials and provide training to identified staffs in the mobilization plan • Ensure national and local multi-sectoral plans for border control are in place. • Ensure plans are nationally consistent, so stakeholders are aware of their responsibilities and roles irrespective of their location. • Assess and audit core capacity requirements regularly. • Ensure national and local border emergency management groups meet regularly and that all stakeholders for relevant locations meet regularly and update plans.	DoPH	MOH

	● Review assessment policies and procedures at the border		
4.2 Medical counter measures	● Ensure quarantine facilities are identified at all levels (national, local) ● NITAG to develop and frame vaccination policy and use of antiviral drugs ● Assess and consider evidence-based seasonal influenza vaccination program ● Develop procurement, distribution and vaccination plan for pandemic influenza vaccine – collaborate with regional and international agencies ● Train, test and revise pandemic influenza vaccination plans and procedures ● Establish a system to monitor vaccine coverage and adverse events ● Estimate the need, procurement and distribution of antiviral drugs.	DMS/ DOPH	MOH
4.3 Community mitigation	● Establish inter-sectoral collaboration ● Prepare public awareness programs and develop communication strategies for influenza prevention and control at community and individual level ● Develop non-pharmaceutical intervention plans at national and local level	DOPH	MOH

Phase 2: Prevention

Interventions in this phase will be focused on the following areas:

1. Preparing for emergency - planning, coordination, resources, legal and policy issues, ethical issues, risk communication and community engagement, intervention at point of entry, and travel restrictions
2. Surveillance, investigation and assessment – reinforce existing influenza surveillance
3. Health Services and clinical management– capability for early diagnosis, and timely treatment
4. Public health interventions– capacity building, medical counter measures, and community mitigation

Areas of intervention	Action	Responsibility	Authority
1.Preparing for emergency			
1.1 Planning	● Prepare to activate NIPPRP at short notice ● Formalize criteria for activation of the HEMC ● Develop and issue a case definition and provide technical advice to inform action in health and other settings ● Plan for an escalation to Rapid Containment and Response phase based on risk assessment, and review recovery plans ● Sensitize roles, responsibilities of different stakeholders at all levels of pandemic response, including appropriate stakeholders at Points of Entry	DoPH/DMS	MoH

	• Conduct risk assessments according to risk assessment SOP • Evaluate pandemic preparedness using the existing checklist/parameters		
1.2 Coordination	• Convene regular HEMC meetings, • Convene National One Health Technical Committee and advise HEMC • Share information and daily reports to NDMA on the preventive measures taken • Maintain contact with WHO and lead international agencies • Activate IHR communication protocol to communicate with relevant sector and WHO • Activate coordination and communication mechanisms with neighbouring countries and other international stakeholders • Convene coordination meetings with relevant stakeholders to delineate roles and responsibilities	DOPH/ DMS	MOH
1.3 Resources	• Prepare for a possible release of pre-pandemic vaccine (if available) as per the pandemic vaccination policy. • Review protocols for distribution of vaccination and priority groups for vaccination • Identify and allocate human resource requirements to prevent and coordinate pandemic response activities • Provide adequate training to health workers at all levels as per the training plan • Mobilize funds as per the established funding mechanisms	DOPH/ DOMSHI	MOH

	• Select, procure, stockpile, distribute and deliver antivirals, essential pharmaceuticals, personal protective equipment, diagnostics tests and vaccines based on the inventory and estimate • Deploy/deliver all essential medicines and supplies including pandemic influenza vaccines as per the plan • Implement surge capacity and deployment plan at all levels, • Activate logistic plan for all pandemic phases including ambulance and transportation services		
1.4 Legal and policy issues	• Assess and develop the legal basis for all public health measures that are likely to be proposed during a pandemic response, such as: Isolation or quarantine of infected individuals; travel or movement restrictions; closure of educational institutions; and prohibition of mass gatherings; off-license use of drugs and vaccines; compulsory vaccination; and use of private facilities • Assess and develop policy on, and legal basis for, vaccination of health-care workers, workers in essential services or individuals at high risk • Establish regulatory pathways to expedite the importation, marketing authorization and licensing of pandemic influenza vaccine during a pandemic emergency • Establish bilateral or regional agreements with neighbouring countries on public health emergencies to address trans-border issues including interoperability of plans	DOS	MOH

1.5 Ethical issues	Establish ethics committees to advice on pandemic influenza preparedness and response activities, such as quarantine, that require ethical considerations.	HEMC	NDMA
1.6 Risk communication and community engagement	Periodically test and update existing risk communication plan in the context of pandemics. Risk communication guidance document for the Healthcare Sector (2018) should be used as reference.	DOPH	MOH
1.7 Intervention at point of entry	- Establish surveillance at POEs during the early stage of a pandemic to mitigate the risk of importing or exporting cases of pandemic influenza - Develop capacity at POEs to identify and, where required, transport travellers with suspected pandemic influenza infection to appropriate medical facilities - Identify and develop adequate facilities at POES required for screening, isolation and quarantine of travellers - Plan response according to any simulation exercises that have been conducted to test and update public health emergency contingency plans, procedures and infrastructure at POEs - Develop appropriate risk communication messages for travellers, staff and crew - Coordinate with Ministry of Health counterparts in border countries	DMS	MOH
1.8 Travel restrictions	Assess effectiveness of implementing travel restrictions to slow pandemic spread, based on the available evidence in the country and any guidance from WHO	HEMC	NDMA

	• Ensure timely communication of any travel restrictions to WHO in accordance with the IHR (2005)		
2.Surveillance, investigation and assessment			
Influenza surveillance	• Guarantee functioning of existing surveillance systems (NEWARS, SARI, ILI) in order to detect new outbreaks of pandemic illness and monitor the course of the pandemic in the country • Strengthen surveillance at airport and ground crossings	RCDC	MOH
3.Health services and clinical management			
Capacity for elderly diagnoses	• Ensure readiness and potential activation of health facility contingency plans • Ensure readiness for scale-up of health staff • Alert health facilities to be vigilant for ILI/SARI with epidemiological links with affected animal species	RCDC	MOH
Timely effective treatment	• Ensure availability of latest SOPs for testing guidelines, PPE use, clinical management guidelines and antivirals	DMS	MoH
	• Review arrangements for critical care support	Hospitals/DMS	MoH
	• Ensure hospital contingency plan for managing mass casualties are in place	DMS/ DOPH	MoH
	• Alert health facilities to be vigilant for ILI/SARI with epidemiological links with affected animal species	RCDC	MoH

	• Conduct simulation exercises and reinforce immediate response capabilities	DMS/ DOPH	MoH
4.Public health interventions			
4.1 Capacity building	• Implement cluster control and border control activities. • Consider establishing regional emergency operations centres	DOPH/ DMS	MOH
4.2 Medical counter measures	• Renew advice to health care workers to have seasonal vaccination. • Assess vaccine stockpile and antiviral stock preparedness	DMS	MOH
4.3 Community mitigation	• Ensure multi-sectoral and community engagement • Minimise risk of human infections from contact with infected animals • Safeguard animal workers and other at-risk populations • Recommend measures to reduce human contact with infected animals • Regulate import of risk products • Provide travel advisories as indicated	IMCOH/ HEMC	NDMA

Phase 3: Rapid Containment (Cluster Control)

Interventions in this phase will be focused on the following areas:

1. Preparing for emergency - planning, coordination, resources, legal and policy issues, ethical issues, risk communication and community engagement, intervention at point of entry and travel restrictions
2. Surveillance, investigation and assessment – surveillance and laboratory support, and logistics
3. Health Services and clinical management – health care and emergency response, contained and reduced human to human virus transmission, and limit morbidity and mortality among the affected population
4. Public health interventions – capacity building, medical counter measures, and community mitigation

Areas of intervention	Action	Responsibility	Authority
1.Preparing for emergency			
1.1 Planning	• Activate NIPPRP and HEMC on short notice • Develop and issue a case definition and provide technical advice to inform action in healthcare settings and other settings • Escalate to Rapid Containment phase based on latest risk assessment according to predetermined criteria • Sensitize roles, responsibilities of different stakeholders for rapid containment phase	HEOC Secretariat	HEMC

1.2 Coordination	• Convene regular HEMC meetings • Convene National One Health Technical Committee that advises HEMC • Share information and daily reports to NDMA on the preventive and rapid containment measures taken • Maintain continuous contact with WHO and lead international agencies in order to inform containment activities • Activate IHR communication protocol to communicate with relevant sector and WHO • Activate coordination and communication mechanisms with neighboring countries and other international stakeholders • Undertake Risk Communication based on containment phases, according to Risk Communication guidelines (2019) and WHO guidance • Convene coordination meetings with relevant stakeholders to delineate roles and responsibilities during Rapid Containment phase	HEOC Secretariat	HEMC
1.3 Resources	• Prepare for a possible release of pre-pandemic vaccine (if available) as per the pandemic vaccination policy for containment phase. Ensure that protocols are in place that identify target groups to receive the vaccine • Identify and allocate human resource requirements to prevent and coordinate rapid containment activities • Provide adequate training to health workers at all levels as per the training plan	DOMSHI/ DOS	HEMC

	• Mobilize funds as per the established funding mechanisms • Select, procure, stockpile, distribute and deliver antivirals, essential pharmaceuticals, personal protective equipment, diagnostics tests and vaccines based on the inventory and estimate needs for containment • Deploy/deliver all essential medicines and supplies in relevant areas of the country • Implement surge capacity and deployment plan at all levels • Activate logistic plan for ambulance and transportation services during containment phase		
1.4 Legal and policy issues	• Assess and develop the legal and ethical basis for all public health measures that are relevant for the containment phase, such as Isolation or quarantine of infected individuals; travel or movement restrictions; closure of educational institutions; and prohibition of mass gatherings; off-license use of drugs and vaccines; compulsory vaccination; and use of private facilities. Refer to SOP on non-pharmaceutical interventions. • Assess and develop policy on, and legal and ethical basis for, vaccination of health-care workers, workers in essential services or individuals at high risk • Establish regulatory pathways to expedite the importation, marketing authorization and licensing of pandemic influenza vaccine during a pandemic emergency • Establish bilateral or regional agreements with neighbouring countries on public health emergencies to address trans-border issues including interoperability of plans	HEMC	NDMA

1.5 Ethical issues	● Convene an ethics committees to advice on pandemic influenza preparedness and response activities that require ethical considerations.	HEMC	NDMA
1.6 Risk communication and community engagement	● Refer to existing risk communication plan for guidance in communicating risk to healthcare workforce and public	Risk Communication Team	HEMC
1.7 Intervention at point of entry	● Continue surveillance at POEs during the early stage of a pandemic to mitigate the risk of importing or exporting cases of pandemic influenza during containment phase ● Develop capacity at POEs to identify and, where required, transport travellers with suspected pandemic infection to appropriate medical facilities ● Identify and develop adequate facilities at POEs required for screening, isolation and quarantine of travellers as long as containment phase continues ● Develop appropriate risk communication messages for travellers, PoE staff and crew	Surveillance Team	HEMC
1.8 Travel restrictions	● Assess effectiveness of implementing travel restrictions to slow pandemic spread, based on the available evidence in-country and globally ● Ensure timely communication of any trade or travel restrictions to WHO in accordance with the IHR (2005)	HEMC	NDMA

2. Surveillance, investigation and assessment

2.1 Surveillance and Laboratory support	● Confirm and report cases promptly to national/ international authorities per IHR guidelines ● Enhance active surveillance, through existing surveillance platforms when possible (NEWARS, ILI, SARI) to detect cases. ● Ensure rapid virological characterization in collaboration with WHO/ lead international agencies. ● Collaborate with international agencies to collect relevant clinical and epidemiologic data to help determine different parameters of pandemic (e. severity, transmissibility). ● Identify high risk groups for targeted interventions. ● Review testing protocols and clinical management guidelines	RCDC/ DMS	HRMC
2.2 Logistics	● Review inventory of supplies (Critical Care equipment, Personal Protective Equipment, Laboratory diagnostics) and fill gaps in relevant containment zones ● Explore the possibility of making available stock of antiviral drugs in the affected areas.	DOMSHI/ DOS	HEMC

3. Health services and clinical management

Healthcare and emergency response	• Activate national and district RRT, according to existing protocols for RRTs • Provide relevant and accessible information to higher-risk populations and settings • Comply with any national guidelines for surveillance, diagnosis and treatment and Infection Control • Liaise with HHC to prioritise the use of Ambulance service • Monitor use of personal protective equipment and respond to districts requests in containment zones for use or distribution of such equipment from the central reserve • Isolate suspected and confirmed cases, and quarantine contacts for cluster control during containment phase • Ensure treatment is provided to all patients according to clinical management guidelines • Implement guidelines for the management of fatalities in affected areas • Address psychological impact • Activate enhanced infection control, laboratory procedures, clinical guidelines and isolation facilities	HEOC Secretariat/ TAG	HEMC
Contain and reduce human to human virus transmission	• Review hospital contingency plan with special attention to surge capacity	DMS/ DOPH/ TAG	HEMC

Limit morbidity and mortality among the affected population	Identify and provide isolation facilities and maintain strict infection control practices	DMS/ Hospital	HEMC
	Review effectiveness of clinical management protocols	DMS/Hospital	HEMC
	Train all staff for case management and to implement infection control	DMS/ DOPH	HEMC
	Conduct simulation exercises / mock drills	Hospital/DMS	HEMC
4.Public health interventions			
4.1 Capacity building	- Mobilize identified and trained staff in country - Undertake risk communication to public and healthcare personnel	DoPH/ DMS	HEMC
4.2 Medical counter measures	- Order pandemic vaccine following a pandemic declaration by WHO. - Deploy and distribute vaccines as per committee recommendations - Vaccinate priority groups and high risk groups - Release national reserve volumes of antivirals to affected areas, and consider pre-positioning bulk supplies in other high-risk areas, like points of entry	DOMSHI	HEMC

4.3 Community mitigation	• Undertake risk communication about the pandemic to communities and the public, particularly in affected areas • Activate coordination mechanisms between border agencies in affected areas to ensure containment efforts are well coordinated	Risk Communication Team	HEMC
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Phase 4: Full-Scale Response (Pandemic Management)

Interventions in this phase will be focused on the following areas:

1. Preparing for emergency - planning, coordination, resources, legal and policy issues, ethical issues, risk communication and community engagement, intervention at point of entry, and travel restrictions
2. Surveillance, investigation and assessment – surveillance and laboratory support, and logistics
3. Health Services and clinical management– health care and emergency response, and contained and reduced human to human virus transmission
4. Public health interventions– capacity building, medical counter measures, and community mitigation

Areas of intervention	Action	Responsibility	Authority
1.Preparing for emergency			
1.1 Planning	● Activate NIPPRP at short notice ● Activate the HEMC ● Develop and issue a case definition and provide technical advice to inform action in healthcare settings and other settings ● Plan for an escalation to Rapid Containment and Response phase, and review recovery plans ● Sensitize roles, responsibilities of different stakeholders for rapid containment phase and recovery phase	HEOC Secretariat	HEMC

	● Conduct risk assessment using existing SOPs. ● Evaluate pandemic preparedness using the existing checklist		
1.2 Coordination	● Convene regular HEMC meetings ● Convene National One Health Technical Committee that advises HEMC ● Share information and daily reports to NDMA on the preventive and rapid containment measures taken ● Maintain continuous contact with WHO and lead international agencies in order to inform containment activities ● Activate IHR communication protocol to communicate with relevant sector and WHO ● Activate coordination and communication mechanisms with neighbouring countries and other international stakeholders ● Assess Risk Communication strategies ● Convene coordination meetings with relevant stakeholders to delineate roles and responsibilities during Rapid Containment phase	HEOC Secretariat	HEMC
1.3 Resources	● Prepare for a possible release of pre-pandemic vaccine (if available) as per the pandemic vaccination policy. ● Ensure that protocols are in place that identify target groups to receive the vaccine ● Identify and allocate human resource requirements to prevent and coordinate pandemic response activities	DOMSHI/ DOS	HEMC

	● Provide adequate training to health workers at all levels as per the training plan ● Mobilize funds as per the established funding mechanisms ● Select, procure, stockpile, distribute and deliver antivirals, essential pharmaceuticals, personal protective equipment, diagnostics tests and vaccines based on the inventory and estimate ● Deploy/deliver all essential medicines and supplies including pandemic influenza vaccines as per the plan ● Implement surge capacity and deployment plan at all levels ● Activate logistic plan for all pandemic phases including ambulance and transportation services		
1.4 Legal and policy issues	● Assess and develop the legal basis for all public health measures that are likely to be proposed during a pandemic response, such as: Isolation or quarantine of infected individuals; travel or movement restrictions; closure of educational institutions; and prohibition of mass gatherings; off-license use of drugs and vaccines; compulsory vaccination; and use of private facilities. Refer to SOP on non-pharmaceutical interventions. ● Assess and develop policy and legal basis for vaccination of health-care workers, workers in essential services or individuals at high risk ● Establish regulatory pathways to expedite the importation, marketing authorization and licensing of pandemic influenza vaccine during a pandemic emergency	HEMC	NDMA

	Establish bilateral or regional agreements with neighboring countries on public health emergencies to address trans-border issues including interoperability of plans		
1.5 Ethical issues	Convene ethic committee meeting to advise on pandemic influenza preparedness and response activities that requires ethical considerations.	HEMC	NDMA
1.6 Risk communication and community engagement	Refer to existing risk communication plan for guidance in communicating risk to healthcare workforce and public	Risk Communication Team	HEMC
1.7 Intervention at point of entry	- Continue surveillance at POEs during the early stage of a pandemic to mitigate the risk of importing or exporting cases of pandemic influenza - Develop capacity at POEs to identify and, where required, transport travelers with suspected pandemic infection to designated health facilities - Identify and develop adequate facilities at POEs required for screening, isolation and quarantine of travelers as long as containment phase continues - Develop appropriate risk communication messages for travelers, PoE staff and crew	Surveillance Team	HEMC
1.8 Travel restrictions	Assess effectiveness of implementing travel restrictions to slow pandemic spread, based on the available evidence in-country and globally		

	• Ensure timely communication of any trade or travel restrictions to WHO in accordance with the IHR (2005)		
2. Surveillance, investigation and assessment			
2.1 Surveillance and Laboratory support	• Confirm and report cases promptly to national/ international authorities • Conduct active surveillance to detect cases due to secondary transmission. • Ensure rapid virological characterization in collaboration with WHO/ lead international agencies. • Collaborate with international agencies to determine pathogenicity to humans. • Identify high risk groups for targeted interventions. • Review testing protocols and clinical management guidelines	RCDC	HEMC
2.2 Logistics	• Review assessment of supplies (Critical Care equipment, Personal Protective Equipment, Laboratory diagnostics) and fill gaps • Explore the possibility of making available stock of antiviral drugs in the affected area.	DOMSHI/ DOS	HEMC
3. Health services and clinical management			
Health care and emergency response	• Activate national and district RRT, according to existing protocols for RRTs • Provide relevant and accessible information to higher-risk populations and settings • Report to the Ministry of Health on service capacity, as required.	HEOC Secretariat	HEMC

	● Comply with any national guidelines for surveillance, diagnosis and treatment and IC ● Liaise with HHC to prioritise the use of Ambulance service ● Monitor use of personal protective equipment and respond to districts requests for use or distribution of such equipment from the central reserve ● Address surge capacity (Facility personnel) as per HCP, and consider establishing day care centres and temporary hospitals ● Isolation of suspected and confirmed cases, and quarantine contacts for cluster control du during containment phase ● Ensure treatment is provided to all patients according to clinical management guidelines ● Implement guidelines for the management of mass fatalities ● Address psychological impact ● Monitor suspect cases at the point of entry as per WHO case definitions and travel history		
	● If a suspected case is reported, transfer the patient to hospital as per protocol	RRT	HEMC
	● Quarantine those whose symptoms do not require hospitalization ● Isolate cases per clinical guidelines	RRT	HEMC

	• If a case is positive for a novel influenza virus, manage according to clinical management guidelines • Track all staff with contacts to cases and review their health status. • Report on staff absences to the Ministry of Health to inform national policy • Test suspect cases, using the PCR test	Medical Team	HEMC
	• Commence targeted immunization once vaccine is available	DOPH	MoH
Contain and reduce human to human virus transmission	• Report the cases as per surveillance protocol	DMS/ DHO	HEMC
4. Public health interventions			
4.1 Capacity building	• Mobilize identified and trained staff • Step up surveillance at the border as required by the Ministry of Health • Public communication • Initiate isolation of cases & contact tracing • Monitor contacts	DoPH/ DMS	HEMC

4.2 Medical counter measures	● Order pandemic vaccine following a pandemic declaration by WHO. ● Deploy and distribute vaccines effectively as per committee recommendations ● Vaccinate priority groups and high risk groups ● Release national reserve volumes of antivirals, and consider pre-positioning bulk supplies for use according to policy in border management operations ● Implement or prepare to implement cluster control activities	DOMSHI	HEMC
4.3 Community mitigation	● Public communication on the pandemic ● Activate coordination mechanisms between border agencies at local levels to ensure planning and programmes are well coordinated ● Establish public health presence at points of entry and implement processes for referral, assessment and screening of travellers ● Initiate contact-tracing information from passengers arriving from areas of concern	RRT	HEMC

Phase 5: Recovery

Interventions in this phase will be focused on the following areas:

1. Preparing for emergency - planning, coordination, resources, legal and policy issues, ethical issues, risk communication and community engagement, and intervention at point of entry
2. Surveillance, investigation and assessment – surveillance and laboratory support
3. Health Services and clinical management/ health care and emergency response – strengthen hospitals for next pandemic wave
4. Preventing illness in the community (Public health interventions) – capacity building, medical counter measures, and community mitigation

Areas of intervention	Action	Responsibility	Authority
1.Preparing for Emergency			
1.1 Planning	● Review recovery plans ● Review the lessons learnt about planning and coordination across all sectors and share experiences with the international community. ● Review and, if necessary, revise pandemic risk management plans to manage a possible future pandemic	HEOC Secretariat	MoH
1.2 Coordination	● Apprise findings of After-Action Review to HEMC	HEOC Secretariat	HEMC

1.3 Resources	Review logistic plan for all pandemic phases including ambulance and transportation services	HEOC Secretariat	HEMC
1.4 Legal and policy issues	- Review legal basis for all public health measures that were implemented during a pandemic response, such as: Isolation or quarantine of infected individuals; travel or movement restrictions; closure of educational institutions; and prohibition of mass gatherings; off-license use of drugs and vaccines; compulsory vaccination; and use of private facilities - Review policy and legal basis for, vaccination of health-care workers, workers in essential services or individuals at high risk - Review regulatory pathways for expediting the importation, marketing authorization and licensing of pandemic influenza vaccine during a pandemic emergency	HEMC	NDMA
1.5 Ethical issues	Review ethical issues surfaced during the pandemic	HEMC	NDMA
1.6 Risk communication and community engagement	Review and update existing risk communication plan (2019) in the context of lessons learnt during pandemics	DOPH	HEMC
1.7 Points of entry	- Descal surveillance at POEs - Review the lessons learnt at the POEs - Review risk communication messages for travelers, staff and crew	RCDC	HEMC

2. Surveillance, investigation and assessment

Surveillance and Laboratory Capacity	● Review current surveillance activities and maintain those required during the transition to full recovery ● Resume seasonal influenza surveillance incorporating the pandemic virus subtype as part of routine surveillance. ● Consider conducting sero prevalence studies ● Disseminate surveillance data and situation reports in a timely manner (NEWARS) ● Continue to collect and share virus isolates for genomic studies ● Conduct After Action Review (Post incident review of response and sharing information on what went well. What could be improved and lessons learned (AAR- After Action Review)	RCDC/ DMS	HEMC
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3. Health services and clinical management

3.1 Strengthen hospitals for next pandemic wave	● Assess priorities for business resumption ● Resume business-as-usual services gradually ● Organise debriefings ● Review the lessons learned ● Revisit, review and revise plans accordingly	DMS	HEMC
	● Replenish stock of antivirals and other essential drugs/consumables	DOMSHI/ DOPH	HEMC

4. Public health interventions			
4.1 Capacity building	● Review and revise adequateness of existing facilities for future pandemics ● Assess the gaps in number and training of identified and mobilized staff ● Develop and enhance infrastructural and HR planning during the planning phase	DoPH/DMS	HEMC
4.2 Medical countermeasures	● Maintain buffer stock of vaccines and antivirals ● Review procurement and distribution plan of drugs and vaccines ● Move to the routine measures implemented in the planning phase	DMSHI/ DOPH	HEMC
4.3 Community mitigation	● Conduct a thorough evaluation of the effectiveness of the individual, household and societal measures implemented ● Evaluate guidance dissemination mechanisms and work with professional associations towards improvement ● In addition, analyse data collected during the event for dissemination and consider revising the national risk assessment algorithms	HEOC Secretariat	HEMC

13. STANDARD OPERATING PROCEDURES, GUIDELINE AND PROTOCOLS

LIST OF SOPS

1. STANDARD OPERATING PROCEDURE FOR DECLARING AN EMERGENCY
2. STANDARD OPERATING PROCEDURE FOR DONNING AND DOFFING OF PERSONAL PROTECTIVE EQUIPMENT (PPE)
3. STANDARD OPERATING PROCEDURE FOR OPERATION AND MAINTENANCE OF APPLIED BIOSYSTEMS 7500 FAST DX REAL TIME PCR
4. STANDARD OPERATING PROCEDURE FOR DETECTION AND CHARACTERIZATION OF INFLUENZA VIRUS BY PCR USING ROTOR-GENE™
5. STANDARD OPERATING PROCEDURE FOR HEMAGGLUTINATION ASSAY FOR INFLUENZA SAMPLES
6. STANDARD OPERATING PROCEDURE FOR RESPIRATORY VIRUS ISOLATION USING MDCK CELL LINES
7. STANDARD OPERATING PROCEDURE FOR RNA EXTRACTION USING QIAAMP® VIRAL RNA MINI KIT
8. STANDARD OPERATING PROCEDURE (SOP) FOR SAFE AND DIGNIFIED MANAGEMENT OF DEAD BODY OF SUSPECTED OR CONFIRMED INFLUENZA CASE
9. STANDARD OPERATING PROCEDURE FOR DECONTAMINATION AND DISINFECTION OF PANDEMIC INFLUENZA OF CONTAMINATED AREA
10. STANDARD OPERATING PROCEDURE FOR SAMPLE COLLECTION, STORAGE AND SHIPMENT

LIST OF PROTOCOLS

1. PROTOCOL FOR HAND HYGIENE
2. PROTOCOL FOR RESPIRATORY HYGIENE/COUGH ETIQUETTE FOR ALL HEALTH-CARE FACILITIES
3. PROTOCOL FOR FAMILY MEMBER/VISITOR IN HEALTH CARE FACILITIES
4. PROTOCOL FOR PATIENT TRANSPORT WITHIN HEALTH-CARE FACILITIES
5. PROTOCOL FOR WASTE DISPOSAL
6. PROTOCOL FOR DISHES AND EATING UTENSILS
7. PROTOCOL FOR LINEN AND LAUNDRY
8. PROTOCOL FOR ENVIRONMENTAL CLEANING AND DISINFECTION
9. PROTOCOL FOR PREPARATION OF THE ISOLATION ROOM
10. PROTOCOL FOR USE AND REMOVAL OF FACEMASK OR REUSABLE CLOTH-MASK
11. PROTOCOL FOR PLANNING AND IMPLEMENTING OF NON-PHARMACEUTICAL INTERVENTIONS

Additional protocol to be added:

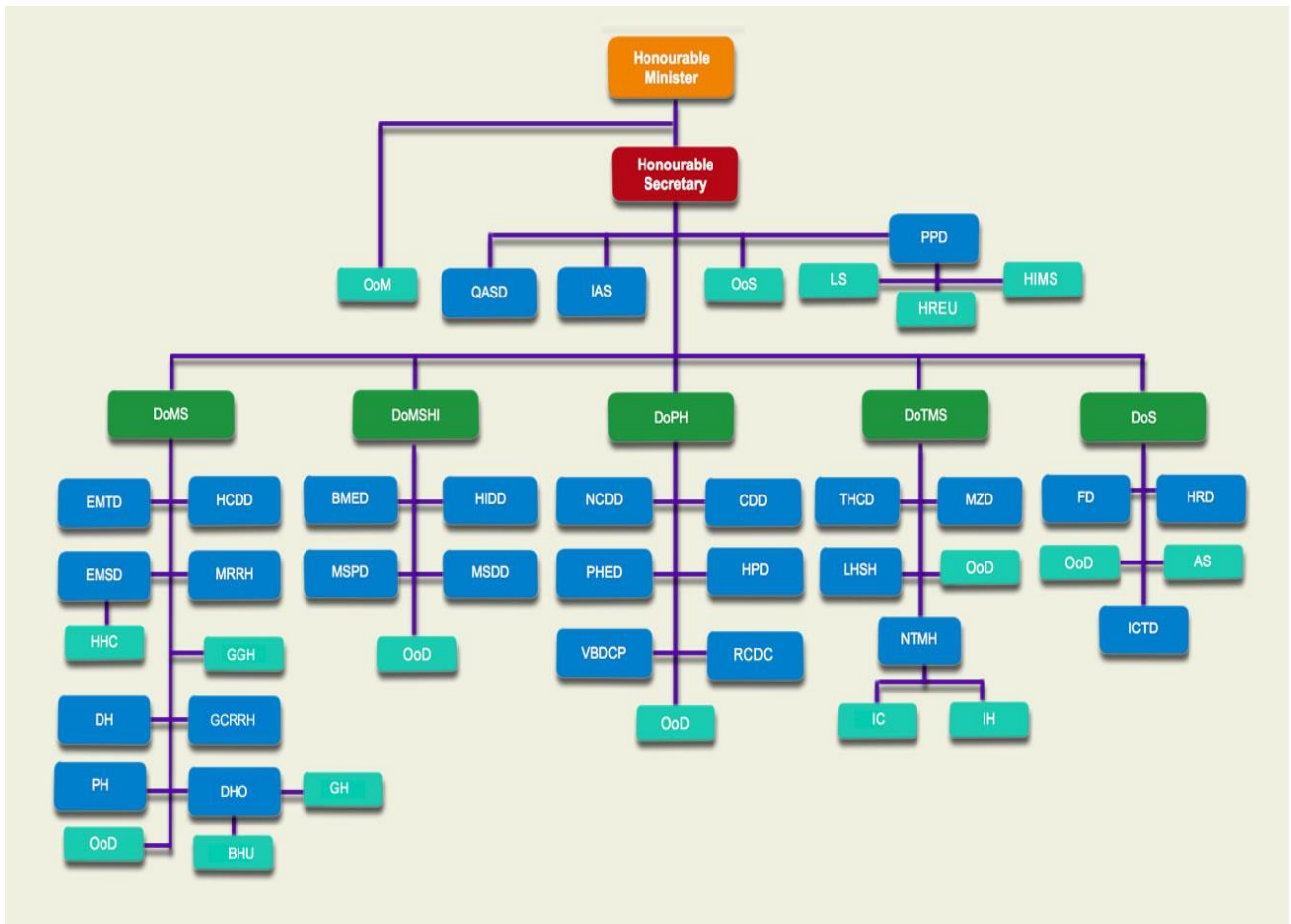
- Protocol for travelling passenger (Airport and ground crossing) refer Airport Preparedness and contingency plan
- To be added from COVID-19 NPRP

LIST OF GUIDELINES

1. CLINICAL CASE MANAGEMENT
2. INFECTION CONTROL
3. PANDEMIC INFLUENZA RISK ASSESSMENT

14. APPENDIX

Appendix 1: MoH organogram



Appendix 2: Ministry of Agriculture and Forest

