



North American Plan For Animal and Pandemic Influenza



Released on April 2, 2012

TABLE OF CONTENTS

LIST OF ACRONYMS	1
EXECUTIVE SUMMARY	3
CHAPTER 1: INTRODUCTION	6
THE ANIMAL AND PANDEMIC INFLUENZA THREAT	6
NORTH AMERICAN COOPERATION TO ADDRESS THE THREAT	7
<i>Objectives for Cooperation</i>	8
<i>A Collaborative and Comprehensive Approach</i>	9
CHAPTER 2: EMERGENCY COORDINATION AND COMMUNICATIONS	12
OVERVIEW OF FEDERAL EMERGENCY MANAGEMENT STRUCTURES	13
<i>Canada</i>	13
<i>Mexico</i>	14
<i>United States</i>	16
INTERNATIONAL LEGAL FRAMEWORK	18
NORTH AMERICAN COORDINATION	19
JOINT EXERCISES AND TRAINING	20
ANIMAL AND PANDEMIC INFLUENZA COMMUNICATIONS	20
<i>Coordinated Communications</i>	21
EMERGENCY RESPONSE ASSISTANCE	22
CHAPTER 3: ANIMAL INFLUENZA	23
CURRENT FRAMEWORK FOR MANAGING LIVESTOCK AND POULTRY DISEASES OF NATIONAL IMPORTANCE	24
MOVING TOWARDS A FRAMEWORK FOR ANIMAL INFLUENZA: A NORTH AMERICAN PHASED APPROACH..	25
CHAPTER 4: PANDEMIC INFLUENZA	28
SURVEILLANCE, EPIDEMIOLOGY AND LABORATORY PRACTICES	28
<i>Surveillance and Epidemiology</i>	29
<i>Laboratory Practices</i>	30
MEDICAL COUNTERMEASURES	31
<i>Research and Development</i>	32
<i>Regulatory Issues</i>	32
<i>Stockpiles, Distribution, and Utilization Policies</i>	33
PERSONNEL EXCHANGE	33
<i>Personnel Assistance during a Pandemic</i>	34
<i>Public Health Liaisons</i>	35
<i>Animal Health Liaisons</i>	35
PUBLIC HEALTH MEASURES	36
CHAPTER 5: BORDER HEALTH MEASURES	38
TRILATERAL WORKING GROUP ON BORDER ISSUES	39
AIR TRAVEL	39
<i>Pre-Departure Measures for Flights When Disease Does Not Exist In North America</i>	39
<i>Pre-Departure Measures for Flights When Disease Exists in North America</i>	40
<i>En Route Measures</i>	40
<i>Arrival Measures</i>	41
MARITIME TRAVEL	41
LAND BORDERS	42

CHAPTER 6: CRITICAL INFRASTRUCTURE PROTECTION	43
THE NORTH AMERICAN FRAMEWORK	44
CRITICAL INFRASTRUCTURE SECTORS	45
<i>Canada</i>	<i>45</i>
<i>Mexico</i>	<i>46</i>
<i>United States</i>	<i>47</i>
IMPROVING CRITICAL INFRASTRUCTURE RESILIENCE	48
<i>Joint Assessments of Risks and Interdependencies</i>	<i>49</i>
<i>Public and Private Sector Entities with International Operations</i>	<i>49</i>
<i>Borders</i>	<i>50</i>
<i>Impact of Disease versus Impact of Border Disruptions</i>	<i>50</i>
PANDEMIC PREPAREDNESS AND RESPONSE MANAGEMENT FOR CRITICAL INFRASTRUCTURE	51
ANNEX I: TERMS OF REFERENCE FOR THE NORTH AMERICAN SENIOR COORDINATING BODY AND THE HEALTH SECURITY WORKING GROUP	52
I. NORTH AMERICAN SENIOR COORDINATING BODY (SCB)	52
<i>Overview and Mission</i>	<i>52</i>
<i>Objectives</i>	<i>52</i>
<i>Organizational Structure</i>	<i>53</i>
II. NORTH AMERICAN HEALTH SECURITY WORKING GROUP (HSWG)	54
<i>Overview and Mission</i>	<i>54</i>
<i>Objectives</i>	<i>54</i>
<i>Organizational Structure</i>	<i>54</i>
ANNEX II: AVIAN INFLUENZA	56
NOTIFIABLE AVIAN INFLUENZA	57
ZONING AND COMPARTMENTALIZATION	57
SURVEILLANCE/EPIDEMIOLOGY	58
<i>Poultry Surveillance</i>	<i>59</i>
<i>Wild Bird Surveillance</i>	<i>59</i>
BORDER CONTROL MEASURES ASSOCIATED WITH NOTIFIABLE AVIAN INFLUENZA	60
LABORATORY PRACTICES	60
AVIAN INFLUENZA VACCINES	61
PERSONNEL	61
AVIAN HEALTH INFORMATION SHARING AND NOTIFICATION	62
AVIAN AND HUMAN HEALTH INTERFACE	62
ANNEX III: CHIEF VETERINARY OFFICERS AGREEMENT	64

LIST OF ACRONYMS

AI	Avian influenza
ANI	Animal influenza
APHIS	Animal and Plant Health Inspection Service
CBSA	Canada Border Services Agency
CFIA	Canadian Food Inspection Agency
CGPC-SEGOB	General Coordination for Civil Protection of the Secretariat of Governance (Mexico)
CIKR	Critical infrastructure Key resource
CIP	Critical infrastructure protection
CISEN	Center for Investigation and National Security (Mexico)
CNSS	National Committee for Health Security (Mexico)
CONOPS	Concept of operations
CSG	General Health Council (Mexico)
CVO	Chief Veterinary Officer
DFAIT	Department of Foreign Affairs and International Trade (Canada)
DHS	Department of Homeland Security (United States)
DOD	Department of Defense (United States)
DOS	Department of State (United States)
DOT	Department of Transportation (United States)
EOC	Emergency operations center
FAA	Federal Aviation Administration (United States)
FAO	Food and Agriculture Organization
GATT	General Agreement on Tariffs and Trade
GDP	Gross domestic product
GOC	Government Operations Centre (Canada)
HHS	Department of Health and Human Services (United States)
HSWG	Health Security Working Group
ICAO	International Civil Aviation Organization
ICH	International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use
IHR	International Health Regulation
IVPI	Intravenous pathogenicity index
LPAI	Low pathogenic avian influenza
NAFTA	North American Free Trade Agreement
NAI	Notifiable avian influenza
NALS	North American Leaders Summit
NAPAPI	North American Plan for Animal and Pandemic Influenza
NGO	Non-governmental organization
NOC	National Operations Center (United States)
NRF	National Response Framework (United States)
OFFLU	OIE FAO network on animal influenza
OIE	World Organization for Animal Health
PAHO	Pan American Health Organization
PHAC	Public Health Agency of Canada

PHEIC	Public health emergency of international concern
PROCINORTE	Cooperative Program in Agriculture Research and Technology for the Northern Region
PS	Public Safety Canada
SAGARPA	Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (Mexico)
SCB	Senior Coordinating Body
SCT	Secretariat of Communications and Transportation (Mexico)
SEGOB	Secretariat of Governance (Mexico)
SEMARNAT	Secretariat of Environment and Natural Resources (Mexico)
SENER	Secretariat of Energy (Mexico)
SNPC	National System of Civil Protection (Mexico)
SPP	Security and Prosperity Partnership of North America
SRE	Secretariat of Foreign Affairs (Mexico)
SS	Secretariat of Health (Mexico)
UN	United Nations
USD	United States dollars
USDA	United States Department of Agriculture
WHO	World Health Organization
WTO	World Trade Organization
WTO SPS	<i>Agreement on the Application of Sanitary and Phytosanitary Measures</i>
WTO TRIPS	<i>Agreement on Trade Related Aspects of Intellectual Property Rights</i>

EXECUTIVE SUMMARY

Pandemic (H1N1) 2009 was the first public health emergency of international concern (PHEIC) declared under the International Health Regulations (2005) [IHR (2005)] and the first influenza pandemic in more than 40 years. Canada, Mexico, and the United States recognize that the risk of another pandemic has not diminished and that the world faces an ongoing threat posed by the emergence and spread of influenza viruses with the potential to cause a human influenza pandemic. The three countries continue to work together to strengthen their preparedness in anticipation of a highly contagious influenza virus or other pandemic either originating in or spread to this continent.

The 2007 *North American Plan for Avian and Pandemic Influenza*¹ resulted from the commitment made by the leaders of the three countries under the Security and Prosperity Partnership of North America (SPP). The plan included a comprehensive approach to prepare for avian and pandemic influenza in North America based on the assumption that a pandemic was likely to start outside of the region and focused on avian influenza because of the re-emergence of highly pathogenic avian influenza H5N1 virus in humans in 2003.

Superseding the SPP, the North American Leaders Summit (NALS) provides a renewed collaborative framework among the governments of Canada, Mexico, and the United States. During the first NALS, held in August 2009 in Guadalajara, Mexico, the three leaders highlighted North America's coordinated response to Pandemic (H1N1) 2009 as a global example of cooperation. The Leaders also reaffirmed their commitment to a continued and deepened cooperation on pandemic influenza preparedness.

The *North American Plan for Animal and Pandemic Influenza* (NAPAPI) retains the key elements of the 2007 version, while incorporating the lessons learned from the North American response to Pandemic (H1N1) 2009, including recognizing that a pandemic influenza virus may emerge in our region and expanding the focus on animal influenza viruses to incorporate both avian and non-avian species. The NAPAPI outlines how the three countries intend to strengthen their emergency response capacities as well as our trilateral and cross-sectoral collaborations and capabilities in order to assist each other and ensure a faster and more coordinated response to future outbreaks of animal influenza or an influenza pandemic.

The NAPAPI complements national emergency management plans in each of the three countries and builds upon the core principles of the International Partnership on Avian and Pandemic Influenza, the standards and guidelines of the World Organization for Animal Health (OIE), the World Health Organization (WHO) – including the IHR (2005), as well as the rules and provisions of the World Trade Organization (WTO) agreement – and the North American Free Trade Agreement (NAFTA).

¹ to [http://www.spp-psp.gc.ca/eic/site/spp-psp.nsf/425f69a205e4a9f48525742e00703d75/8b0c08a46aeb620d8525754600739b11/\\$FILE/pandemic-influenza.pdf](http://www.spp-psp.gc.ca/eic/site/spp-psp.nsf/425f69a205e4a9f48525742e00703d75/8b0c08a46aeb620d8525754600739b11/$FILE/pandemic-influenza.pdf)

The NAPAPI provides a policy framework to enhance trilateral collaboration to:

- Detect, monitor, and control influenza outbreaks and attempt to limit transmission between animals and humans as well as human to human transmission;
- Facilitate communication among relevant authorities of the three countries in order to react and cooperate expediently in the case of an outbreak or a pandemic;
- Prevent or slow the entry of a novel strain of human influenza into North America and the propagation of the virus whether it emerges within or outside North America;
- Minimize illness and deaths; and
- Sustain infrastructure and mitigate social and economic impact.

The NAPAPI addresses both animal and public health issues including early notification and surveillance, joint outbreak investigation, epidemiology, laboratory practices, medical countermeasures, personnel sharing, and public health measures.

It also addresses border and transportation issues, including containment measures for air and maritime travel along with land border crossings. A series of layered, collaborative measures among the three countries, consistent with the IHR (2005), could slow the spread of a novel strain of influenza, providing valuable time to mobilize resources, coordinate responses, and mitigate morbidity and mortality, all while avoiding unnecessary interference with travel and trade.

The NAPAPI recognizes the importance of working together with international organizations, such as WHO, Food and Agriculture Organization (FAO), and OIE, to develop guidance for surveillance systems for selected animal species that can host influenza viruses with zoonotic potential. These guidelines should consider the value of the surveillance from a public health perspective while recognizing the complexity of the food production systems, as well as the costs associated with the implementation of regulatory programs.

Maintaining critical infrastructure and services have proven to be essential during a pandemic. While influenza cannot physically damage critical infrastructure, a pandemic could weaken it by diverting essential resources or removing essential personnel from the workplace. This Plan, therefore, extends beyond the health sector to include a coordinated approach to critical infrastructure protection, including the importance of business continuity planning and recognition of interdependencies among sectors.

Under the NAPAPI, the three countries have established the North American Senior Coordinating Body (SCB)² formed by members of the health, agriculture, security and foreign affairs sectors to facilitate high level discussions on policy, planning and response activities for pandemic influenza. Under the direction of the SCB, the trilateral Health Security Working Group (HSWG) is composed of policy and technical subject matter experts for the three countries. This group is expected to develop and execute, in close coordination with federal

²The Security and Prosperity Partnership Coordinating Body has been renamed and the updated Terms of Reference for the North American Senior Coordinating Body can be found in Annex I.

partners, subject matter experts and, as appropriate, other stakeholders with Canada, Mexico, and the United States, comprehensive, coordinated, and evidence-based implementation actions guided by the principles established in this document. The *NAPAPI Implementation Actions* constitutes the first expected deliverable of the NAPAPI.

In brief, the NAPAPI is a comprehensive cross-sectoral regional health security framework developed mainly with the input of the health, agriculture, security, and foreign affairs sectors to protect against, control and provide a public health response to animal and pandemic influenza in North America, while avoiding unnecessary interference with international travel and trade.

CHAPTER 1: INTRODUCTION

Pandemic (H1N1) 2009 was the first PHEIC declared under the revised IHR (2005), and the first influenza pandemic in more than 40 years. The pandemic was also the first significant test of both the IHR (2005) and global pandemic preparedness efforts, and challenged global and individual country assumptions regarding likely influenza pandemic scenarios. For example, Pandemic (H1N1) 2009 demonstrated that a new strain of influenza virus with pandemic potential emerging within North America and arising from a non-avian species origin, was entirely possible.

Canada, Mexico, and the United States recognize the risk of another pandemic has not diminished and that the global community faces an ongoing threat posed by the emergence and spread of other influenza viruses with the potential to cause another influenza pandemic. The emergence of a human pandemic strain may depend on the evolutionary development of that strain within an animal host. However, the complex evolutionary dynamics of viral reassortment between animal and human influenza strains is not fully known. Pandemic (H1N1) 2009, a *prima facie* swine virus, resulted after multiple reassortment events between swine, avian, and human strains but how the virus initially became established in human populations is still being studied. Highly pathogenic avian influenza H5N1 virus re-emerged in Asia in late 2003 and spread to Europe, the Middle East, and Africa causing serious or fatal infections in humans. Although highly pathogenic avian influenza H5N1 has not achieved sustained transmission in humans, virulent genetic material from this virus may contribute to another influenza virus that has potential to cause a pandemic.

The NAPAPI outlines how the three partner countries intend to work together to prepare for and manage animal and pandemic influenza, recognizing that controlling the spread of animal influenza or a novel strain of human influenza, with minimal economic and other social disruptions, is in the best interest of all three countries. Canada, Mexico, and the United States intend to develop implementation actions, in coordination with appropriate federal partners and other stakeholders within their respective countries. Once constituted these implementation actions are to serve as the first deliverable of the NAPAPI and include comprehensive, coordinated, and science-based actions designed to enhance our collective preparedness and response capabilities for animal and pandemic influenza.

The Animal and Pandemic Influenza Threat

An influenza pandemic occurs when a new influenza virus against which the majority of the human population has no immunity and which spreads easily from person to person emerges and sweeps across a country and around the world.

Although a pandemic influenza virus, by definition, causes disease in humans, it may arise from mutations in an animal virus, such as swine influenza viruses. This process may also transpire in a human co-infected with both human and animal origin viruses. Pandemic strains may also arise through direct transfer from one species to another with little obvious change. Despite species barriers, interchange of influenza viruses among avian species, swine,

and humans does occur. Genetic reassortment events in animals or humans could lead to sustained human transmission with or without increased human pathogenicity.

Swine, similar to humans and a number of other species, are susceptible to infection by both avian and human influenza viruses. A pig that is already infected with a swine influenza virus could be co-infected with either an avian influenza virus or a human influenza virus possibly leading to a double-reassortant influenza A virus. Further, co-infection of a swine influenza infected pig with both an avian influenza virus and a human influenza virus could result in the production of a triple-reassortant influenza A virus. A chimeric virus whose genetic lineage included swine, avian, and human viruses, caused Pandemic (H1N1) 2009, further illustrating the high mutability of influenza viruses and their diverse origins.

Although avian and swine origin subtypes are the only animal influenza viruses known to have been associated with human pandemic strains, this fact does not preclude other animal influenzas from playing a role in the generation of a pandemic virus. Changes in an influenza virus that promote efficient human-to-human transmission and/or increase pathogenicity are difficult to predict. Furthermore, factors influencing the transmission from one species to another and then efficient replication are poorly understood and difficult to anticipate. Therefore, a holistic approach to understanding influenza viral dynamics must be considered with an emphasis on assessing and attempting to limit reassortments and interspecies transmission among human, swine, and avian strains of influenza.

Since November 2003, more than 500 cases of human infection with highly pathogenic avian influenza (HPAI) H5N1 viruses and more than 300 deaths have been reported by more than a dozen countries in Asia, Africa, the Pacific, and Europe. Approximately 92% of confirmed cases and deaths occurred in five countries—China, Egypt, Indonesia, Thailand, and Vietnam. While overall mortality in these HPAI H5N1 cases is approximately 60%, to date there have been very few documented cases of human-to-human transmission.

Over the last 100 years, the world has experienced four influenza pandemics: 1918, 1957 1968, and 2009. These pandemics have resulted in worldwide mortality of approximately 40 million, two million, and one million, respectively, for the 20th century pandemics, and an as yet unknown number of people who died as a result of the 2009 pandemic. Even though Pandemic (H1N1) 2009 was a recent event, the risk of another pandemic has not diminished. Neither the timing nor the possible severity of an influenza pandemic can be accurately predicted. The possibility exists that future influenza pandemics could result in considerable morbidity and mortality as well as social and economic disruption. The ongoing risk and the experience with Pandemic (H1N1) 2009 highlights the importance of trilateral cooperation to successfully address trans-border public health emergencies in North America.

North American Cooperation to Address the Threat

In March 2005, the Prime Minister of Canada, the President of Mexico and the President of the United States announced the establishment of the SPP to increase security and enhance prosperity among the three countries through greater cooperation and information sharing. The leaders met again in March 2006 to assess the progress of the SPP and to reaffirm their commitment towards enhancing the security, prosperity and quality of life of citizens

throughout North America. During this meeting, the three leaders agreed to advance the agenda of the SPP by addressing the threat of avian and pandemic influenza. The product of this high-level commitment was the *North American Plan for Avian and Pandemic Influenza*.

The NALS superseded the SPP and provides an updated and vibrant collaborative framework among the governments of Canada, Mexico, and the United States. During the first NALS held in August 2009 in Guadalajara, Mexico, the three leaders highlighted North America's coordinated response to Pandemic (H1N1) 2009 as a global example of cooperation. They also reaffirmed their commitment to a continued and deepened cooperation on pandemic influenza preparedness, including enhancing public health capabilities and facilitating routine and efficient information sharing among the three countries. In follow up to this high-level commitment, senior policymakers and subject matter experts from the health, agriculture, foreign affairs, and security sectors from the three countries reviewed and revised the *North American Plan for Avian and Pandemic Influenza* taking into account the lessons learned from Pandemic (H1N1) 2009, developing the NAPAPI.

Objectives for Cooperation

At the inaugural NALS in 2009 in Guadalajara, Mexico, the leaders of Canada, Mexico and the United States identified three broad categories for North American cooperation: the economy; health and security; and energy, the environment and climate change. In addressing health and security, the NAPAPI is built upon a set of objectives designed to guide collaboration at all stages of an influenza pandemic. These guiding objectives are:

- Share information among our governments in a timely and transparent manner to improve coordination of preparedness and response;
- Adopt a collaborative and comprehensive approach that incorporates animal and public health aspects in managing animal influenza outbreaks and influenza pandemics;
- Coordinate actions and leverage our respective capacities to ensure that rapid and effective steps are taken to deal with animal influenza outbreaks or a human influenza pandemic in North America;
- Explore the need for mutual assistance protocols recognizing that an influenza outbreak in one of the North American countries will spread to the others potentially affecting the health security of the region;
- Advise one another in advance of implementing any public health measure that could impact or influence the pandemic response activities of the other two countries;
- Base actions on the best available science and evidence-based decision making;
- Strive to ensure that the imposition and removal of veterinary or public health measures on the movement of people, animals and goods, under our national laws and international obligations, are not more restrictive or maintained for a longer period

than necessary to achieve the veterinary or public health objective;

- Ensure that the business continuity plans of our respective governments consider the highly interconnected nature of our economies; and
- Strive to utilize clear and consistent messaging to national and international public and animal health organizations in a proactive, timely and accurate manner.

A Collaborative and Comprehensive Approach

Given the broad health, social and economic impacts of an influenza pandemic, the three countries recognize the need for a comprehensive, cross-sectoral approach. Preparing for such an emergency may require the commitment of and cooperation among all segments of society: government, the private sector, local communities, and international partners. The purpose of the NAPAPI is to enhance collaboration mainly among the health, agriculture, security, and foreign affairs sectors of Canada, Mexico and the United States in order to:

- Detect, monitor, and control influenza outbreaks and attempt to limit transmission between animals and humans;
- Facilitate the communication between relevant cross-sectoral authorities of the three countries to react and cooperate expediently in the case of an outbreak;
- Prevent or slow the entry of a novel strain of human influenza to North America and the propagation of the virus whether it emerges within or outside North America;
- Minimize illness and deaths; and
- Sustain infrastructure and mitigate the social and economic impacts of a pandemic.

Although influenza will not physically damage critical infrastructure, systems may be weakened by the absence of essential personnel in the workplace or the diversion of resources. The NAPAPI, therefore, extends beyond the health and medical sectors to include provisions related to critical infrastructure and the cross border movement of goods and services.

In the context of movement of goods and services across our borders, the Pandemic (H1N1) 2009 experience has shown the dramatic effect that non-science based decisions can have on international trade. When the Pandemic (H1N1) 2009 virus appeared to have originated in animals some countries implemented various bans on swine and pork products, contrary to the statements by relevant international organizations – OIE, WHO and FAO.

The NAPAPI provides a framework for:

- The basic structure and mechanisms for trilateral emergency coordination and communication;
- Collaboration on the detection, prevention, control, and possible elimination of potentially zoonotic strains of animal influenza;

- Collaboration on border management based on the best scientific evidence and information and which avoids unnecessary interference with travel and trade, consistent with the IHR (2005); and
- Collaboration on a North American approach to keeping critical infrastructure and essential systems functioning properly in the event of an influenza pandemic.

The NAPAPI recognizes and intends to build upon the core principles of key international frameworks, agreements, and organizations dealing with animal and pandemic influenza issues.

The WHO developed international guidance on pandemic preparedness and response, including *Pandemic Influenza Preparedness and Response: A WHO Guidance Document* with a series of six pandemic phases, released just before Pandemic (H1N1) 2009.³ These WHO efforts were intended to improve international collaboration, coordination, transparency and management of risk in responding to pandemic influenza threats. The WHO's international guidance formed much of the basis for the three countries' planning for North American pandemic preparedness and response. This guidance is meant to be revised based on the findings of the IHR Review Committee and the lessons learned from the Pandemic (H1N1) 2009 response.

The OIE provides guidelines, advice and standards to prevent, diagnose, and respond to outbreaks of notifiable avian influenza (NAI) within the *Terrestrial Animal Health Code* (2010) and the *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* (2008). These documents also provide standards and guidelines outlining how countries should provide international notification and continue or resume trade in animal commodities prior to, during, and following an outbreak.

Similarly, FAO's role in combating highly pathogenic avian influenza is to facilitate direct technical and resource assistance to help national governments align their prevention, control and response efforts with OIE guidelines. The FAO coordinates support to affected countries to assist their efforts to control the disease and provides assistance to countries at risk of introduction of the disease. These efforts are now augmented by a rapid response capability through the FAO/OIE Crisis Management Center. Also, the OIE FAO Network on Animal Influenza (OFFLU)⁴ works to reduce the negative impact of animal influenza viruses through the promotion of collaboration between animal and human health authorities and provides the current scientific foundation for the promulgation of animal health regulations and regulatory guidelines.

Engaging the agriculture sectors of the three countries, the Cooperative Program in Agriculture Research and Technology for the Northern Region (PROCINORTE)⁵ facilitates cooperative actions of mutual interest to the three countries on food security, control of pests and diseases and other issues related to food import and export. This organization also has a task force devoted to animal health issues including influenza.

³ <http://www.who.int/csr/disease/influenza/PIPGuidance09.pdf>

⁴ <http://www.offlu.net/index.html>

⁵ <http://www.procinorte.net/Pages/Default.aspx>

The NAPAPI also builds on the core principles of other international organizations and agreements including the International Partnership on Avian and Pandemic Influenza, the WTO, and NAFTA.

The NAPAPI is not intended to replace or contradict existing arrangements or agreements. Each country's laws are to be respected, and this Plan is to be subordinate and complementary to domestic response plans, existing arrangements and bilateral or multilateral agreements. This Plan reflects strong commitments by our North American leaders but is not legally binding.

CHAPTER 2: EMERGENCY COORDINATION AND COMMUNICATIONS

Canada, Mexico and the United States intend to coordinate their emergency management activities, including public communications. The three countries share a common approach based on the four pillars of emergency management: prevention and mitigation, preparedness, response and recovery. The three partner countries intend to explore options for collaborating in each of these areas to manage the threat of animal and pandemic influenza.

- **Prevention and mitigation** activities are to be directed at minimizing the effects of an influenza pandemic, including direct outcomes (e.g., illness and death) and indirect associated effects (e.g., economic and social impacts). The three countries intend to implement these activities in a series of steps that should be coordinated to the greatest extent possible.
- **Preparedness** may require that national and regional contingency plans be in place for activities associated with an outbreak, including surveillance, detection, containment, mitigation, and response efforts. Protocols for mutual assistance (as permitted), training and regular joint exercises with stakeholders to practice and test these plans are essential. Trilateral preparedness requires that the three countries develop permanent mechanisms to share their updated national influenza preparedness plans, including their risk assessment and communication strategies. The three countries should establish detailed standard operating procedures to ensure relevant information exchange through predetermined, institutional points of contact.
- **Response** activities are to depend on the characteristics of the pandemic virus (virulence, attack rate, groups at highest risk, patterns of transmission), which cannot be known in advance. Uncertainty may prevail at early phases of an emerging event that can affect North America. Joint efforts among the three nations to facilitate information exchange on risk assessment, management and communication are key during this initial period before the threat is characterized and a course of action is established. If necessary, the three countries intend to implement activities such as animal or public health measures, information sharing and implementation of non-pharmaceutical interventions (e.g. hand washing, isolation of the sick, school closures), apply them consistently and regularly, and assess their efficacy to determine whether adjustments to a planned response are necessary. If necessary, and when the health security of the regions demands it, countries intend to explore mutual assistance.
- **Recovery** activities enable the restoration of “normal” or pre-pandemic service levels. The three countries intend to initiate these post-event activities as soon as possible, recognizing that they may start at different times across the continent as the pandemic waves move through geographic areas.

Overview of Federal Emergency Management Structures

Canada, Mexico and the United States each have designated organizations, plans and facilities in place, consistent with their governmental structures and authorities, to manage these activities during an outbreak of animal influenza or an influenza pandemic.

Canada

Emergency management responsibilities in Canada are shared by federal, provincial and territorial governments and their partners, including individual citizens who have a responsibility to be prepared for disasters. Provincial and territorial governments have responsibility for emergency management within their respective jurisdictions. The federal government exercises leadership at the national level relating to emergency management responsibilities in its exclusive fields of jurisdiction and on lands and properties under federal responsibility.

Key Organizations

- **Public Safety Canada (PS)** is the federal department that coordinates the overall federal government's domestic response efforts and provides support to government and key national players in responding to events of national significance. Within PS, the **Government Operations Centre (GOC)** operates around the clock as a mechanism to communicate and coordinate with federal, provincial and territorial emergency operations centers.
- The **Canadian Food Inspection Agency (CFIA)** is mandated to take the lead role in responding to animal health emergencies and has developed many detailed plans and procedures in collaboration with the Public Health Agency of Canada (PHAC), WHO and others. The CFIA is the primary agency responsible for prevention, preparation and response to an animal influenza outbreak, supported by PS. The CFIA has collaborative agreements with federal and provincial government partners that outline roles and responsibilities prior to and during an animal influenza outbreak.
- The **Public Health Agency of Canada (PHAC)** monitors the international and domestic influenza situation and has developed *The Canadian Pandemic Influenza Plan for the Health Sector* in collaboration with provincial/territorial representatives. PHAC is the primary federal agency addressing pandemic influenza preparedness and response, supported by PS and Health Canada. PHAC also engages and coordinates efforts among domestic and international health partners. The IHR National Focal Point for Canada is located in the Centre for Emergency Preparedness and Response within PHAC.
- **Health Canada** is responsible for supporting preparedness and response efforts in First Nations on reserve and Inuit communities; ensuring regulatory preparedness, including accelerated approval of a pandemic influenza vaccine; and spearheading federal workplace health initiatives.

- The **Department of Foreign Affairs and International Trade (DFAIT)** is responsible for the coordination of Canada's international response, including international efforts to contain the spread of a pandemic virus; communicating with foreign governments and international organizations; and managing foreign offers of assistance. DFAIT is also responsible for providing travel advice and responding to the consular needs of Canadians in distress.

Emergency Plans

The Canadian Pandemic Influenza Plan for the Health Sector. The aim of this guidance document is to support health sector planning at the facility, local, regional, provincial/territorial and federal level. It covers prevention, preparedness and response activities including surveillance, vaccine programs, use of antivirals, health services, public health measures and communications.

Notifiable Avian Influenza Hazard Specific Plan. This plan outlines the response to be undertaken by the CFIA when there is suspicion of a developing outbreak of NAI or when an outbreak occurs.

The Federal Emergency Response Plan. The aim of this whole of government, all hazards plan is to harmonize emergency response efforts by the federal and provincial/territorial Governments, non-governmental organizations, and the private sector. The *Federal Emergency Response Plan* applies to domestic emergencies and to international emergencies with a domestic impact.

An Emergency Management Framework for Canada. This Framework document establishes a common approach for the various federal, provincial and territorial emergency management initiatives. The Framework aims to enable consolidation of federal, provincial and territorial collaborative work and ensure more coherent, complementary actions among the different federal, provincial and territorial governmental initiatives.

Health Portfolio Emergency Response Plan. This is an all-hazards plan that has been developed to coordinate federal health portfolio emergency response activities. This plan describes the use of an Incident Management System and the Health Portfolio Emergency Operations Centre which, when active during public health emergencies, become important contact points between Canada and the international health community.

Mexico

Key Organizations

- The **General Health Council (CSG)** is a body of the Mexican State directly dependent from the President of Mexico, chaired by the Secretary of Health, assigned to issue mandatory provisions in public health. The Council is the second health authority in the country, preceded only by the President.
- The **Secretariat of Health (SS)** is the federal agency head of the health sector. It has normative and steward functions and is also responsible for providing specialized

health care and financing, SS coordinates and conducts national surveillance, laboratory diagnosis, and disease prevention and control. Specific measures of preparedness and response for an influenza pandemic are stated in the *National Preparedness and Response Plan for Pandemic Influenza*, first published in September 2005. Within the SS lies the Directorate General of Epidemiology which serves as the IHR National Focal Point.

- The **National Committee for Health Security (CNSS)** includes federal agencies of all areas relevant to the response to a pandemic (the health sector, civil protection, armed forces, agriculture, environment, communications, transportation, and law enforcement). CNSS coordinates national preparedness and response activities related to public health emergencies such as an influenza pandemic, supporting the development and implementation of plans at the federal, state and local levels. The SS directly carries out epidemiological surveillance and laboratory confirmation, as well as health care services organization, regulation and provision. The preparedness and response activities to an influenza pandemic are stated in the *National Preparedness and Response Plan for Pandemic Influenza*, first published in September 2005.
- Emergency management of any kind in Mexico is coordinated by The **General Coordination for Civil Protection of the Secretariat of Governance (CGPC-SEGOB)**. The CGPC is an agency of the Secretariat of Governance and distributes available resources for coordination of all branches – civil and military, of the federal, state and local governments – for deploying emergency response personnel. It also operates resources through a network of civil protection agencies at the municipal and state levels. In the case of an influenza pandemic, the CNSS and the **National System of Civil Protection (SNPC)** work together to address the threat. CGPC-SEGOB supports the response efforts lead by the Secretariat of Health.
- The **Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA)** is the federal agency responsible for the regulation, administration and promotion of sanitary measures for protecting the overall animal production as well as reducing health risks associated with food. SAGARPA works closely with the Secretariat of Environment and Natural Resources (SEMARNAT), which is responsible for monitoring disease activity in and surveillance of migratory and other wild bird populations that could endanger the poultry industry. SAGARPA also conducts disease surveillance in livestock, laboratory diagnosis, inspection of farms and other facilities, and regulation of importation and exportation among activities related to food processing facilities.
- The **Secretariat of Foreign Affairs (SRE)** is responsible for coordinating Mexico's diplomatic relations with foreign governments and international organizations at senior levels. It also directs international cooperative efforts. Furthermore, it provides assistance and guidance to ensure consular protection to the Mexican population living or traveling abroad during a pandemic.

Emergency Plans

The first edition of the *National Preparedness and Response Plan for Pandemic Influenza*, published in 2005, establishes the general principles of organization and response for mitigating the impact of a pandemic in the country and serves as guidelines for the multi-sectoral approach to pandemic response. This Plan defines the roles of all institutions represented at the CNSS before, during and after an influenza pandemic and models the development of state, local and institutional preparedness plans. The Plan contemplates six lines of action: health promotion and risk communications, coordination, epidemiological and laboratory surveillance, health care provision, strategic stockpile, and research and development.

In 1995, SAGARPA led an eradication campaign against HPAI H5N2 under regulations that establish guidelines to detect, control, and eradicate the viral strain. These measures remain in place to regulate HPAI H5N2 and other avian influenza strains. The regulation of this current campaign will be substituted by the official “*Agreement that addresses the sanitary measures that are to be applied to diagnosis, prevention, control, and eradication of notifiable avian influenza where this disease may be present in the zones of the Mexico.*”

In addition, SAGARPA has developed the *Procedure Manual to Prevent, Control and Eradicate Highly Pathogenic Avian Influenza* and a Task Force “DINESA” which integrates 47 Emergency Groups, of trained veterinarians in emergency response. These groups are distributed all over the country and capable of addressing any health emergency at any time.

United States

Key Organizations

- The **Department of Health and Human Services (HHS)** leads the federal government’s public health and medical response efforts to an influenza pandemic. Domestically, the HHS Secretary is the principal federal spokesperson for public health and medical issues, coordinating closely with the Department of Homeland Security (DHS) on public messaging pertaining to a pandemic. Internationally, HHS is a leader in public health programs and partnerships, providing essential assistance to governments and international organizations to help improve global health and build sustainable capacity worldwide, including influenza pandemic preparedness and response capacities. HHS, in coordination with other United States Government agencies, responds to requests for assistance from foreign countries and international organizations by contributing available HHS expertise and assets, including personnel and medical countermeasures (e.g. vaccines, antivirals and diagnostics). HHS shares responsibility with the Department of Agriculture (USDA) in the regulation of foods imported and processed domestically for consumption. The HHS Secretary’s Operation Center, an around the clock communications hub for coordinating United States public health and medical response, serves as the United States Government IHR National Focal Point.
- The **Department of Homeland Security (DHS)** leads the nation's efforts to prepare

for, protect against, respond to, recover from, and mitigate the risk of domestic natural and man-made disasters. DHS is also the federal agency responsible for controlling the movement of people and material through borders and ports of entry. In the context of a pandemic, as with any other domestic incident in which more than one department is involved, the Secretary of Homeland Security is responsible for providing overall coordination as the Principal Federal Official, in accordance with the *National Response Framework*. DHS coordinates actions with regard to overall non-medical support and response and ensures necessary support to public health and medical emergency response efforts coordinated by HHS. Within DHS, the **National Operations Center (NOC)**, a standing 24-hour, seven-days-per-week interagency organization that fuses law enforcement, national intelligence, emergency response and private sector reporting, is the primary national hub for domestic incident management, operational coordination and situational awareness. The NOC facilitates homeland security information sharing and operational coordination with other federal, state, local, tribal and non-governmental emergency operations centers.

- The **Department of State (DOS)** provides leadership and guidance on international activities to promote and support the federal government's international efforts to prepare for and respond to an influenza pandemic. Through United States embassies abroad, DOS serves as the primary interlocutor with host governments on United States assistance and engagement and works to ensure the timely flow of information to and from United States missions abroad and the relevant United States Government agencies. DOS works to foster diplomatic engagement and communication with foreign governments, international organizations, foreign non-governmental entities, United States citizens abroad and others on behalf of the federal government and conducts international public messaging on behalf of the federal government.
- The **Department of Agriculture (USDA)** works together with federal, state and industry partners to protect the United States against the rapid spread of highly pathogenic avian influenza and other influenzas of animal origin that may pose a threat to animal or public health. Activities include the development and distribution of emergency response guidelines for reportable animal diseases; oversight of response effort; provision of personnel, resources, and support for response efforts in cooperation with state and industry stakeholders; and ensuring compliance with OIE Terrestrial Code (2010). Safeguards include trade controls; wild bird monitoring; federal, state and industry pre-market testing of poultry; federal inspection procedures at slaughter and processing plants; and rapid response plans. The Department engages in surveillance for a wide variety of reportable livestock diseases including avian influenza. USDA participates in coordinated efforts to slow the spread of highly pathogenic avian influenza in poultry. It shares the responsibility to regulate food with HHS, and enforces sanitary and other measures on regulated products being imported or prepared for export.
- The **Department of Defense (DOD)** supports primary federal departments (DHS, HHS, and DOS) and state governments in limiting the impact of pandemic influenza. DOD works with the Canadian Department of National Defence and the Mexican

Ministry of Defense and military organizations to ensure a cooperative effort in applying military resources to prepare for and mitigate an influenza pandemic. In coordination with DOS and other agencies, DOD responds to requests for assistance from the United States Government and applies available resources with approval of the Secretary of Defense.

- The **Department of Transportation (DOT)** in cooperation with other key domestic (e.g., HHS, DHS and DOS) and international partners (e.g., Transport Canada and Mexico's Secretariat of Communications and Transportation), is responsible for the coordinated development and implementation, to the extent consistent with its legal authorities, of transportation-focused plans to slow the spread of an animal influenza outbreak or influenza pandemic. DOT works with these key stakeholders on preparedness, prevention, response, mitigation and recovery efforts intended to sustain the United States transportation system, and where appropriate, may work with its partners in Canada and Mexico on these efforts and similar efforts to sustain their transportation systems. DOT's Federal Aviation Administration (FAA), through the Air Traffic Organization, operates a critical infrastructure as the nation's air navigation service provider.

Emergency Plans

HHS published a *Pandemic Influenza Plan* in November 2005 and the *HHS Pandemic Influenza Implementation Plan* in November 2006, both of which serve as blueprints for HHS pandemic influenza preparedness planning and response activities. The White House *National Strategy for Pandemic Influenza* and the subsequent *Implementation Plan* for the strategy served to guide the United States Government's efforts to prepare for and respond to avian and pandemic influenza.

The *National Response Framework* (NRF), administered by DHS, is the core plan for managing domestic incidents. It details the federal coordinating structures and processes used during natural and man-made disasters, including the federal pandemic response. It also defines federal departmental responsibilities for sector-specific responses and provides the structure and mechanisms for effective coordination among federal, state, local and tribal authorities, the private sector and non-governmental organizations (NGOs).

International Legal Framework

Canada, Mexico and the United States are States Parties to the IHR (2005)⁶ and, as members of the World Organization for Animal Health (OIE), they observe the guidelines and standards provided in the OIE *Terrestrial Animal Health Code* (2010).

The purpose and scope of the IHR (2005) are to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with

⁶ *International Health Regulations (2005)*, Resolution 58.3 of the 58th World Health Assembly, 23 May 2005, online: http://www.who.int/gb/ebwha/pdf_files/WHA58/A58_55-en.pdf

international traffic and trade. Under the IHR (2005) provisions, the States Parties, including Canada, Mexico and the United States have among others the following obligations:

- Notify the WHO of single cases of specific diseases, such as smallpox, human influenza caused by a new subtype and severe acute respiratory syndrome (SARS);⁷
- Notify the WHO of all events within their territory that may constitute a public health emergency of international concern;⁸
- Inform the WHO of evidence of public health risks outside their territory that may cause international disease spread;⁹
- Use existing national structures and resources to meet their core capacity requirements for surveillance, reporting, notification, verification, and collaboration activities and their activities concerning designated airports, ports and ground crossings;¹⁰ and
- Establish a National Focal Point as the contact point for the WHO on all IHR matters.¹¹

Although not part of the IHR (2005) mandate, under our North American partnership, each country should simultaneously notify the IHR national focal points in the three countries as well when an IHR notification regarding animal and/or new subtype human influenza is communicated to the WHO via the Pan-American Health Organization (PAHO).

In the event of an influenza outbreak in an animal species where there is a significant zoonotic risk to humans, each country should notify the OIE and implement contingency plans to control and/or eradicate the virus from domestic animal operations. If the outbreak of influenza is contained in the captive avian populations, the established protocol for its notification and control is expected to be carried out as usual.

North American Coordination

Canada, Mexico and the United States have established the North American Senior Coordinating Body to facilitate planning and response activities for pandemic influenza. This SCB, formed by senior officials from the health, agriculture, security and foreign affairs sectors serves as the contact group in the event of an outbreak of animal influenza with zoonotic potential or a novel strain of human influenza. The SCB is expected to convene and play a significant role in promoting coordination among the three countries to support rapid and coordinated decision making, facilitate information sharing and address other coordination issues.

⁷ IHRs (2005), Article 6 and Annex 2.

⁸ IHRs (2005) Article 6

⁹ IHRs (2005) Article 9

¹⁰ IHRs(2005) Annex 1

¹¹ IHRs (2005 Article 4

The trilateral HSWG, working under the direction of the SCB, is composed of policy and technical subject matter experts from the health, agriculture, security, and foreign affairs sectors of Canada, Mexico, and the United States. Collective efforts under the HSWG should facilitate the execution of SCB activities and lead the coordination of technical, scientific, diplomatic and public health efforts to improve pandemic influenza preparedness capabilities and facilitate information sharing among the three partner countries. The HSWG leads the development and implementation of the *NAPAPI Implementation Actions*.

Each country intends to use existing emergency management structures for decision making at the national level. Canada, Mexico and the United States are to review existing emergency coordination and communication mechanisms and enhance the exchange of detailed operations plans.

Joint Exercises and Training

Prior to Pandemic (H1N1) 2009, the three countries participated in a series of trilateral exercises that were crucial to the successes in our individual and collective response. Canada, Mexico and the United States intend to continue working to enhance the interface among their respective emergency management/response structures through joint exercises and training. The three countries should make every effort to:

- Implement multilateral, scenario-driven exercises involving internal and external stakeholders to test planning actions;
- Continually assess preparedness activities to adjust objectives, effects and actions based upon changes in the economic and social environments; and
- Continuously assess planned response and recovery actions so that they remain the best projected actions to achieve success.

Specifically, the authorities of Canada, Mexico and the United States intend to conduct trilateral or bilateral exercises to assess and strengthen their emergency response and contingency plans. In addition, each country intends to design and deliver training to maximize the effectiveness of its respective emergency response and contingency plans. Wherever possible, training and exercises should be designed to maximize stakeholder involvement. Canada, Mexico and the United States also intend to share post-event “lessons learned” that are applicable to animal and/or pandemic influenza response thus further informing exercise and training activities.

Animal and Pandemic Influenza Communications

Accurate and timely information before, during and after an outbreak of animal or pandemic influenza is critical to the successful management of the situation. All stakeholders, including the public and governments need appropriate information to make effective and timely decisions.

Strategic risk communications is a purposeful exchange of information enabling decision-makers, stakeholders and the public to make well-informed decisions leading to responsible and ethical risk management. Risk management integrates communications and social science and fosters collaboration between experts and stakeholders to define and resolve a risk issue. The application of risk communications principles and practices can help reduce the consequences of an influenza pandemic, including loss of life, serious illness, and social and economic disruption.

Effective communications to manage a potential risk involves more than the sharing of information in response to an outbreak of disease. Individuals require information in advance of an event to develop an understanding of the potential effects of an outbreak in either humans or animals and to take appropriate action. Once an outbreak has begun, individuals may have limited ability to absorb and respond to new information.

The three countries, therefore, recognize the importance of risk communications to the effective management of an animal or influenza pandemic and support the application of its principles in influenza pandemic preparedness planning and mitigation strategies.

Risk communications activities that the three countries may pursue include:

- Gauging the level of knowledge and concern among individuals and groups and the barriers to adopting appropriate behavior;
- Consulting with key organizations to solicit input and advice; and
- Disseminating information advising how people can protect themselves at the time of an outbreak (e.g., information on personal protective measures).

Coordinated Communications

Canada, Mexico and the United States are committed to planning and implementing effective risk communications strategies for a pandemic or specified animal influenza outbreaks, and intend to cooperate and coordinate activities, where possible as described below:

- The three countries recognize that collaboration on communications efforts at all stages of an influenza pandemic, including sharing of communications strategies and activities, helps minimize the possibility of conflicting information or contradictory messages;
- Every effort should be made to cooperate and coordinate actions and pursue common approaches to communicating accurate and timely information in order to instill confidence in the North American response and recovery strategies;
- Each country recognizes the challenges to be faced will differ in each stage of response to an influenza pandemic. The three countries intend to work together to focus on common elements for informed decision-making and actions;

- Food safety and animal health messaging should be closely coordinated between animal health and public health authorities based on the best available science at the time taking care not to overstate or understate the risk; and
- The objectives of each country's communications efforts should focus on coordinating actions and pursuing common approaches to achieve proactive, timely and accurate communications.

To achieve these goals, the three countries intend to:

- Develop streamlined cross-sectoral mechanisms, including up-to-date contact lists for each country, for sharing communications strategies and plans and for identifying and addressing emerging issues, complementary to IHR (2005);
- Establish procedures and mechanisms for sharing, where possible, pre-release strategies and plans during an outbreak, including public messaging;
- Share best practices and social science knowledge, including behavioral research, to inform communications planning in the three countries;
- Share research and communications strategies on issues of key public interest and concern (e.g.; vaccine safety and effectiveness, animal health, food safety);
- Commit to developing opportunities to exercise the planned response; and
- Share any post-event evaluations or “lessons learned” in order to inform planning regarding communication approaches and products for similar events in the future.

Emergency Response Assistance

One of the main lessons learned from Pandemic H1N1 (2009) is the need to develop and/or enhance policy frameworks and protocols for regional assistance that will strengthen the health security of the region. Such assistance may be critical in a severe outbreak as it is clear that diseases know no borders and could affect our countries almost simultaneously. The provisions according to which Canada, Mexico or the United States may request emergency response assistance of one another include:

- When national human or material resources are overextended;
- When an influenza virus with pandemic potential in any of the three countries poses a potential threat to either of the other two countries; or
- When pandemic influenza requires robust coordination of the North American response in order to minimize the risk to animal and public health, minimize damage, and provide the basis for long-term social and economic recovery.

CHAPTER 3: ANIMAL INFLUENZA

Prior to Pandemic (H1N1) 2009, North American preparedness efforts for an animal influenza outbreak, focused solely on avian influenza and assumed that an outbreak would likely start outside our region. The focus on the threat of avian influenza was based on the re-emergence in humans of a highly pathogenic avian influenza H5N1 strain (HPAI H5N1) circulating in Asia, Africa, Europe, and other regions. Based on these assumptions, the *North American Plan for Avian and Pandemic Influenza* contained an Avian Influenza chapter, describing the collaboration framework in this area. However, Pandemic (H1N1) 2009 reinforced that a new strain of influenza virus with pandemic potential could emerge in our region and from a non-avian species, which highlighted the need to update our preparedness plans and expand the scope to include preparedness for animal influenza viruses beyond avian species. Recognizing the need to expand the scope of our collaboration to other animal species while also continuing to prepare for highly pathogenic avian influenza, the chapter on avian influenza from the *North American Plan for Avian and Pandemic Influenza* has been added as Annex II of this plan. The new chapter, entitled “Animal Influenza” describes the main areas for collaboration on animal influenza.

There are multiple factors related to both animals and humans that heighten the potential for the emergence of pandemic influenza strains including: increased animal and human densities; prolonged and/or constant contact between humans and animals; high mobility of live animals and animal products; and rapid regional and global movement of people. Based on the lessons learned from Pandemic (H1N1) 2009 the countries recognize the need to develop a cross-sectoral synergistic approach for animal and human influenza preparedness that includes a close collaboration among the agricultural and public health sectors. The three countries intend to work closely to address the risk created by this human/animal interface and to ensure that public health programs for zoonoses and food safety and security can be supported, authorized, designed and implemented in a timely, feasible, coordinated and effective manner.

Another important lesson learned from Pandemic (H1N1) 2009, was the detection of the human (H1N1) 2009 virus in swine, a currently non-reportable disease, required an animal health response outside the existing national and international regulatory framework. In the absence of swine disease reporting requirements our authorities undertook trilateral and international communications, based on ongoing collaboration among our agricultural sectors, to adapt existing policies and chart a joint course of response. This approach and many other actions taken by our respective agriculture sectors were consistent with the roles and responsibilities described for animal health authorities in the context of avian influenza preparedness described in the *North American Plan for Avian and Pandemic Influenza*, and included:

- Sharing surveillance data, diagnostic testing protocols, virus isolates, messaging about public health and food safety, and personnel which allowed for a common operating picture and strengthened integration of the scientific community;

- Ensuring unrestricted trade in swine and pork among all three countries through a trilateral agreement based on science; and
- Ensuring that the key relationships were in place to facilitate collaboration among the animal and public health sectors.

Pandemic (H1N1) 2009 underscored the need for systems to monitor both human and select animal populations in order to more effectively identify emerging influenza viruses with potential animal and public health impact. Any such monitoring system should include increased collection and dissemination to both animal health and pre-designated research laboratories of field samples from infected commercial swine and other species that can host influenza viruses. Analysis of these samples can help improve our understanding of influenza dynamics in animal populations and animal model experimentation may help inform whether the viruses pose any possible public health threat.

Developing surveillance systems for influenza in swine and other animal species poses policy, regulatory, and economic challenges to the agriculture sector. Even more challenging is the development of decision guidelines addressing what actions are to be taken when an influenza isolate of concern is detected. Creating programs that support the development of these systems will require a strong and long term commitment from the leadership of the health and agriculture sectors in our three countries. Thus, this chapter describes the immediate steps the three countries propose to take toward developing and enhancing our collaboration on animal influenza preparedness and response.

Current Framework for Managing Livestock and Poultry Diseases of National Importance

The signing of the Uruguay round of the General Agreement on Tariffs and Trade (GATT)¹² and the formation of the WTO in the early 1990s set the legal stage for today's interconnected global system of trade in livestock, poultry and their products. The WTO *Agreement on the Application of Sanitary and Phytosanitary Measures*¹³ established rules to govern the implementation of trade measures designed to safeguard animal, plant, and human health. The OIE sets international standards for the prevention, control, eradication and surveillance of animal diseases of significance for the international trade of livestock and poultry. In general these animal diseases have debilitating impacts on livestock populations and significant economic consequences, and/or pose significant zoonotic and public health threats. The OIE is also the reference body for the WTO in resolving trade disputes of commercial livestock, poultry and their products.

The OIE guidelines for NAI in poultry were ratified in 2005 in response to the increasing incidence of highly pathogenic avian influenza in poultry, the greater global awareness of the zoonotic potential of HPAI H5N1, and recommendations by the WHO to more closely monitor avian influenza viruses with potential high impact on human health.

¹² http://www.wto.org/english/docs_e/legal_e/06-gatt_e.htm

¹³ http://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm

The OIE recognizes the veterinary services of federal governments as the competent veterinary authorities. All federal program activities for diseases of livestock and poultry are built on a veterinary infrastructure framework consisting of three key elements, each grounded in federal regulation: disease-specific reporting requirements; disease-specific response programs and policies; and, producer compensation programs for livestock and poultry.

Federal regulatory animal health programs are promulgated after careful consideration of the impact on commerce, prioritization of the benefits, consultation with stakeholders, and a committed source of public funding, as has been the case for NAI across North America. There are no similar guidelines for swine influenza because the disease exists worldwide and is self-limiting with low mortality rates in this species. However, Pandemic (H1N1) 2009 underscored the need for a stronger degree of collaboration between animal and public health authorities to develop guidelines to address the animal/human health interface and emerging zoonotic and food safety concerns and the potential social and economic impact.

Moving Towards a Framework for Animal Influenza: A North American Phased Approach

For NAI, each country reports any incidence of the disease found in commercial poultry. This reporting could result in an export embargo of poultry and poultry products until the outbreak is resolved to the satisfaction of the affected country's trading partners. Reporting for notifiable avian influenza is compulsory; however no comparable program exists for swine influenza. Thus, apart from NAI, surveillance in other animal species, such as swine, for emerging influenzas with zoonotic potential is limited. Open reporting of swine influenza cases could negatively impact commerce and trade regardless of the zoonotic potential due to public perception surrounding influenzas as occurred during the Pandemic (H1N1) 2009. Understandably, producers are often reluctant to participate in surveillance programs for non-notifiable diseases. Notification of a new disease could result in loss of marketability of their products, loss of domestic markets and restrictions imposed on international trade. For these reasons, attempts to create voluntary programs for animal influenza have had limited success. Unless the entire trading community is held to the same measure of reporting by OIE standard, it is unlikely that increased submission of samples for analysis will occur. Moreover, entities that isolate the viruses may have intellectual property claims that need to be addressed in assuring availability of the virus samples.

Under the NAPAPI, the three countries recognize the need to work together with international organizations, such as WHO, FAO, and OIE, to develop guidance for surveillance systems for select animal species that can host influenzas with zoonotic potential. With the exceptions of NAI and Pandemic 2009 H1N1 virus, there are no international requirements for tracking and reporting animal influenzas with zoonotic potential to the OIE, because these animal influenzas are largely not a threat to animal health or international trade. These strains when discovered in animals are then classified as "novel strains." Although there is a clear definition for "novel influenza" for public health¹⁴ there is no corresponding definition for "novel" for animal health. Frequently, these influenza strains are subtypes or mutations new to science or are known subtypes that have been unreported in that animal

¹⁴ <http://www.cste.org/ps2009/09-ID-43.pdf>

species. Such ambiguous labeling of viruses could have negative commercial implications if notification leads to a public health response which may not be warranted. Therefore, organizations such as OFFLU (OIE/FAO network on animal influenzas) and WHO are critical resources for efforts to establish international guidance on the characterization, case definition, and reporting of novel strains, as well as determining when public health action is warranted. These guidelines should consider the value of surveillance from a public health perspective while recognizing the complexity of the food production systems and the costs associated with the implementation of regulatory programs.

Notwithstanding the aforementioned challenges, the three partner countries intend to identify opportunities to better prepare for and respond to emerging animal influenza threats by building upon existing mechanisms for collaboration on notifiable animal disease and the collaborative framework for AI in the *North American Plan for Avian and Pandemic Influenza*. We intend to implement a phased approach for moving forward in a cross-sectoral way involving multiple partners and stakeholders. As a first step the three partner countries plan to create an Animal Influenza Sub-working Group under the HSWG composed of animal and public health officials, and other relevant government authorities. This group is expected to create a workplan and conduct a series of activities designed to improve our collective preparedness for zoonotic influenza viruses which may include:

- Supporting the development of case definitions for animal influenzas of interest that may possess zoonotic potential ensuring the most viable zoonotic candidates are evaluated to conserve scientific resources and reduce the possibility of unnecessary trade implications;
- Supporting the development of standard indices ranking a particular virus in regard to its transmissibility and pathogenicity in the original host species and across species lines based on the behavior of the virus in that host, using epidemiological data and/or genetic/antigenic prognosticators, if known;
- Developing guidelines to enhance rapid access to isolates and diagnostic samples of animal influenza strains for animal and biomedical research which includes having systems and advance agreements in place that reduce custom and border impediments to the rapid movement of critical biological materials. Such agreements should include guidance on regulation for commercial couriers of biological samples to ensure unimpeded delivery;
- Strengthening protocols and procedures for cooperation and coordination between animal health diagnostic and public health laboratories across North America by standardizing material transfer agreements (MTAs) from the national/state/provincial originating laboratory to the OIE reference laboratory and cross-validating broad (multi-species) diagnostic platforms;
- Strengthening guidelines for joint animal and human health epidemiological investigations;

- Serving as a forum to promote cross-sectoral public and animal health risk communications in response to outbreaks; and
- Developing and sharing effective, science-based public and employee health recommendations to reduce the potential of zoonotic transmission of animal influenza.

CHAPTER 4: PANDEMIC INFLUENZA

Canada, Mexico, and the United States recognize that controlling the spread of a novel strain of human influenza with minimal health impact and economic disruption is in the mutual best interest of all three countries. This chapter, therefore, assumes that a focus on preventing or delaying the spread of a novel strain of human influenza or mitigating the impacts of pandemic influenza should serve public health, social and economic goals. Likewise, this chapter and any resulting measures that may ensue are to be based on sound science and recognize that decision making on public health questions also needs to reflect cultural, ethical, legal, economic, logistical and political considerations. Lessons learned during Pandemic (H1N1) 2009 should also be shared and considered during future collaborative planning efforts.

During the response to Pandemic (H1N1) 2009, the mutual benefits of a coordinated response to pandemic influenza were recognized by the three countries. Canada, Mexico, and the United States intend to continue to assist one another in domestic and international pandemic influenza preparedness and response efforts. They intend also to work together to implement appropriate public health measures at the shared borders. Health officials from the three countries intend to meet and/or communicate regularly to:

- Build upon existing programs and identify new opportunities for capacity-building in common areas of collaboration;
- Identify areas where the three countries need additional assistance;
- Identify challenges to the implementation of the NAPAPI;
- Develop implementation actions to move forward with collaboration in the areas identified in the NAPAPI;
- Communicate regularly on progress in areas of collaboration; and
- Identify opportunities to jointly plan for and exercise pandemic influenza preparedness and response.

Surveillance, Epidemiology and Laboratory Practices

An effective early warning surveillance system is essential to detect a disease outbreak early. The sooner potential threats are detected, the sooner the response mechanism can be triggered. Pandemic (H1N1) 2009 showed us that the sooner the virus can be identified, the sooner the vaccine development and manufacturing process can start. Thus, it is critical that federal, state/province/territorial, and local public health institutions employ enhanced surveillance systems for situational awareness of evolving disease characteristics.

During Pandemic (H1N1) 2009, pre-existing relationships government officials had with counterparts in the other North American countries allowed for quick access to critical information. These existing relationships facilitated surveillance and information sharing, including access to early epidemiologic information about cases. Furthermore, the Centers for Disease Control and Prevention (CDC) in its role as a WHO Influenza Collaboration Center for the Americas, performed confirmatory testing and rapidly produced a strain-specific laboratory test. Test kits and protocols were quickly distributed to international virology laboratories for use in identifying cases. Although laboratory testing capabilities were rapidly developed, low sensitivity field testing methods and changing case definitions led to uncertainty and potential misdiagnosis in the early days of the pandemic.

Canada, Mexico, and the United States intend to apply the lessons learned during Pandemic (H1N1) 2009 and continue to strengthen surveillance, epidemiology and laboratory practices among the three countries. Objectives in this area include:

- Enhancing epidemiological, surveillance and laboratory diagnosis capabilities;
- Improving rapid detection and characterization of influenza strains that have pandemic potential, and rapid investigation of possible human cases;
- Promoting collaboration on the epidemiological and laboratory assessment of infection with influenza strains that have pandemic potential; and
- Enhancing timely communication on surveillance, epidemiological and laboratory data.

Surveillance and Epidemiology

Canada, Mexico and the United States intend to strengthen our existing sharing of epidemiological and surveillance data and information as appropriate by:

- Collaborating to develop guidelines, principles and procedures for information and data sharing for novel and pandemic influenza viruses;
- Establishing a joint task team for risk assessment and analysis of epidemiologic and virologic surveillance data;
- Establishing and testing mechanisms for communication among institutions according to specific functions for exchanging epidemiological information;
- Considering the WHO case definitions when developing or revising case definitions used in national surveillance to minimize challenges when comparing data across the three countries;
- Sharing regular situation reports with essential epidemiological data, in the event of a pandemic;

- Identifying areas of technical assistance needed for laboratory, surveillance and outbreak response;
- Providing technical assistance through cross-border projects to bolster surveillance efforts for seasonal and pandemic influenza;
- Exploring the development of joint investigation guidelines to strengthen cross-border collaborations on outbreak investigations; and
- Identifying a forum for regular communication and maintenance of contact lists in each country's agencies responsible for surveillance.

Laboratory Practices

As observed during Pandemic (H1N1) 2009, the cross-border transport of specimens and isolates by federal, provincial and state laboratories in the three countries before and during a pandemic can facilitate diagnosis and contribute to the development and/or evaluation of reagents, tests, vaccines and antiviral drugs. The three countries should review and improve procedures to permit these materials to cross their borders without delay or payment of customs duties or fees. The three countries should continue to develop and exercise mechanisms for border security officials to facilitate the rapid exchange of laboratory samples, reagents, supplies and specimens. They should also improve chain-of-custody protocols for the proper and safe handling of the sample and reagents. The three countries should share existing procedures so that adequate supplies of diagnostic materials/reagents are available in the event of an influenza pandemic.

Building on the existing capacity and experiences during Pandemic (H1N1) 2009, Canada, Mexico and the United States intend to continue collaborating on the following activities:

- Review and facilitate border and custom procedures for the rapid exchange of laboratory samples, reagents, supplies, and specimens;
- Continue joint technical review and sharing of assay methods, reagents and virologic data related to human cases of influenza; and
- Strengthen operating procedures/processes for sharing laboratory information before and during an emergency, including:
 - Examining information and communication technologies to identify opportunities that would enhance rapid data transfer;
 - Sharing data, data analyses and data interpretations;
 - Enhancing laboratory-to-laboratory communication; and

- Assessing the need for and providing additional, ongoing and updated training in laboratory diagnostics.

Medical Countermeasures

Medical countermeasures, including diagnostics, vaccines, and antiviral drugs were important resources in the response to Pandemic (H1N1) 2009. However, many countries around the world faced enormous challenges in acquiring these countermeasures due to the lack of availability and/or access to them. Instead, many countries had to rely on international donations of medical countermeasures, a process which proved challenging for the WHO and donor countries. There were insufficient global stockpiles of antiviral drugs and a lack of capability to rapidly scale-up vaccine manufacturing capacity to address the global demand. Together, these factors contributed to delayed access to medical countermeasures by both developing and developed countries, and to delayed delivery of donations from one country to another and through the WHO.

Although preparedness efforts existed in our three countries, we were all impacted to different extents by the lack of adequate access to medical countermeasures, in particular the lack of timely access to vaccines, including types of vaccine for at risk populations, which could have helped counteract the second wave of the Pandemic (H1N1) 2009. Although countries' authorities made every attempt to assist each other, there were no trilateral policies or assistance protocols in place to allow for an expedited collaboration in this area.

Building on the existing capacity and experiences during the Pandemic (H1N1) 2009 response, Canada, Mexico and the United States intend to explore options for collaboration on:

- Establishing formal mechanisms for information exchange of domestic strategies for medical countermeasures with the goal of coordinating regional preparedness efforts to the extent possible (including research and development agendas, acquisition, stockpiling, distribution, approval, and utilization policies);
- Identifying, developing and harmonizing, to the extent possible, the regulatory systems and clinical trial capacity to determine medical countermeasure safety and efficacy enabling licensure of products needed during emergencies;
- Building and/or expanding domestic medical countermeasures stockpiles, development and/or acquisition programs by exploring innovative financing and procurement mechanisms, investments in accelerated development of new and more flexible technologies and platforms for development and manufacturing, and promotion of additional creative public-private partnerships; and
- Coordinating plans and principles for trilateral mutual assistance to the extent possible when doing so enhances the health security of the region including logistics for deployment, liability protections, and regulatory approval, and participating in trilateral preparedness exercises that address these topics.

Research and Development

The trilateral partner countries recognizes the need to collaborate among ourselves and with international organizations to create and strengthen research and development programs to increase the availability of antiviral drugs and vaccines, including the need for modern, innovative and flexible scientific and technology platforms for development and manufacturing capacity. This collaboration promises to enhance our abilities to respond to pandemic influenza and to strengthen the overall public health system by creating platforms, systems, and expertise that can be applied to other public health threats. As such, the three countries intend to encourage the development of linkages between experts and the active sharing of updated information on research and development related to influenza vaccines, antivirals, antibiotics, and laboratory testing methods by:

- Jointly supporting, and establishing information exchange, on basic and applied research programs for influenza vaccines, antivirals, antibiotics, and laboratory testing methods;
- Sharing information with the research community through presentations, scientific publications, and discussions at international scientific meetings and workshops as well as communicating trilaterally on research needs and areas of interest specific to seasonal and pandemic influenza and when possible develop joint research and development projects;
- Providing the scientific community with fast and open access to information such as genome sequence information in the event of an outbreak caused by a new pandemic influenza strain to facilitate the fast development of medical countermeasures; and
- Sharing real-time information, as appropriate and where possible, on the results of clinical trials for influenza vaccines in the event of an influenza pandemic as well as sharing information, as appropriate, and where possible, derived from clinical trials, registries, authorizations for emergency use, and spontaneous adverse event reporting for influenza vaccines and antivirals.

Regulatory Issues

Where feasible, the three countries intend to work to share information and develop expedited, compatible regulatory approaches for developing, approving, and monitoring pandemic influenza vaccines and potential new medical countermeasures. These efforts should include sharing information on regulatory issues and decisions, and should be complementary and aligned with other international efforts carried out by the regulatory agencies in each country, WHO, and other international partnerships such as the Global Health Security Initiative.

In preparing for a public health emergency, the three countries intend to collaborate to identify legal and regulatory challenges to the provision of mutual assistance with medical countermeasures and other supplies from national and/or international stockpiles in the event

of an actual emergency. Options for consideration could include expedited regulatory review in case of emergency use of medical countermeasures in our three countries.

Stockpiles, Distribution, and Utilization Policies

Pandemic (H1N1) 2009 demonstrated that having stockpiles of antivirals and programs in place to ensure the rapid development and acquisition of pandemic vaccines was crucial to respond to the pandemic. This prior planning accelerated the availability and access to medical countermeasures in countries where these core capacities were in place. The three countries recognize that preparedness in this area will be key to respond to future pandemics. While the three countries may have different approaches and resources to increase their medical countermeasures capacity for pandemic influenza, they intend to work together to complement their efforts by:

- Sharing strategies, best practices, and institutional points of contacts in each country, regarding the stockpiling of medical countermeasures for pandemic influenza including information about planning and/or modeling assumptions used when determining the requirements and contents of their stockpiles;
- Cooperating and identifying areas of technical assistance needed in the development of stockpiling strategies including infrastructure, cost/benefit analysis and shelf-life extension of products to maximize investment and availability, workforce development, and logistics for distribution;
- Sharing lessons learned from Pandemic (H1N1) 2009 and recommendations from WHO as well as current utilization policies with the goal of harmonizing recommendations for use of antiviral drugs (e.g., prophylaxis versus treatment only, criteria and timing for transition from prophylaxis to treatment only) and vaccines (e.g. prioritization of target populations, use of adjuvants) to maximize the impact of public communications and minimize the potential for confusion among the populations of our three countries;
- Reviewing country vaccination programs that were implemented during this pandemic with the goal of developing a clear understanding of key issues, including logistics, distribution, use, equity, public perception, safety of the vaccine, and the adequacy of in-country vaccine safety monitoring systems; and
- Developing protocols, and/or comprehensive standard operating procedures, to expedite potential deployment of countermeasures, when feasible, among the three countries and to WHO and/or other recipient countries in the event an international deployment similar to the one that occurred during Pandemic (H1N1) 2009.

Personnel Exchange

The three countries intend to work domestically with appropriate jurisdictions as well as together to facilitate the rapid exchange of public health liaisons, epidemiological, laboratory

and medical personnel. In the case of medical personnel exchange, licensure issues should be addressed, as well as credentialing, and liability protection, as appropriate.

Trilateral objectives related to the exchange of personnel include the following:

- Facilitating the ability to provide personnel assistance in a pandemic;
- Establishing public health liaisons to help coordinate preparedness activities during inter-pandemic periods; and
- Exploring the establishment of animal health liaisons to help coordinate diagnostics, sample exchange and management, collaborative research efforts, and messaging on public health risks from any animal influenza virus.

Personnel Assistance during a Pandemic

The extent to which the three countries would be able to share personnel across borders during a pandemic depends on unknown factors, such as the severity, phase and duration of a pandemic. Pandemic influenza can spread rapidly from one country to another and Pandemic (H1N1) 2009 highlights how quickly this spread can happen when one continental partner is affected. When two or more countries are involved in a public health emergency, like pandemic influenza, the potential for spread by geographic proximity, cross-boundary movement of citizens, and exchange of animal commodities including live animals highlight the need to share information between counterpart institutions at all levels, and often joint actions.

It is possible that a state or province/territory will request additional health care or public health personnel through its national government to respond to an emergency. Because each state or province/territory in the United States and Canada, respectively, controls the licensure of health professionals, the national government should encourage its states or provinces/territories to develop procedures for the exchange of licensed personnel (e.g. health care providers) that may include the temporary, rapid recognition of existing licenses or certificates. In the case of the Mexican states, the Federal Labor Law governs licensure. Thus, movement of personnel among and within the Mexican states and municipalities requires no additional procedures. Issues such as liability, indemnification, and proper documentation necessary to work in the other countries should be addressed as appropriate through relevant national, state or provincial/territorial authorities.

In order to address these issues, Canada, Mexico and the United States intend to:

- Continue to discuss opportunities for the provision and exchange of personnel, on an as needed basis, and as part of continental and/or country level mutual assistance efforts;
- Identify the roles of federal, state/provincial/territorial, local and tribal (as appropriate in Canada and the United States) governments during a public health emergency;

- Identify legal and regulatory challenges to the exchange of medical personnel, in the event of a public health emergency; and
- Identify possible federal solutions to allow the three countries to more effectively and efficiently assist one another during a public health emergency, where state, provincial/territorial and local jurisdiction is limited.

Public Health Liaisons

As a result of recommendations in the *North American Plan for Avian and Pandemic Influenza* the continental partners have established pilot programs to exchange public health liaison officers. Liaison officers proved valuable in pandemic planning and operations where they existed. Recognizing this value, the three countries intend to continue to discuss opportunities for the exchange of appropriate public health liaison officers among the key participating agencies involved in pandemic influenza preparedness to strengthen this program. The public health liaison officers are intended to:

- Act as a liaison between their countries and the host foreign public health department/agency facilitating communications, policy discussions and preparedness planning;
- Facilitate communications among countries' emergency operations centers (EOCs);
- Facilitate the exchange of comprehensive descriptions of response systems within their federal governments, including key functions and updated lists of key contact personnel for each country's public health emergency management teams; and
- Share information, including surveillance and epidemiologic data, and standard operating procedures during a response to pandemic influenza.

Animal Health Liaisons

Animal health liaison officers should be explored as a possibility to help coordinate efforts between countries when an animal influenza virus with zoonotic potential is identified. These officers would assist in the following:

- Facilitating cross-validation of diagnostics used in each country to identify the influenza strain;
- Facilitating sample transport and management across borders;
- Promoting cross-border research efforts to optimize resources; and
- Ensuring consistent cross-border animal health messaging relating to animal influenzas.

Public Health Measures

Canada, Mexico and the United States may attempt to contain a novel strain of human influenza at its source, depending on the extent of the spread at the time of detection, the evidence of transmissibility, and feasibility considerations. The three countries intend to implement the necessary public health measures to mitigate the impact of a novel strain of human influenza in North America. Such efforts might delay its arrival, slow the virus' spread, and reduce its impact in North America if the outbreak originates in another part of the world. The most recent pandemic began in North America and the three countries quickly determined containment was not feasible. This swift action freed resources for mitigation efforts and other public health measures. Education and voluntary personal preventive measures were some of the most effective mitigation measures used during the Pandemic (H1N1) 2009. However, a more comprehensive evaluation of the effectiveness of the measures implemented is still being conducted and should be shared among the three countries to inform future planning. Any public health measures employed during a pandemic should aim to allow the appropriate movement of people and cargo across mutual land borders and ports of entry in a manner that achieves the public health objective with minimal social and economic impact. Each country should gauge the severity of the influenza pandemic and implement public health measures and/or community-based interventions accordingly.

In the absence of scientific effectiveness data for many of the potential public health measures, the NAPAPI is intended to help facilitate a coordinated approach to community disease control. This should reduce the need to explain and justify divergent approaches at the time of a pandemic and may also optimize public confidence at a time of much uncertainty. Many of the recommendations are contingent upon local triggers; therefore, the timing of their implementation would not necessarily be simultaneous across the countries. Ideally, however, the types of measures should be consistent. In general, the three countries concur that when persons infected with a novel virus first appear, aggressive measures may be valuable in slowing its spread, attenuating the impact, or possibly containing an evolving pandemic. Once the virus is widespread in North America, mitigation measures may be modified based on considerations with respect to any benefit they may have.

The three countries recognize that issues of feasibility, logistics, impact, acceptability and compliance in implementing public health measures are shaped by the context in which these measures are applied.

Public health measures are to be implemented based on the objective of the response activities (e.g., containment, control, impact mitigation). The objective, and therefore the public health measures implemented, should be based on the local and global epidemiology of the pandemic and may change over the course of the pandemic.

The WHO pandemic phases and national pandemic severity metrics, proved less useful during Pandemic (H1N1) 2009 as tools for public health decisions. The three countries intend to share information on their assessment of severity and other metrics that may arise for planning purposes. Similarly, and in the context of local epidemiology, the countries intend to incorporate the updated WHO guidance regarding pandemic severity.

The countries also intend to share information on their planned approaches to public health measures such as the following:

- Public education (e.g. on hand washing, staying home from work when ill, workplace infection control);
- Use of medical countermeasures, such as antivirals and vaccines;
- Use of workplace measures and personal protective equipment (e.g. social distancing, enhanced ventilation, protective clothing, masks and personal respirators);
- School and community social distancing measures, including school closures and cancellation, postponement or modification of mass gatherings;
- Travel and border public health measures; and
- Isolation and quarantine.

The three countries intend to develop in advance, comprehensive standard operating procedures and to define institutional points of contact in each country to achieve the active sharing of updated best practices as described above.

Travel and border public health measures should be compatible with the IHRs (2005), tailored to the status of pandemic disease within North America and the level of public health risk associated with cross-border movement, and recognize the mutual benefits of ongoing trade and economic activity.

CHAPTER 5: BORDER HEALTH MEASURES

If a novel strain of human influenza emerges within or outside North America, the three countries intend to work together to slow the introduction and/or spread of the virus to/within the continent by identifying symptomatic or exposed persons as they enter and or travel between Canada, Mexico or the United States. The countries also intend to implement appropriate public health measures, consistent with and complementary to containment at source, as guided by the IHR (2005) and subjected to applicable law in each country. Emphasizing a *North American approach*, rather than individualized approaches among the three countries, could provide a means of slowing the spread of a novel strain of human influenza into our respective countries. The approach could involve disease surveillance systems coupled with appropriate public health measures at North American airports, seaports and regional perimeters.

The implementation of a North American response should remain flexible and adaptable to account for that fact that the specifics are unknown as to how a novel strain of human influenza will emerge and how a particular epidemic will unfold and spread. Nevertheless, certain unifying principles regarding a North American strategy on border protection are evident. Canada, Mexico and the United States intend to implement cooperative measures to:

- Slow the entry and spread of a novel strain of human influenza within North America;
- Mitigate disease, suffering and death;
- Coordinate appropriate border measures giving due consideration to the movement of people, live animals, and goods;
- Mitigate impacts to the economy and the functioning of our societies; and
- Facilitate the cross-border flow of medical equipment, materials, samples and reagents to assist other North American countries.

All countries have the sovereign right to control the movement of people, live animals, and goods across their borders, in a manner consistent with their international obligations. However, in the event of pandemic, highly restrictive measures to control the movement of people, live animals, and goods might initially delay but would not stop the eventual spread of a novel strain of human influenza within North America, and could have significant negative social, economic and foreign policy consequences. Less restrictive measures could potentially slow the spread of disease to/within North America with fewer significant negative consequences. Such measures include the implementation of appropriate screening of passengers at North American airports, seaports, and land borders; restrictions on trade in select animal species and products that may carry an influenza virus with zoonotic potential; public health communications and education; and other similar measures.

Individual traveler screening for influenza-like illness and risk of exposure to a novel strain of human influenza of all persons entering and/or traveling across borders within North America may help slow the arrival and spread of pandemic disease on the continent. However, such screening will not detect asymptomatic infected individuals, and individuals with influenza-like illness may not be infected with a pandemic strain. Because some asymptomatic travelers who are incubating influenza may become symptomatic while en route, overall screening effectiveness may be improved by adopting a layered approach that includes pre-departure, en route and arrival screening measures, with appropriate public health measures for individuals suspected of being infected and contacts that may have been exposed.

During Pandemic (H1N1) 2009, mitigation measures employed for residents of border and non-border communities included keeping people educated, asking sick people to exercise voluntary personal preventive measures when attending large events or traveling, and to stay home when possible. Although these measures did not contain the pandemic, they may have mitigated its impact. The quick decision of Canada, Mexico, and the United States to keep the borders open and minimize travel restrictions limited disruptions of travel and trade, avoided panic, and saved resources.

Trilateral Working Group on Border Issues

The three countries intend to establish a trilateral sub-working group on border measures under the HSWG including representation from public health, public safety, transportation, and other sectors, as appropriate. This group intends to apply a trilateral perspective to the review of border measures with the goal of improving cooperation on the prevention and mitigation of an outbreak of human influenza. The issues outlined in the sections below and the importance of public communications in implementing any measures undertaken should be addressed by this working group.

Air Travel

Pre-Departure Measures for Flights When Disease Does Not Exist In North America

The IHR (2005) require all countries to possess the capacity to apply entry or exit controls for arriving and departing travelers in response to events that may constitute a public health emergency of international concern.

Effective host-country exit measures of individuals prior to departure may reduce the risk of infected travelers exposing fellow travelers, aircraft and vessel crews, and others upon arrival. Travelers departing from affected countries may be screened prior to departure in accordance with guidance from WHO and the International Civil Aviation Organization (ICAO).¹⁵ This

¹⁵ ICAO previously adopted guidelines regarding communicable disease/avian influenza that include provisions for exit screening of international travelers from affected areas. These guidelines can be found at <http://www.icao.int/icao/en/med/guidelines.htm>.

is to be consistent with applicable domestic law, and event-specific WHO guidance, and recommendations under the IHR (2005). Thus the three countries intend to:

- Share information and collaborate on travel measures to affected countries, with the collective understanding that many factors influence the decision on such measures;
- Pursue cooperative arrangements with the international community to encourage voluntary travel avoidance for non-essential travel from any affected country; and
- Coordinate public messaging to travelers departing North America for affected countries. Where appropriate, messaging should be well coordinated and consistent among the three countries and may include information such as location of outbreaks, steps to reduce one's risk of infection and public health measures that may be performed upon arrival to affected countries and on flights returning to North America from affected countries.

Pre-Departure Measures for Flights When Disease Exists in North America

The Pandemic (H1N1) 2009 revealed that a novel strain of human influenza can emerge within North America. In accordance with the IHR (2005), North American countries are required to possess the capacity to apply entry or exit controls for departing travelers in response to events that may constitute a PHEIC. Exit measures for travelers departing North America, aimed at preventing exportation of disease, should employ a dynamic risk-based approach¹⁶ and be performed taking into account WHO and ICAO guidance, as well as with applicable law.

An integral part of measures to prevent exportation of disease from North America to other countries should be a public education and communications campaign that is well coordinated and consistent among the three nations. Messages may include information such as providing steps to reduce one's risk of infection; asking all people, well and sick, to exercise voluntary personal preventive measures when attending large events or traveling; recommending sick people stay home when possible; and providing information on public health measures that may be performed upon arrival to other countries and on flights returning to North America.

En Route Measures

Given the short incubation period of influenza and the length of some international flights, one can assume that some travelers with influenza will develop their first symptoms during the journey. Additional training of flight and cabin crews to detect and manage ill travelers may potentially decrease the risk for others on board, as well as at the point of arrival in North America. When combined with pre-departure exit measures, appropriate application of

¹⁶ Measures that are applied to individual travelers to determine the likelihood of infection with a pandemic influenza virus and that may include assessment of signs/symptoms of illness and potential exposure (travel and activity history).

screening measures may help detect those who have developed signs of illness en route. Thus, the three countries intend to:

- Collaborate to determine best practices for the in-flight management of ill travelers based on symptoms and existing reporting requirements;
- Work with international partners, aircraft operators, and other stakeholders to explore ways to improve the existing ICAO standard¹⁷ and guidance relating to the reporting of suspected cases of communicable disease and other public health risks on board aircraft bound for North America; and
- Continue developing trilateral concept of operations for the handling of reports received by air traffic services units of Canada, Mexico, and the United States of suspected cases of communicable disease or other public health risks on board aircraft.

Arrival Measures

Given the relatively short transit times for air travel when compared to maritime travel, a virus originating overseas is most likely to arrive in North America via air travel. Coordinated implementation of appropriate public health measures for aviation passengers arriving in North America may allow the three countries to slow the spread of the virus into and within the continent while minimizing the need to perform screening at mutual land borders. During a pandemic, travelers with influenza-like illness and travelers who could potentially have been exposed to pandemic influenza should undergo appropriate public health screening.

Appropriate public health messages should also be provided to travelers as part of the arrival measures. Messages should be well coordinated and consistent, where appropriate, among the three countries and could include information about how to limit the spread of disease, how to recognize symptoms, and when to seek medical care.

Canada, Mexico and the United States intend to collaboratively establish common criteria and protocols for entry screening of all travelers on flights bound for North America and, coordinate implementation of a risk-based approach to screening during a pandemic if necessary. The three countries intend to minimize arrival screening measures and maintain existing pre-clearance arrangements employed for air travelers within North America to the extent practicable.

Maritime Travel

Although maritime crew and passenger transport today represents a small fraction of total entries to North America, and longer transit times in the maritime environment may help to clarify public health risk when compared with air and land border environments, there are features of maritime travel that are important to consider. Spread of disease during maritime travel has been significant in past pandemics, and the close contact that occurs on board ships

¹⁷ Annex 9 to the Convention on International Civil Aviation, paragraph 8.15

creates an environment where influenza outbreaks may occur. Overall, reducing risk in a maritime setting is an important component of comprehensive efforts to delay a pandemic in North America. The three countries intend to:

- Coordinate any potential implementation of a risk-based approach to the screening of passengers and crew in the maritime environment; and
- Establish criteria and protocols similar to those used in aviation for exit, en route and entry screening for all maritime travelers (passengers and crew) on ships bound for North America.

Land Borders

Once disease exists in one North American country, the others are likely to experience outbreaks soon thereafter. Canada, Mexico and the United States intend to coordinate on land border issues to enhance the North American approach and best serve their respective populations. An important consideration for these coordination efforts is the logistical challenges of substantial screening at land borders. The three countries intend to:

- Coordinate any potential implementation of a risk-based approach to the screening of travelers entering the North American region by land, consistent with entry screening in the aviation and maritime environments;
- Share and coordinate common triggers, criteria and protocols for screening of travelers at land borders when certain conditions are met. These triggers, criteria and protocols should be balanced against the necessity to maintain the flow of persons, cargo and trade across North American borders; and
- Coordinate public messaging to be employed at land border crossings once disease exists in North America. Messaging should be consistent among the three countries and may include information such as location of outbreaks, steps to reduce one's risk of infection and advice on when to seek medical care.

CHAPTER 6: CRITICAL INFRASTRUCTURE PROTECTION

Critical infrastructure sectors in Canada, Mexico and the United States are interconnected and all three countries recognize that private sector entities play key and interdependent roles in sustaining critical services, delivering essential commodities, and supporting public health recommendations.

Although a pandemic threatens the health of workers, as opposed to causing physical damage to systems, worker absenteeism could disrupt the efficient flow of critical goods and services. For example, critical workers sustain the flow of electricity as well as natural gas and petroleum. These critical goods and services are part of a vast, interconnected system serving all of North America. Beyond energy and power, other critical infrastructure and key resource (hereafter, critical infrastructure) sectors, from manufacturing operations to transport, banking systems to food delivery service and the ability to provide trained medical personnel could also be affected. Moreover, a pandemic could significantly interrupt the ability of public and private sector entities to sustain critical infrastructure. Underserved populations could be disproportionately affected by disruptions in critical infrastructure.

Canada, Mexico, and the United States share interdependencies among travel and tourism industries as well as transportation and commercial facilities sectors. The travel and tourism industry is important to the North American economy, as well as a major player in the movement of and communication with the traveling public. To reduce the negative effects of a pandemic on North American critical infrastructure, the three countries intend to make every reasonable effort to:

- Coordinate before, during and after a pandemic;
- Establish a mutually supportive operating environment; and
- Assist one another in improving the resiliency of critical infrastructure in the face of the pandemic threat.

Once established, this operational framework is intended to be applicable to critical infrastructure sectors, as well as to all public owner/operators in general.

Business continuity planning is recognized internationally as a key method of providing for the continuous delivery of essential services and products during disruptions and is vital to the building of resilient infrastructure. All critical infrastructure sectors, and indeed all enterprises, large and small, public and private, including government, and non-profit community, should strive to maintain critical operations during an influenza pandemic. The three countries intend to promote business continuity planning in their public and private sectors as a key method of mitigating the impacts of pandemic influenza, providing for continuous service delivery and laying the groundwork for rapid recovery.

While the impacts of an influenza outbreak can range from a seasonal flu equivalent to a more severe event similar to the 1918 pandemic, contingency plans should be developed to reflect this broad range of potential impacts and consequences. Planning for all degrees of severity is vital for resilience both at the local level and across our borders.

Lessons learned from the Pandemic (H1N1) 2009 should be considered in future planning, which can be developed as scaled activities responding to an event similar to seasonal flu up to a more severe pandemic. For instance, surveillance systems that can facilitate early identification of the pandemic severity and infectious strain provide longer lead times and allow managers to plan accordingly. Indicators of absenteeism, such as school closings that require caregivers to stay home from work, are also important considerations for critical infrastructure owners and operators.

The North American Framework

A collaborative North American approach emphasizing and supporting critical infrastructure planning, preparedness, response and recovery processes is fundamental to the proper functioning of these essential systems within and across borders during a pandemic. This updated plan is intended to be consistent with the efforts made as part of the North American emergency management framework “to develop a common approach to critical infrastructure protection, [and] to coordinate responses to cross-border incidents.”¹⁸

Cross-border assets such as transmission lines, pipelines, and dams, need to be understood when developing plans to support emergency management and coordinated responses to cross-border incidents. Further, there needs to be recognition of the major interdependencies among Canada, Mexico and the United States that include, but may not be limited to the following:

- Canada and the United States are each other’s largest trading partners, moving over \$1.9 billion (USD) worth of goods and services across the border every day;
- Mexico is the United States’ third-largest trading partner, with over \$300 billion annually in bilateral trade between the two countries;¹⁹
- In 2010, Mexico was Canada's third most important merchandise trading partner, with slightly over C\$27 billion in two-way trade. According to Mexico's statistics, Canada was Mexico's sixth most important merchandise trading partner;
- Every year, the United States supplies Mexico with a large volume of water from the Colorado River basin, and Mexico supplies the United States with its proportional share from the Rio Grande;²⁰

¹⁸ <http://georgewbush-whitehouse.archives.gov/news/releases/2006/03/20060331.html> or <http://www.pm.gc.ca/eng/media.asp?id=1085>

¹⁹ www.census.gov/foreign-trade/balance/c2010.html#2010 http://mexico.usembassy.gov/eng/eataglace_trade.html

²⁰ www.ibwc.state.gov/html/colorado_river.html

- Canada is an important source of the United States natural gas supply; in 2008 Canada provided approximately 90 percent of United States natural gas imports and the United States and Canada supply nearly all of each other's electricity imports; and
- United States imports of Canadian agricultural/food products total more than 20 percent of total United States agricultural/food imports, while Canadian imports of United States food products account for more than 70 percent of Canadian food imports.

Critical Infrastructure Sectors

Critical infrastructure refers to the assets, systems and networks that are essential to the security, public health and safety, economic vitality, and way of life of citizens. Critical infrastructure disruptions can result in catastrophic losses, including human casualties, property destruction, economic effects, damage to public morale and confidence, and impacts on nationally critical missions. The risks are heightened by the complex system of interdependencies among critical infrastructure, which can produce cascading effects far beyond the initially impacted sector and physical location of the incident. Collaborative public-private sector efforts to enhance the resilience of critical infrastructure are essential for effectively managing disruptions and confronting the evolving threat environment.

As sovereign nations, each country organizes its infrastructure and its critical infrastructure sectors differently, and each therefore has a unique relationship with the private and public critical infrastructure owner/operators within these sectors. The United States has formally detailed the identification and protection of what it refers to as critical infrastructure and key resource (CIKR) sectors. Canada's *National Strategy and Action Plan for Critical Infrastructure*, announced on May 28, 2010, sets out a comprehensive approach among governments, industry and other stakeholders to manage broad scale protection efforts across identified critical infrastructure sectors. Currently, Mexico is finalizing a similar approach. Identification of critical infrastructure sectors is based on a practical understanding of how these systems work and their critical importance to a given country's national economic and social stability.

Canada

The goal of Canada's *National Strategy for Critical Infrastructure* (the Strategy) is to build a safer, more secure and more resilient Canada. While each jurisdiction structures its critical infrastructure program as it deems appropriate, at the national level, the Strategy advances more coherent and complementary actions among federal, provincial and territorial initiatives and among the ten critical infrastructure sectors listed below:

Energy and utilities
Information and communication technology
Finance
Health
Food
Water

**Transportation
Safety
Government
Manufacturing**

The Strategy fosters a comprehensive approach to risk-management and information sharing among key partners. This includes identifying risks to critical infrastructure, developing plans to address these risks, and conducting exercises to validate the plans.

The majority of Canada's critical infrastructure is owned and operated by the private sector, which bears the primary responsibility for strengthening the resilience of critical infrastructure. This includes the development and implementation of business continuity plans tailored to address pandemic-related impacts, such as potentially severe staffing shortages, supply-chain disruptions and the degradation of essential services.

Mexico

The United States-Mexico Border Partnership Declaration, signed on March 22, 2002, in Monterrey, Mexico, provided both countries with the basis to develop the Framework of Cooperation for Critical Infrastructure Protection (CIP).

Under this framework, the governments of Mexico and the United States share the commitment to protect their populations and critical infrastructure from terrorist attacks, natural disasters and any another eventuality that may compromise their integrity and operation. The protection of the critical infrastructure network on the border – taking into consideration the interdependency between the two countries, and vulnerabilities – represents challenges and opportunities for both countries.

Even though Mexico and Canada do not share a border, these two countries recognize that critical infrastructure protection is important in a North American context. For this reason, both countries intend to explore opportunities for collaboration through the Mexico-Canada Working Group.

For the purposes of the Plan, Mexico defines critical infrastructure as those assets, services and networks that are indispensable to the support and maintenance of the well-being of the Mexican population. Following the concept stated by the United States-Mexico CIP, Mexico has established sectoral working groups to evaluate and improve the protection of critical infrastructure within its territory.

In this context, Mexico's approach includes eight sectoral working groups: Energy, Telecommunications, Transportation, Water and Dams, Public Health, Food & Agriculture, Cyber Security and Strategic Facilities.

To protect its critical infrastructure and with an eye to taking advantage of existing programs and resources, the eight sectoral working groups correspond to each CIP sector identified.

Energy (e.g., storage and generating facilities and distribution networks)

Transportation (e.g., ports of entry)
Telecommunications (e.g., telecommunication networks)
Water and Dams (e.g., hydraulic infrastructure and bridges)
Cybernetic Security (e.g., communication and information networks)
Public Health (e.g., epidemiological surveillance)
Food & Agriculture (e.g., animal health and epidemiological surveillance)
Strategic Facilities (e.g., physical protection of strategic facilities)

United States

In the United States, the private sector owns and operates the vast majority of the country's critical infrastructure. Therefore, sustaining the operations of critical infrastructure during a pandemic, as well as the operations of those businesses that support the nation's CIKR, is to depend largely on each individual organization's development and implementation of business continuity plans tailored to pandemic-related impacts, including potentially severe staffing shortages, supply-chain disruptions and the degradation of essential services.

The United States Government identifies 18 CIKR sectors that are essential to United States security as well as to economic and social stability.²¹

Agriculture and Food (e.g., agriculture and food production, storage, and distribution)
Defense Industrial Base (e.g., production, integration, and maintenance of facilities and systems that support United States military national defense requirements)
Energy (e.g., electricity, oil, and natural gas production and distribution)
Healthcare and Public Health (e.g., hospitals and healthcare facilities, public health agencies, pharmaceutical companies)
National Monuments and Icons (e.g., buildings and structures of national or historical significance)
Banking and Finance (e.g., financial institutions and systems)
Water (e.g., drinking water and wastewater systems)
Chemical (e.g., chemical manufacturing, storage, and warehousing and distribution)
Commercial Facilities (e.g., stadiums and arenas, movie theaters, hotels, and office buildings)
Critical Manufacturing (e.g., primary metals and heavy equipment manufacturing)
Dams (e.g., dams, hydropower facilities, navigation locks, and levees)
Emergency Services (e.g., law enforcement, fire and emergency medical services, public works)
Nuclear Reactors, Materials, and Waste (e.g., nuclear power plants, research and test reactors, radioactive materials and waste)
Information Technology (e.g., information technology products and services)

²¹ As part of the U.S. Government's pandemic preparedness strategy, the Department of Homeland Security (DHS) helps support the public and private CIKR sectors in developing and implementing their essential pandemic contingency plans. The *Pandemic Influenza Preparedness, Response and Recovery Guide for Critical Infrastructure and Key Resources* was developed to assist business owner-operators and their contingency planners with enhancing their pandemic planning. The primary purpose of this CIKR guide is to encourage the U.S. private sector to act now. With this CIKR guide, DHS has provided a comprehensive tool for the CIKR sectors in the United States, and for business and industry in general.

Communications (e.g., communications systems, including wireless, satellite, and cable)
Postal and Shipping (e.g., mailing and shipping facilities and carriers)
Transportation Systems (e.g., aviation, highway, rail, mass transit, maritime, and pipeline)
Government Facilities (e.g., facilities owned or leased by Federal, State, local, territorial, or tribal governments)

Improving Critical Infrastructure Resilience

Our resilience depends on our many partnerships, especially with other levels of government, private sector stakeholders and international allies. We recognize the importance of cooperation to strengthen the resilience of our critical infrastructure and enhance the safety and economic stability of our communities to ensure, for example, safe food, secure transportation and working electricity.

Sustaining interdependent critical infrastructure operations demands commitment, mutual support and collaboration from all relevant public and private sector critical infrastructure partners. While businesses and local communities are at the forefront of the efforts to respond to and recover from a pandemic, governments should maintain situational awareness of critical infrastructure and its capabilities to respond and recover from this type of threat. In addition, stakeholders from the travel and tourism industries could be involved in discussions on pandemic response and recovery, as appropriate. Also, where appropriate, governments should coordinate timely national, regional and local support among public and private sector resources.

In July 2010, the Government of Canada and the United States Government announced the *Canada-United States Action Plan for Critical Infrastructure*.²² This Action Plan provides a cross-border approach to enhance critical infrastructure protection and resilience. The Action Plan is founded on the principle that officials from both countries should work together to ensure that our most important assets, networks and systems are better able to withstand the full range of hazards, including pandemic-related threats. It includes a commitment to share information, collaborate on risk assessments and conduct joint exercises. The Action Plan is also intended to support regional cross-border relations by promoting awareness of common critical infrastructure issues, and encouraging cooperation among State, Provincial, and Territorial authorities. While not specifically addressing pandemic influenza, implementation of the Action Plan – establishing a virtual Canada-United States Risk Analysis Cell to develop and share risk management tools and information; collaborating to ensure effective information sharing during and following an incident impacting critical infrastructure; and working together to assess risks and develop plans to address priority areas – provides a structure and mechanism for enhanced cross-border critical infrastructure planning and response during a pandemic.

²² The Canada-United States Action Plan for Critical Infrastructure was announced by the Secretary of Homeland Security and Minister of Public Safety Canada on July 13, 2010. See http://www.dhs.gov/files/publications/gc_1278689065644.shtm or <http://www.publicsafety.gc.ca/prg/em/ci/cnus-ct-pln-eng.aspx>

Joint Assessments of Risks and Interdependencies

Critical infrastructure is vulnerable to a range of risk and threats, which are continually changing and evolving. The challenge of protecting our vital assets and systems from these risks and threats is compounded because of the interconnected nature of critical infrastructure. For example, the delivery of food depends on transportation systems, which require a reliable supply of energy. The availability of energy in turn depends on the ability to make financial transactions, which are communicated over cyber networks.

Critical infrastructure is not only interconnected across sectors, but also beyond borders. For this reason, the impacts of a critical infrastructure disruption can rapidly escalate within a sector (e.g., August 2003 North American blackout²³) and may cause significant consequences from both a cross-sector and cross-border perspective. In a pandemic situation, understanding the risks and interdependencies is fundamental to providing a coordinated cross-sector response.

The countries intend to share risk analyses, vulnerability assessments and prioritization methodologies as appropriate within classification guidelines and data sharing agreements. Where appropriate, the countries also intend to develop and produce collaborative analytic products with cross-border applicability, and undertake joint and/or coordinated risk assessments. An important output of these assessments is the identification of interdependencies, including potential chokepoints and single-point failures if such nodes exist within and across critical infrastructure sectors that could be affected by a pandemic. Occurring within individual or small numbers of similar critical infrastructure owner/operators, single-point failures can be triggered when a component on which a system depends fails and has no alternate component to back it up. Any number of vulnerabilities, including those caused by single-points of failure, may increase the probability for cascading effects across sectors. To the greatest extent possible, any joint risk, vulnerability and interdependency assessment should occur prior to a pandemic outbreak to enhance compatibility and to share information on each country's approach to critical infrastructure protection.

Public and Private Sector Entities with International Operations

The three countries intend to make every reasonable effort to examine essential North American critical infrastructure owner/operators with international operations. With the entry into force of the NAFTA,²⁴ the three countries formed a free-trade area with a total gross domestic product (GDP) of more than \$16.8 trillion (USD). NAFTA has also resulted in growing numbers of companies located in the United States, Canada and Mexico operating key facilities within the borders of one of the other two countries.²⁵ These North American businesses increasingly function as a “borderless” North American commercial network.

²³ The 2003 North American Electrical Blackout: An Accidental Experiment in Atmospheric Chemistry, www.atmos.umd.edu/~russ/BlackoutFinal.pdf

²⁴ NAFTA: <http://www.ustr.gov/trade-agreements/free-trade-agreements/north-american-free-trade-agreement-nafta>

²⁵ NAFTA: A Decade of Strengthening a Dynamic Relationship, www.ustr.gov/assets/Trade_Agreements/Regional/NAFTA/asset_upload_file606_3595.pdf

They represent another element of strength and vulnerability, since disruptions of these businesses could lead to cascading effects across each country.

Borders

The three countries intend to make reasonable efforts to coordinate border actions to sustain critical infrastructure. The flow of goods and people across the border, and all of the processes and organizations that facilitate this border traffic, represent an integral part of each country's critical infrastructure. Borders also represent a significant vulnerability to the countries' interdependent critical infrastructure sectors because where cross-border movement is restricted, supply chain and personnel movements can be significantly disrupted. Thus, they may represent chokepoints that may negatively affect international commerce. Given the significant degree of North American integration, the food sector is particularly vulnerable to disruptions in cross-border trade, as there is significant cross-border movement in key farm inputs, intermediate agricultural products and final food products.

Many industries, such as the travel and tourism industry are vulnerable to restrictions in cross-border movement and restrictions may have significant affects on the economies of all three nations. Ongoing engagement with these industries in planning and response to a pandemic is essential.

Recognizing the need for a coordinated approach to border management, in May 2009, the Government of Canada and the Government of the United States announced the *Canada-United States Framework for the Movement of Goods and People Across the Border During and Following an Emergency*.²⁶ The Framework, which facilitates joint coordination and communication of border management efforts, is essential for maintaining economic stability during times of crisis and ensuring that first responders are not delayed at the border when cross-border emergency assistance is needed.

Canada has also developed a domestic *Plan for the Movement of People and Goods During and Following an Emergency*, which complements the Framework and provides the platform for establishing national priorities and communicating results to public and private sector stakeholders.

Impact of Disease versus Impact of Border Disruptions

The three countries' border actions should be well coordinated and communicated with critical infrastructure owner/operators, and should be carefully managed for the health and safety of citizens while minimizing economic disruption to the extent possible, given legal requirements relating to animal health, plant health and food safety.

²⁶ http://www.dhs.gov/xlibrary/assets/border_management_framework_2009-05-27.pdf or <http://www.publicsafety.gc.ca/prg/le/bs/mgpfrm-eng.aspx>

Pandemic Preparedness and Response Management for Critical Infrastructure

The following are to be priority measures necessary to establish a mutually supportive environment and to improve the resilience of the three countries' publicly and privately owned critical infrastructure during a pandemic:

Interagency Information Sharing: Appropriate government agencies should develop a process and mechanism for sharing information on pandemic impacts and to also include clearly established communications roles and responsibilities during and following an incident affecting critical infrastructure.

Risk Assessments: Develop and share risk management tools and information, and where appropriate, conduct joint risk assessments to enhance our collective ability to respond to and recover from a disruption in the most timely and effective way possible.

Shared Pandemic Exercises and Training: To the best of their abilities, the three countries are to endeavor to include an array of relevant public and private sector critical infrastructure partners and appropriate public health officials in their respective pandemic preparedness training and exercises.

ANNEX I: TERMS OF REFERENCE FOR THE NORTH AMERICAN SENIOR COORDINATING BODY AND THE HEALTH SECURITY WORKING GROUP

I. North American Senior Coordinating Body (SCB)

Overview and Mission

Under the North America Leaders Summit (NALS) cooperation framework, Canada, Mexico, and the United States established the SCB, composed of senior officials at the Under Secretary, Assistant Secretary, Assistant Deputy Minister level, or its equivalents from the Federal Departments or Ministries of health, animal/agriculture, homeland security/public safety, and foreign affairs. The SCB is established to:

- Serve as the senior level contact group in the event of an outbreak of animal influenza with human pandemic potential, and/or other novel strains of human influenza outbreaks;
- Create a high-level forum to discuss and facilitate trilateral collaboration on animal and pandemic influenza preparedness; and,
- Oversee the activities of the Trilateral Health Security Working Group (HSWG).

Objectives

- Advise their respective Ministers or Secretaries on emergency preparedness for and response to pandemic influenza;
- Identify and prioritize activities, gaps or areas of collaboration to enhance North American preparedness for pandemic influenza;
- Serve as the senior level interaction group in the event of novel influenza outbreak or influenza pandemic;
- Promote cross-sectoral collaboration of preparedness activities (e.g. human health, animal health and agriculture, homeland security, and foreign affairs sectors); and
- Oversee the activities of the HSWG and ensure timely development, appropriate coordination, and completion of the *NAPAPI Implementation Actions*, to the extent consistent with applicable law.

Organizational Structure

Membership

Senior officials at the Under Secretary/Assistant Secretary/Assistant Deputy Minister level (or its equivalents) from the following departments and agencies:

Canada:

- Public Safety Canada
- Public Health Agency of Canada
- Canadian Food Inspection Agency
- Foreign Affairs and International Trade Canada

Mexico:

- Secretariat of Health (Secretaría de Salud)
- Secretariat of Governance (Secretaría de Gobernación)
- Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación)
- Secretariat of Foreign Affairs (Secretaría de Relaciones Exteriores)

United States:

- Department of Health and Human Services
- Department of Homeland Security
- Department of Agriculture
- Department of State

Ad hoc representatives from other departments or agencies such as the defense, commerce and transportation sectors may be invited to join meetings as needed.

Chair

The Chair of both the SCB and of the HSWG is held concurrently by the same country. The Department, Agency, or Ministry holding the chair should be determined according to the emergency management structures in each participating country. The chair rotates among the three countries annually, with each chair serving for one year.

Administrative Support

The chairs of the HSWG provide administrative and logistical support for the SCB.

Frequency of Meetings

Meetings should be held twice a year or as called by the chairs on an as-needed basis. The meetings may be held in person, by video conference, or by teleconference.

II. North American Health Security Working Group (HSWG)

Overview and Mission

The HSWG is established under the SCB and composed of policy and technical subject matter experts from the health, agriculture, security, and foreign affairs sectors from Canada, Mexico, and the United States.

The HSWG is expected to develop and execute a comprehensive, coordinated and evidence-based approach to plan for and respond to public health emergencies caused by novel influenza outbreaks and pandemic influenza.

Collective efforts under the HSWG should enable the execution of activities to improve public health capacities and facilitate information-sharing in North America based on the best available science, sound federal government policies, and the legal support needed to enhance cross-border mutual assistance arrangements, protocols, and/or agreements for response to public health emergencies of international significance or mutual interest.

Objectives

- Advise the SCB on emergency preparedness for and response to pandemic influenza;
- Serve as the technical and policy level interaction group in the event of novel influenza outbreak or influenza pandemic;
- Develop and complete, to the extent consistent with the legal authorities of the participating Departments and Agencies, the *NAPAPI Implementation Actions* and coordinate with other Departments and Ministries, as appropriate, regarding the development and completion of implementation actions, particularly those that may affect matters within their areas of responsibility;
- Provide administrative and logistical support for the SCB; and
- Supervise the creation and activities of the animal health, border measures, and any *ad hoc* sub-working groups.

Organizational Structure

Membership

Canada:

Public Safety Canada
Public Health Agency of Canada
Canadian Food Inspection Agency

Foreign Affairs and International Trade Canada

Mexico:

Secretariat of Health (Secretaría de Salud)
Secretariat of Governance (Secretaría de Gobernación)
Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food
(Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación)
Secretariat of Foreign Affairs (Secretaría de Relaciones Exteriores)

United States:

Department of Health and Human Services
Department of Homeland Security
Department of Agriculture
Department of State

It is intended that *ad hoc* representatives from other departments or agencies such as the defense, commerce and transportation sectors be invited to join meetings when issue within their areas of expertise are being considered.

Chair

The HSWG is to be chaired or co-chaired by representatives of appropriate government departments/agencies or ministries as established according to each country's emergency management structure. The chair rotates among the three countries annually, with each chair serving for one year. Where deemed appropriate by that country, the chair may involve co-chairs established between more than one government department, agency, or ministry.

Administrative Support

The country holding the HSWG chair should provide a point of contact for administration of the SCB and HSWG.

Frequency of Meetings

The Working Group intends to meet initially every other month or more often as needed during the Plan implementation. HSWG meeting summaries are to be provided to all members and should include, at a minimum: participant lists, action items, and decisions or recommendations.

ANNEX II: AVIAN INFLUENZA²⁷

Avian influenza (AI) is an infectious and contagious viral infection affecting most species of wild and domestic birds. Infrequently, the virus has been found to cross into and cause disease in unrelated species including pigs, cats, dogs, ferrets, martens and humans. Transmission of the virus from one bird to another occurs primarily through direct contact – typically through contact with respiratory secretions or feces. Airborne transmission may occur if birds are in close proximity and with appropriate air movement. Infection with the virus may result in asymptomatic birds, as is found in many waterfowl and shorebird species, or a diversity of disease manifestations, as seen in domestic poultry, varying from sub-clinical disease, mild respiratory disease and loss of egg production to an acute and highly fatal disease. Most AI viruses found in birds do not appear to pose any significant health risk to humans.

Since 1955, virtually all highly pathogenic outbreaks in domestic poultry have been attributed to viruses of the H5 and H7 subtypes. These subtypes have repeatedly demonstrated the tendency to mutate from low pathogenicity strains to highly pathogenic forms while circulating within poultry populations.

Since 2003, trade in domestic poultry and the movement of migratory birds has resulted in the spread of the H5N1 Eurasian strains to numerous countries in Asia, Africa, the Middle East and Europe. Although the number of human infections remains low, the mortality rate in those infected is high. To date, there has been no sustained, efficient human-to-human transmission of the H5N1 Eurasian strains, so direct contact with infected birds (mainly poultry) remains the greatest risk of human infection. Of particular concern is the possibility of reassortment of genetic material between human and avian influenza viruses when they simultaneously infect the same swine or human host. This reassortment could result in the formation of a new influenza virus subtype with pandemic potential.

The World Organization for Animal Health (OIE) sets international standards for the prevention, control and eradication of animal diseases of significance. It manages the “world animal health information system” based on the commitment of member countries to notify the OIE of listed “notifiable” diseases. Canada, Mexico and the United States are OIE member countries. Consistent with OIE guidelines under the *Terrestrial Animal Health Code*, each country has a legal framework that requires the suspicion of a notifiable avian influenza (NAI) virus to be reported immediately to the competent veterinary authority. Veterinary infrastructure should be sufficient so that the competent veterinary authority can isolate and characterize the avian influenza virus, immediately investigate the suspicion of disease and respond to, control or eradicate the disease. The basis of response to any detection of NAI in poultry is contained within the OIE’s *Terrestrial Animal Health Code*.

²⁷ From the 2007 North American Plan for Avian and Pandemic Influenza; [http://www.spp-
psp.gc.ca/eic/site/spp-psp.nsf/vwapj/pandemic-influenza.pdf/\\$FILE/pandemic-influenza.pdf](http://www.spp-
psp.gc.ca/eic/site/spp-psp.nsf/vwapj/pandemic-influenza.pdf/$FILE/pandemic-influenza.pdf)

Notifiable Avian Influenza

The conditions under which avian influenza viruses are subject to OIE notification are set out in the OIE *Terrestrial Animal Health Code*. The competent veterinary authority of a country may choose to include more AI virus subtypes within its domestic notification protocols, but is encouraged to follow the OIE notification conditions in its dealings with its North American trading partners.

The competent veterinary authority of each country should notify its counterparts of any new NAI infections using pre-established contacts in the respective governments.

Zoning and Compartmentalization

In the event of an incursion of NAI virus into North American poultry, the three countries, as WTO Members, have agreed to comply with Article 6 of the *Agreement on the Application of Sanitary and Phytosanitary Measures* (WTO SPS Agreement), including Article 6.2 which requires that WTO Members “shall, in particular, recognize the concepts of pest- or disease-free areas and areas of low pest or disease prevalence.” This could entail the implementation of “zoning” or “compartmentalization,²⁸” per OIE guidelines.

When establishing a zone or compartment, the competent veterinary authority of the affected country should clearly define and document the basis for its claim that the subpopulation is a distinct zone or compartment. It should provide for sufficient human and financial resources for the maintenance of such a zone or compartment and see that the veterinary and industry infrastructures have the required technical capacity. The birds belonging to a zone or compartment should be clearly recognizable as such and measures taken for the identification of the subpopulation should be documented in detail. Confirmation of the disease-free status of a zone or compartment should be maintained through effective monitoring as well as active and passive surveillance.

Where zoning or compartmentalization has been established for the purposes of maintaining international trade, the competent veterinary authority of the exporting country should provide the importing country with the necessary documentation to confirm that the zone or compartment is epidemiologically closed and that an appropriate surveillance and monitoring system is in place to verify its disease-free status. The competent veterinary authority of the importing country may then conduct a science-based risk assessment based on the information provided by the exporting country and provide, within a reasonable period of time, written notification to the exporting country of its recognition of the

²⁸ As stated in the current Chapter 1.3.5 of the OIE *Terrestrial Animal Health Code* – 2006, ‘Compartment’ means one or more establishments under a common biosecurity management system containing an animal sub-population with a distinct health status with respect to a specific disease or specific diseases for which required surveillance, control and biosecurity measures have been applied for the purpose of international trade. ‘Zone/region’ means a clearly defined part of a country containing an animal sub-population with a distinct health status with respect to a specific disease for which required surveillance, control and biosecurity measures have been applied for the purpose of international trade.

http://www.oie.int/eng/normes/mcode/en_chapitre_1.1.1.htm#terme_compartment

zone/compartment, a request for further information or its rejection of the zone/compartment.

The following commercial poultry compartments have been identified in Canada and the United States. The commercial poultry compartments for Mexico are pending signature of the Chief Veterinary Officers' Memorandum of Understanding Regarding Compartmentalization:

- Broiler, turkey or layer breeder production flocks;
- Duck breeder and upland game breeder flocks;
- Commercial (grow out) broiler and turkey flocks (meat-type birds);
- Commercial duck and goose meat-type production flocks;
- Pullet production flocks;
- Commercial layer (table egg) flocks; and
- Commercial poultry flocks used for the production of other commercial products such as feathers (down) and *foie gras*.

Surveillance/Epidemiology

Surveillance for NAI should be aimed at demonstrating the absence of NAI virus in the poultry sectors while also acting as an early detection system for incursions of NAI in poultry and highly pathogenic NAI (HPNAI) incursions in wild waterfowl. The competent veterinary authority of a country may choose to expand its surveillance program to include the identification of more AI virus subtypes than required by the OIE. The data collected should support the risk assessment process and substantiate the rationale for all biosecurity measures in place. The surveillance system should be under the direction of the competent veterinary authority in each country.

The competent veterinary authority of each country should promote the establishment of a formal and ongoing system for detecting and investigating suspected NAI infection. Procedures should be established so that all suspected cases of NAI are sampled rapidly, that the samples collected are appropriate for the species under investigation, that there is a mechanism in place to rapidly transport the samples to an approved NAI diagnostic laboratory and that the integrity of the samples is maintained at all times. The competent veterinary authority should promote the establishment of an effective system in place for the recording, managing and analyzing of diagnostic and surveillance data. Access to real-time data is of particular importance in an outbreak situation, since it will drive the control and prevention strategies. Methodologies used should be based on the best available information that is in accordance with current scientific thinking and should be fully documented, referenced to the scientific literature and supported by expert opinion. All processes should

be transparent for the purpose of fairness, the rationality and consistency of decision making, and to facilitate ease of understanding. The surveillance systems used should be subject to periodic auditing so that all of the systems' components are functioning according to the design criteria.

Surveillance programs should include imported poultry and birds for the pet trade, as well as birds for research and zoological display purposes.

Poultry Surveillance

The surveillance program for poultry should include both active and passive data collection for all levels of the production, marketing and processing chain, and all compartments within the poultry population. Ideally, it should include all susceptible poultry species but may be targeted to poultry populations at specific risk due to types of production, contact with wild birds, trade patterns or other significant factors. Active surveillance should occur at a frequency of at least six months, or according to recognized and established national surveillance program requirements, e.g., USDA's National Poultry Improvement Plan. Surveillance methods should include both random and targeted approaches using virological, serological and clinical methods with known and validated sensitivity and specificity.

In countries, zones or compartments where vaccination has been used to prevent the spread of HPNAI, surveillance programs should utilize virological and serological testing regimens that verify the absence of AI virus circulation as set out in the OIE *Terrestrial Animal Health Code*.

Wild Bird Surveillance

Effective wild bird surveillance provides an early warning system for potential or real threats that may exist in the wild bird population. Surveillance would allow an appreciation of changes in the types of AI viruses circulating in wild birds and detect any H5/H7 subtypes present that could result in the emergence of a highly pathogenic strain in domestic poultry. Advance warning would enable the poultry sector to adopt enhanced biosecurity measures and allow poultry surveillance programs to be targeted to those populations or compartments at increased risk.

The competent veterinary authority should collaborate with wildlife agencies, universities and others to increase surveillance of wild birds, with an emphasis on waterfowl and shorebirds migrating from other mainland continents. Wild bird surveillance should be conducted at least annually during the periods when the movement or entry of migratory wild birds may pose an increased risk to domestic poultry. Wild bird surveillance programs should include active and passive methodologies and should include live and dead bird sampling.

Border Control Measures Associated with Notifiable Avian Influenza

Each country should apply proper and proportional import health measures when NAI is confirmed and reported. These measures are intended to maintain the animal health status of the importing country while minimizing the impact on the trade of poultry, poultry products and other products from avian species among Canada, Mexico and the United States. Import measures applicable to NAI should be based on the OIE *Terrestrial Animal Health Code*, including chapters on NAI and Zoning and Compartmentalization, and consistent with the WTO Agreements, particularly the WTO SPS Agreement and the NAFTA, particularly Chapter Seven, Part B (Sanitary and Phytosanitary Measures).

To enable a common approach that is both consistent and uniform among the countries, Canada, Mexico and the United States recognize that conditions for regional trade should be established to minimize unnecessary trade disruptions among the three countries. This is reflected in the understanding entitled *Guidelines for Providing “Assistance” under the North American Plan for Avian and Pandemic Influenza* and was signed by the Chief Veterinary Officers of the three countries in 2010, contained in Annex III.

The competent veterinary authorities in each country should establish links with their respective border control agencies to develop procedures to control legal imports and to detect illicit imports.

When a highly pathogenic variety of avian influenza exists outside North America, each of the three countries should enhance inspection methods to detect illicit trade in animals and commodities from the affected countries. Regulatory enforcement information related to the detection of illegal trade should be shared among Canada, Mexico and the United States.

Laboratory Practices

The laboratories conducting testing for the avian influenza virus should be authorized or certified by the country’s Reference Laboratory to perform these test methods, and should follow the tests and procedures recommended in the OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*. These include serological tests, virus identification/isolation and virus characterization. Reporting to OIE should be based on the “recognized standard,” which includes virus isolation, complete subtyping of any H5/H7, the genetic sequencing of the hemagglutinin (HA) cleavage site and Intravenous Pathogenicity Index (IVPI) testing in chickens. All viral isolations and characterizations should be confirmed at a Reference Laboratory.

Procedures should be developed so that adequate supplies of diagnostic materials/reagents are available in the event of an NAI outbreak. These procedures should include provisions for the import/export of diagnostic materials/reagents among Canada, Mexico and the United States, as well as contingencies for the rapid cross-border movement of diagnostic specimens and isolates.

Harmonization efforts under the NALS among animal health, avian-influenza-virus testing laboratories in the three countries should continue to evaluate needs for diagnostic improvements in tests used for the diagnosis of avian influenza. Linkages should be established/strengthened between the animal health and the public health laboratory systems in each country to improve the exchange of information and to enhance public health surveillance. Information technologies should be examined to identify opportunities that would enhance rapid data transfer.

Avian Influenza Vaccines

Vaccination is recognized as a valuable tool and as part of an overall comprehensive management strategy to control and eradicate avian influenza in the affected and at-risk avian populations. Although vaccination has been shown to increase resistance to infection and reduce virus shedding, it is understood that the virus is still able to infect and replicate in clinically healthy vaccinated birds. Countries employing vaccination should be able to differentiate infected from vaccinated animals, or determine the absence of NAI virus through comprehensive surveillance programs that include environmental sampling, in accordance with the OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*.

Each country should develop and implement a vaccination strategy that is effective within the scope of its disease control methodologies. This strategy should include a reliable system of monitoring and surveillance to identify rapidly any serious problems arising from the use of vaccines.

The competent veterinary authorities of the three countries intend to develop protocols to harmonize the circumstances under which vaccines would be employed. International arrangements or agreements should be developed to provide for an adequate supply of avian influenza vaccine in the event of a North American outbreak, including a mechanism for the rapid cross-border movement of vaccines.

Personnel

The three countries should regularly assess the capacity of their operational and laboratory systems provide for sufficient capacity for the performance of routine surveillance as well as of expanded surveillance during NAI isolation in domestic poultry or wild birds. The competent veterinary authority should have emergency disease response contingency plans in place and the capacity to deploy properly trained staff to manage and direct disease eradication and control measures when required.

The three countries may seek the assistance of staff with skills and experience from international sources to respond to an avian influenza outbreak. Contingency plans to expand the available resource base should be in place in the event that current resources are exceeded, and should be shared among Canadian, Mexican and United States veterinary authorities. Procedures that would allow rapid entry and deployment of emergency responders across international, provincial and state jurisdictional boundaries should be considered within the contingency plans of each country. The competent veterinary authorities should identify and address barriers to the movement of animal health/veterinary personnel across international,

provincial and state jurisdictional boundaries. Countries should have well-developed health and safety protocols for personnel that may be exposed to the virus, including the use of influenza vaccines and antiviral medications where necessary. Contingencies should include the possibility of exposure to NAI strains, which have the potential to result in human-to-human transmission.

Avian Health Information Sharing and Notification

The three countries should strive for open communication and sharing of information regarding the occurrence of NAI virus in domestic poultry so that proper, responsible and proportional import health measures can be applied by each country when NAI virus is confirmed and reported. When requested, Canada, Mexico and the United States intend to share with one another information on their isolates of NAI virus in poultry and highly pathogenic avian influenza (HPAI) virus in wild birds, and in birds other than poultry. Confirmation of NAI should include virus isolation, H5/H7 complete subtyping and genetic sequencing of the HA cleavage site of the HA protein. Notifications of any NAI should follow OIE guidelines as well as chief-veterinary-officer-to-chief-veterinary-officer formal arrangements, and should occur between the corresponding import/export staff of each country. These notifications should minimize the impact such measures would have on the trade of poultry, poultry products and other products from avian species among the countries.

Avian and Human Health Interface

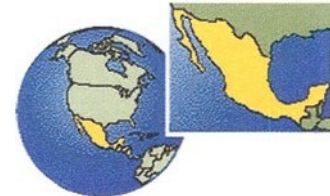
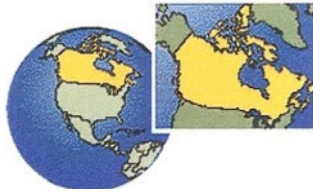
The emergence of the highly pathogenic H5N1 viruses has demonstrated the potential zoonotic impacts of certain strains of HPAI viruses given a coincident combination of epidemiologic factors – susceptible host, agent and environment – according to the principles of the epidemiological triad. Two of the most effective methods of protecting human populations from exposure to NAIs are by prevention and control of any exposure to domestic poultry of NAIs and by rapid containment and eradication of NAI-infected birds should an introduction occur. Prevention of domestic poultry exposure can be best achieved through the implementation of comprehensive surveillance programs, biosecurity protocols and adoption of effective import controls. Prevention of human exposure can be best achieved by adopting procedures to protect the health of individuals working in environments where HPAI virus may be found and by organizing public education programs on the importance of good hygiene and sanitation practices. Human health authorities should develop contingency plans that identify the risk to human health of low pathogenicity and highly pathogenic avian influenza viruses in wild and domestic birds, and should adopt appropriate response measures to manage the potential risks for the human population at risk.²⁹

Human health authorities in Canada, Mexico and the United States should share best practices in occupational health, infection control and personal protective measures to reduce potential risk to human populations.

²⁹ The Public Health Agency of Canada has developed guidelines entitled “Human Health Issues Related to Avian Influenza in Canada,” available at http://www.phac-aspc.gc.ca/publicat/daio-enia/pdf/nat-ai-guide-2006_e.pdf

The competent veterinary authorities in the three countries should establish the appropriate contacts within their respective public health sectors for the purpose of consistency in the approach to public communications. Regular meetings should be held to review the communications framework, to identify emerging issues and to share communication products, where appropriate.

**ANNEX III: CHIEF VETERINARY OFFICERS
AGREEMENT**



GUIDELINES FOR PROVIDING "ASSISTANCE" UNDER
North American Plan For *Avian & Pandemic Influenza*
(A) CHIEF VETERINARY OFFICERS' ARRANGEMENT
FOR SHARING OF AVIAN INFLUENZA VACCINE and
(B) CONTINGENCY PLANS TO EXPAND PERSONNEL
WHEN HIGHLY PATHOGENIC AVIAN INFLUENZA
HAS BEEN CONFIRMED IN
CANADA, MEXICO OR THE UNITED STATES¹



¹ ANNEX I Chapter 3 Avian Influenza Tasks A + B from Major Tasks from North American Plan For Avian & Pandemic Influenza (August 2007), pg., 34

Forward

The "North American Plan *For Avian & Pandemic Influenza*" was developed as part of the Security and Prosperity Partnership of North America in August 2007. Annex 1 listed "Major Tasks" in accordance with the North American Plan for Avian and Pandemic Influenza and in furtherance of the goals set forth therein. The Governments of Canada, Mexico and the United States committed to continue to work together to accomplish actions. The Annex was developed to assist the SPP Coordinating Body for Avian and Pandemic Influenza to follow-up on efforts to put the "Plan" into action.

Specific Tasks for the CFIA, USDA and Ministry of Agriculture for Mexico were:

TASK A:

- Develop international arrangements or agreements to provide for and adequate supply of avian influenza vaccine in the event of a North American outbreak, including a mechanism for the rapid cross-border movement of vaccines

TASKB:

- Put in place and share contingency plans to expand the available personnel resource base in the event a nation's current personnel resources are exceeded

TASKC:

- Share best practices in occupational health, infection control and personal protective measures to reduce potential risk to human populations

Only Tasks A & B are addressed in this document.

The Deputy Administrator, Veterinary Services, USDA APIDS initiated an exchange of letters on April 14, 2008 with the Chief Veterinary Officers for Canada and the USDA to make arrangements for the *Sharing of Avian Influenza Vaccine when Highly Pathogenic Avian Influenza has been Confirmed in Canada, Mexico or the United States*. Canada signed the Agreement on April 24, 2008 and Mexico on May 8, 2008. This was TASK A, sharing of vaccine. The exact text and signatures have been copied into Part A of this document.

In October 2008, the CVOs for Canada, Mexico and the United States tasked the NAAH Emergency Management Working Group to develop a mechanism to implement the sharing of personnel using the International Animal Health Emergency Reserve (IAHER) framework to which Canada and the USDA were signatories in May 2004. This framework has been adapted for use within North America to be agreed in October 2009.

(A) CHIEF VETERINARY OFFICERS' ARRANGEMENT FOR SHARING OF AVIAN INFLUENZA VACCINE WHEN HIGHLY PATHOGENIC AVIAN INFLUENZA HAS BEEN CONFIRMED IN CANADA, MEXICO OR THE UNITED STATES

CANADA THE CANADIAN FOOD INSPECTION AGENCY [CFIA];

MEXICO MEXICAN SECRETARIAT OF AGRICULTURE,
LIVESTOCK, RURAL DEVELOPMENT, FISHERIES AND
FOOD [SAGARPA];

AND

UNITED STATES DEPARTMENT OF AGRICULTURE, ANIMAL AND PLANT HEALTH
INSPECTION SERVICE [USDA APHIS]

Referred to as "the Countries" collectively and the "Country" individually

PART I- INTRODUCTION

1. The Security-Prosperity Partnership provides opportunity for the United States, Mexico, and Canada to share resources. To ensure appropriate resources are made available as countermeasures against an outbreak of highly pathogenic avian influenza that threatens the poultry industries, international trade, and economic health of North America, the Chief Veterinary officers of the United States, Mexico, and Canada developed a process for requesting, receiving, sharing and reimbursing each respective country's stockpiles of avian influenza vaccines.

PART II-GENERAL GUIDELINES

2. To ensure a common approach to sharing of avian influenza vaccines among and between the Countries, movement of vaccines across borders, and re-imbusement process to replenish the respective country stockpiles of avian influenza vaccines, the Chief Veterinary Officers of the United States, Mexico, and Canada will abide by the conditions presented in this document.

PART III-REQUESTING STOCKPILED VACCINES

3. The Chief Veterinary Officers of the United States, Mexico, and Canada will consult when a confirmed case of highly pathogenic avian influenza virus has been identified in a respective Country. The consultation will include discussions regarding a decision by the respective infected Country to vaccinate and if there will be a need for assistance² from the other Countries.

Each Country will consider the epidemiology of the spread of the disease as part of the criteria needed to make a decision to share stockpiled vaccine. The requesting Country should provide evidence such as the North American Disease Spread Model³ results as well as surveillance and other epidemiologic data that support containment of the virus and justifies use of vaccine to control and eradicate the remaining infection of the disease.

Once a decision is made to share vaccines, the Chief Veterinary Officers will implement emergency operations to include rapid issuance of permits to export and waivers, if needed, to import the shared vaccines. Each Country will need to develop specific standard operating procedures for issuing permits and tracking movement of the vaccines.

PART IV-REIMBURSEMENT OF COSTS FOR SHARED VACCINES

² Guidelines for providing assistance (human resources) are outlined on pg. 3 to 8 of this document

³ The actual name of the model is North American Animal Disease Spread Model

4. Each Country holding avian influenza vaccines as an asset in responding to an outbreak of the disease in their respective Country must be reimbursed for costs of purchase, storage, and shipment of all shared vaccines. Details of how the infected and requesting Country will reimburse the donating Country will be discussed during the consultation. Following the agreed to method of reimbursement discussed in the consultation, the requesting Country will provide the donating Countries an official declaration of how the reimbursement will proceed including a time line for when stockpiles will be replenished.

UNITED STATES OF AMERICA⁴

/s/ Jere L. Durn for John R. Clifford
United States of America
Chief Veterinary Officer
John R. Clifford
Deputy Administrator
USDA, APIDS, Veterinary Services

CANADA

/s/ Dr. Francine Lord, Deputy CVO
Dr. Brian R. Evans
Chief Veterinary Officer
Executive Vice-President
Canadian Food Inspection Agency
59 Camelot Drive
Ottawa, Ontario K1A 0Y9

MEXICO

/s/ Dr. Francisco Velarde García
Dr. Francisco Velarde García
Chief Veterinary Officer
Director of Animal Health
Municipio Libre No. 377
Santa Cruz Atoyac Delegacion Benito Juarez
Mexico, D.F. CP03310
MEXICO

⁴*Note: text is re-formatted verbatim from a letter sent by the USDA on April 14 signed by Dr JereL Dick for Dr Clifford; later signed by Dr Lord April 24 and Dr Velarde 13 May 2008 for which signatures were copied

(B) Guidelines for Implementing "ASSISTANCE" Under the CHIEF VETERINARY OFFICERS' ARRANGEMENT FOR SHARING OF AVIAN INFLUENZA VACCINE WHEN HIGHLY PATHOGENIC AVIAN INFLUENZA HAS BEEN CONFIRMED IN CANADA, MEXICO OR THE UNITED STATES

RESPONSIBILITIES

Each Country will:

- A. Designate an official representative, who will activate the CHIEF VETERINARY OFFICERS' ARRANGEMENT FOR SHARING OF AVIAN INFLUENZA VACCINE WHEN HIGHLY PATHOGENIC AVIAN INFLUENZA HAS BEEN CONFIRMED IN CANADA, MEXICO OR THE UNITED STATES [CVO HPAI ARRANGEMENT] by requesting assistance, acting as liaison and administering activities conducted under this Agreement.
 - B. Implement emergency operations for dealing with highly pathogenic avian influenza.
 - C. Assess the adequacy of their respective Country's veterinary resources available to deal with highly pathogenic avian influenza.
 - D. Provide skilled and competent personnel to an infected Requesting Country on a mutually arranged basis. Skilled and competent personnel include, but are not limited to, Veterinarians and Veterinary Specialists, Animal Health Technicians, Laboratory Diagnosticians and Emergency Managers. Criteria for skilled and competent personnel are established by the Requesting Country.
 - E. Make arrangements between the Requesting Country and the Donating Country as outlined in *Annex A*.
 - F. Make arrangements as the Requesting Country as outlined in *Annex B*.
 - G. Make arrangements as the Donating Country as outlined in *Annex C*.
5. Personnel of Donating Countries are under the supervision of the Requesting Country's official representative and will abide by the public service code of conduct and all regulations brought to their attention by the responsible Requesting Country's official representative. The Requesting Country will provide full and effective briefings on these requirements.

EXTENT OF COMMITMENT

6. This CVO HPAI ARRANGEMENT is intended to serve as the framework for the mutual working relationship should an outbreak of highly pathogenic avian influenza occur. In the event of an emergency outbreak, a bilateral agreement will be entered into that will outline the funding and liability arrangements.
7. Nothing in this CVO HPAI ARRANGEMENT is intended to preclude individual Countries from providing additional assistance outside of this CVO HPAI ARRANGEMENT.

LIMITATIONS OF COMMITMENT

8. The terms and conditions of this CVO HPAI ARRANGEMENT and any continuation thereof by any Country is contingent upon the availability of funds appropriated by the legislative body or bodies of such Country in declaring an emergency response. Nothing in this CVO HPAI ARRANGEMENT is to require the Countries to obligate or transfer any funds. If fiscal resources are to transfer, the Countries are to develop a separate arrangement. Specific bilateral arrangements that may be

established in the future pursuant to this CVO HPAI ARRANGEMENT are to be contingent upon the availability of personnel and resources and funds appropriated by the legislative bodies of the Countries. Any monies allocated for purposes covered by this CVO HPAI ARRANGEMENT are to be expended in accordance with its terms and the manner prescribed by the fiscal regulations and/or administrative policies of the Country making the funds available

DISPUTE RESOLUTION

9. Should there be differences of opinion and interpretation of this CVO HPAI ARRANGEMENT or the activities and work hereunder; the Countries will resolve such differences in an amicable manner.

AMENDMENTS

10. This CVO HPAI ARRANGEMENT may only be amended by agreement in writing of all the Countries, specifying the dates on which such amendments will enter into effect.

DURATION

11. This CVO HPAI ARRANGEMENT enters into effect on the date of its execution and will remain in effect for a period of five years, and will be automatically extended for a further five year period, unless the Countries agree otherwise.

TERMINATION

12. Termination of this CVO HPAI ARRANGEMENT will not terminate or affect completion of any activities or work being carried on under this CVO HPAI ARRANGEMENT at the date of termination
13. If at any time this CVO HPAI ARRANGEMENT no longer reflects the intentions of a Country, then that Country is to promptly so notify the other Countries in writing.

UNITED STATES OF AMERICA

/s/ John R. Clifford 7/20/2010

United States of America
Chief Veterinary Officer
John R. Clifford
Deputy Administrator
USDA, APHIS, Veterinary Services

CANADA

/s/ Dr. Francine Lord July 13/2010

Dr. Francine Lord
Chief Veterinary Office
Executive Vice-President
Canadian Food Inspection Agency
59 Camelot Drive
Ottawa, Ontario KIA OY9

MEXICO

/s/ Dr. Francisco Velarde García Julio 13/2010

Chief Veterinary Officer
Director of Animal Health
Cuauhtémoc No. 1230
Santa Cruz Atoyac Delegacion Benito Juarez
Mexico, D.F. CP 0331 0
MEXICO

ANNEX A
ARRANGEMENTS TO BE MADE BETWEEN THE REQUESTING COUNTRY AND
THE DONATING COUNTRY

The Requesting Country and the Donating Country will work together to:

- A. Jointly, review the adequacy and availability of any health, travel and other insurance coverage for injury or loss to personnel while in transit to or while on assignment in the Requesting Country.
- B. Seek authorisation within their respective national legislative authorities for the transfer of funds and the use of personnel, equipment, or other items regarded as necessary to implement the activities anticipated under this CVO HPAI ARRANGEMENT.
- C. Develop an implementation plan to include the following specific details:
 - (1) The proposed schedules for the temporary assignment of personnel, including the proposed commencement date and estimated duration. The estimated duration of each person's assignment, which would generally be a minimum of 4 weeks, is subject to the circumstances of the emergency disease outbreak prevailing at the time.
 - (2) Arrangements for the Donating Country to pay the salary and overtime of animal health personnel provided by the Donating Country under this CVO HPAI ARRANGEMENT on the basis that such staff remains an employee of the Donating Country.
 - (3) Recovery time/rest for personnel after extended travel to the temporary duty station in accordance with the Requesting Country's travel regulations.
 - (4) Provision of stress counselling services for Donating Country personnel.
 - (5) Amicable consultation between the Countries to resolve any difficulties in the administration of this CVO HPAI ARRANGEMENT.
 - (6) A process by which the Requesting Country would determine the hours of work of the personnel provided by the Donating Country. The process would also specify that although the Requesting Country would determine the hours of work, the entitlement to payment for overtime would be the same as the personnel would be entitled to for overtime worked in the Donating Country.
 - (7) A process explaining the terms for reimbursement of Donating Country by the Requesting Country for all travel costs (transportation, lodging, meals and living costs); overtime necessarily incurred in the Requesting Country; and associated costs, with appropriate documentation. Living costs include telephone, laundry, and incidentals and would be reimbursed at the rate determined by the Donating Country's travel regulations. Associated costs include, but are not limited to, those for arranging flights for personnel travelling to the Requesting Country and arranging for appropriate authorisation and registration of animal health personnel to operate in the Requesting Country. Where the Requesting Country is unable to pay entitlements directly to the animal health personnel, arrangements should be put in place to ensure that payments are made to the personnel expeditiously, if necessary by the Donating Country, with later reimbursement of those costs from Requesting Country to Donating Country.
 - (8) Terms by which either:
 - (a) the Requesting Country arranges for any necessary supplemental coverage for injury or loss incurred by the Donating Country's personnel while in transit or on assignment, including travel, medical, health, life, public liability, baggage loss or other insurance; or,
 - (b) at the request of the Requesting Country, the Donating Country provides coverage for such injury or loss, and is reimbursed for the costs incurred in providing this coverage by the Requesting Country.

- (9) Confirmation that the Donating Country will, where feasible, arrange additional insurance to cover workers' compensation in respect of any injury which may occur to Donating Country personnel during travel to, or duty in, the Requesting Country, and that the Requesting Country is to be responsible for the cost of that additional insurance, and for any other Donating Country costs incurred as a result of a claim being made in respect of any such injury.
- D. Establish minimum stand-down times for personnel who have participated in the emergency disease outbreak on a case-by-case basis. Stand-down time is the amount of time personnel would have to refrain from contact with animals after returning to Donating Country.
- E. Provide a separate listing of names, titles, and complete mailing address and telephone numbers for all key contact personnel for administrative and personnel liaison.

ANNEX B
ARRANGEMENTS TO BE MADE BY THE REQUESTING COUNTRY

The Requesting Country will:

- A. Prior to the arrival of Donating Country personnel in the Requesting Country,
- (1) Assess the adequacy of its national veterinary resources available to deal with an outbreak of highly pathogenic avian influenza and whether to activate the CVO HPAI ARRANGEMENT.
 - (2) Specify the number and selection criteria for skilled and competent animal health personnel, veterinarians, animal health technicians, emergency managers, laboratory staff, specialists (epidemiologists, pathologists, virologists) - in consultation with the Donating Country and negotiate a projected schedule for assistance including commencement date and estimated duration.
 - (3) Forward the necessary material to the Donating Country for a pre-arrival briefing. This material would include technical information about the response (history, epidemiology, strategy) and administrative information (such as powers, lines of communication, cultural and behavioural expectations). Briefing notes and fact sheets would be prepared and provided to the Donating Country to provide to each individual prior to departure for their assignment.
 - (4) Provide advice to the Donating Country on all work permits, visa, immigration, health insurance and other requirements of the Requesting Country.
 - (5) Advise the Requesting Country's local immigration offices of the relationship anticipated under this CVO HPAI ARRANGEMENT with the Donating Country so as to ensure the efficient transition of personnel into the Requesting Country.
 - (6) Advise the Donating Country of a preferred date for arrival of animal health personnel and proposed domestic itinerary for transport from the international airport to the Requesting Country's work site/office and lodging accommodations.
 - (7) Provide for authorisation and registration of animal health personnel to operate in the Requesting Country, i.e. veterinary licensure, when required.
- B. After the arrival of Donating Country personnel in the Requesting Country,
- (1) Where possible, provide liaison staff to facilitate the movement of the Donating Country's personnel through the airport and to the operation site and/or headquarters.
 - (2) Provide an entry briefing for animal health personnel to include training in the local public service code of conduct, regulations, proposed work program, instruments of authority, materials, manuals of procedure, and equipment required to carry out the work. At a minimum, topics covered would include orientation to the outbreak from a national perspective, personal disinfection, surveillance procedures, familiarisation with equipment, infected premises procedures including lines of authority; case reporting procedures, situation briefs on commencement in the local outbreak centre, and cultural and behavioural expectations.
 - (3) Advise Donating Country and in-country personnel of any proposed cancellation, variation, or extension of visit.
- C. Prior to departure, conduct an exit briefing of Donating Country animal health personnel. The Requesting Country will consolidate responses and provide feedback to the CVO HPAI ARRANGEMENT Countries to improve future outbreak responses.

ANNEX C
ARRANGEMENTS TO BE MADE BY THE COUNTRY

The Donating Country will:

- A. Continue to pay the salary and overtime of animal health personnel on "loan".
- B. Prior to arrival in Requesting Country,
 - (1) Select animal health personnel and provide details of the animal health personnel competencies and professional qualifications for registration as required by the Requesting Country (i.e. for veterinarians).
 - (2) Make the Requesting Country aware of any overtime restrictions pertaining to individuals on assignment.
 - (3) Arrange for an official passport, international driver's license and any other entry documentation that may be required (e.g. work Visa).
 - (4) Provide animal health personnel with a pre-departure briefing including administrative details, travel claims, media restrictions, emergency contacts, and disease precautions (including biosecurity provisions for the return home).
 - (5) Identify a team leader per contingent and communicate the team leader's name to the Requesting Country. The team leader could be a member of the contingent currently going to the Requesting Country or a separate person assigned to act as team leader for multiple contingents coming to the Requesting Country.