PUBLIC-PRIVATE PARTNERSHIPS: STRENGTHEN THAILAND'S HEALTH SECURITY IN CONFRONTING EMERGING INFECTIOUS DISEASES

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ABSTRACT

Title of Dissertation	Public-Private Partnerships: Strengthen Thailand's Health Security in Confronting Emerging Infectious Diseases
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The emergence/re-emergence of pathogenic organisms is putting national healthcare systems under severe strain. Infectious diseases are among the root causes of death and disability in an outbreak. As such, ensuring the development of adequate resources and access to healthcare services has become an increasing priority for the national agenda. Governments across the world are increasingly turning to PPPs as the primary mechanism for delivering healthcare services to meet this growing demand for national health security. Currently, there is a large number of public health PPPs that have been established in the public health sector over the past few decades. However, there is a little information available on the necessary conditions leading to public health PPPs for pandemic influenza preparedness in Thailand. To address this need, this dissertation will explore whether these PPPs projects are effective in strengthening the national preparedness for Thailand in the future. It examines the underlying philosophy of PPPs, their objectives and the rationales for PPPs partnerships, as well as their implementation and the effective management of PPPs.

There appear to be several 2 key PPPs for pandemic influenza preparedness; The Influenza Foundation of Thailand (IFT), and the Technical Assistance of GPO-Kaketsuken projects (GPO-Kaketsuken). These projects aim to create public health readiness for pandemic influenza preparedness. They provide public health actors with the support and technical assistance needed at the initial stage of a national strategic plan by helping public actors increase their capacity to deal with influenza outbreaks. The PPPs also serve as the first step in creating an integrated national strategic agenda, given that PPPs are fundamental to the overall strategy of the nation.

This dissertation also sets out the key components of public health PPPs that are the essential elements for pandemic influenza preparedness. National pandemic preparedness plans are central to mitigating public health consequences and the social and economic disruption caused by a pandemic. It is, therefore, critical that any determinant of the effectiveness of PPPs for public health reflects their success in mitigating the impact of a pandemic influenza outbreak in the future. Meanwhile, governments should be encouraged to update, or develop comprehensive preparedness plans. The private organizations that participate in PPPs projects, IFT and the collaboration of GPO-Kaketsuken, are committed to playing a part in supporting pandemic preparedness. The main contributions from private to public, which serve the greatest need for the public, are technical and financial support. Whereas, the main contributions from the public, which serve the greatest need for private institutions, are financial and access to policy makers.

Effective training and education of the IFT PPP reflects, not only the needs of pandemic influenza preparedness, but also the administrative capacity of a government in confronting emerging/re-emerging infectious disease outbreaks in the future. However, there is no delivery instrument to determine the effectiveness of the GPO-Kaketsuken at the moment. Product development PPP projects will depend on a clear and consistent national plan and strategy for promoting drug development research, which needs to be evaluated once the project outcome delivery is available.

This dissertation will also develop a, resource dependence and inter-organizational relationship theory driven, empirical framework that demonstrates the effectiveness of PPPs in public health. This will be the most important contribution of this thesis to the literature. Current literature on PPPs in public health, in particular for pandemic influenza preparedness, pays little attention to integrating theoretical elements into a cohesive framework that helps explain the domains of building PPPs. The proposed framework of this dissertation will fill these gaps.

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ABBREVIATIONS

Abbreviations	Equivalence
AI	Avian Influenza
APSED	Asia Pacific Strategy for Emerging Diseases
ASEAN	Association of Southeast Asian Nations
GPO	Government Pharmaceutical Organization
IFT	Influenza of Thailand
IOM	International of Migration
IORs	Interorganizational Relationship
HBM	Health Belief Model
MoPH	Ministry of Public Health
NDRF	National Disaster Response Force
NGO	Non-Governmental Organisation
NIH	National Institute of Health
PIC	Pandemic Influenza Contingency
PPP	Public-Private Partnerships
R&D	Research and Development
RDT	Resource dependence theory
SARS	Severe Acute Respiratory Syndrome
UN	United Nations
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
US-CDC	The United State of America -Center of Diseases Control
WHO	World Health Organization
WHO SEARO	World Health Organization Regional Office

CHAPTER 1

INTRODUCTION

1.1 Background

The environment of today's world is highly complex and changes rapidly, increasing the strain on public health systems with constantly changing disease patterns and increasing the need for ever more sophisticated healthcare technology. It is impossible to imagine any single organization capable of providing these services without the support of an institutional partnership.

Governments across the world are looking for ways to bring into balance a number of competing policy achievements against overall budgetary constraints and evolving health technology requirements (Mahmoud & Levin, 2007).

Nowadays, the face of public health care is also changing at a rapid pace. Governments and international health organizations, once the central players in public health policy, are looking to the private sector for collaboration. In the mean time, private for-profit organizations have come to realize the importance of public health goals and to accept a broader view of social responsibility as part of their corporate initiatives (Reich, 2002). In the international healthcare field, health is seen as "… an overall systems goal, not just the responsibility of the health sector …" (Kickbusch, 2003).

Public -Private Partnerships (PPPs) are being worked to make government and private industry more engaged for healthcare delivery. For more than two decades PPPs have been used to infrastructure financing. Now governments are increasingly looking to the collaborations to solve substantial problems in national health security.

PPPs at a national level are important if partnerships are to remain a dominant mechanism within the development and the health policy landscape in order to build up a reliable resource on which recommendations for best practice can be based. Partnerships are deemed economically advantageous mechanisms as they reduce the

costs and risks involved and are socially useful because they increase networking by improving trust and reciprocity (Moran, Guzman, Ropars, & Illmar, 2010).

Infectious diseases of both a global and national nature are becoming more prevalent. Unlike other diseases, infectious diseases depend on the biology, climate and human behavioral patterns changing. Efforts by national governments and international organizations to prevent and control pandemics in the region have been instrumental in mitigating public health disasters (Anthony & Rosalie, 2008).

The World Health Organization (WHO) has emphasized the importance of the Asia–Pacific region as a potential epicenter for emerging diseases, such as severe acute respiratory syndrome (SARS) and avian influenza. Over the past three decades, more than 30 emerging infectious pathogens have been detected in this region (WHO, 2005).Thailand and neighboring countries are at serious risk of experiencing an emerging infectious disease (World Health Report, 2008). Future preparedness is crucial, because emerging infectious diseases of a global or regional nature threaten the health and lives of mass populations as well as potentially knock out economic activity.

Neither public nor private organizations are capable of resolving the public health threat of emerging infectious diseases individually. Public sectors around the world have successfully engaged with the private sector in remitting these public health concerns. A plenty of health challenges, combined together with resource constraints, make it essential for professionals in the public sector to learn how to successfully coaliation the private sector in order to accomplish public health goals.

Reich (2002) defines a public–private partnership (PPP) as a partnership that involves at least one private for-profit organization and at least one public, or not-for-profit organization which aims to create social value, generally for disadvantaged populations and shares both efforts and benefits among the partners. He argues, “Partnerships can produce innovative strategies and positive consequences for well-defined public health goals, and they can create powerful mechanisms for addressing difficult problems by leveraging the ideas, resources, and expertise of different partners.”

While PPPs hold much promise, they are confronting a variety of issues and challenges (Hodge & Greve, 2005), such as the issues surrounding public accountability,

risk management, and governance, which must be considered before passing judgment on the success of any given project which is implemented as a PPP. Understanding the nuances of PPPs requires the implementation of theoretical frameworks and models from several disciplines. Some of those primarily address issues such as management practices, organizational structures, strategic planning or governance. While others focus on the substantive nature of the PPPs, e.g. development of a transportation infrastructure, water system, health-related projects, etc.

The study on the capacity of Thailand to contain an emerging influenza pandemic identified that Thailand is likely to have some resource gaps in an emerging influenza pandemic. Additionally, the lessons learned from the Influenza Pandemic Response in Thailand revealed that those actions taken were largely appropriate and proportionate to meet the needs (Putthasri et. al, 2009).

1.2 Significant of the Study

The value of PPPs contributing to general public is well recognized and is published in several articles (Hodge & Greve 2005; Reich 2002; Moran, Guzman, Ropars, & Illmar, 2010). However, we know very little about the effectiveness and success of partnerships in public health. Partnerships can produce cutting-edge strategies and inarguable consequences for well-defined public health ambitions, and they can create robust black box addressing difficult problems by leveraging the view points, resources, and expertise of particular partners.

At the same time, the rules of the game for public-private partnerships are ambiguous and not well-defined. Therefore, no single formula exists and establishing an effective partnership requires abundant effort and risk. The important challenge is how these organizations, with different values, interests, and views collaborate together to address and courage essential public health issues.

Thailand is particularly susceptible to the risk from emerging infectious diseases, due to increasing migration and travel, high public density in urban areas and more rapid spread of tropical diseases due to climate change. The effort and capital to invest in preparedness and response plans, which are also important, has proven to be costly. The key question, then, is how can governments, businesses and

international organizations collaborate to build systemic security against the threat of emerging infectious diseases, as well as ensuring rapid action to minimize economic and social costs when unanticipated diseases hit (Ungchusak K., Sawanpanyalert P., Hanchoworakul W., Sawanpanyalert N., Maloney A. M., Brown R.C, Birmingham E.M., and Chunsuttiwat S., 2012).

In 2009, Gresham et. al. demonstrated that trust across borders can be built through disease surveillance networks. The study conducted in the Middle East, Southeast Asia, and Africa revealed that transnational cooperation could mount the required flexible and coordinated response to the spread of the 2009 H1N1 influenza and future pandemic threats Gresham, Ramlawi, Briski, Richardson, and Taylor, 2009).

The importance of PPPs in national health security is made achievable by reliance and by well-exercised national and supra national pandemic preparedness policies. These findings are compulsory to promoting health security and cooperation. The co-operation in developing disease control policies can build trust across the most difficult boundaries in the world (Gresham, Ramlawi, Briski, Richardson, and Taylor, 2009).

PPPs have been identified in several measures of Thailand's National Strategic Plan for Pandemic Preparedness (2013-2016). But there are few cases of such partnerships and frameworks that have been well established. Those partnerships will need to prove as effective and become a model for PPPs to strengthen Thailand's health security in particular for preparedness and response to the future outbreaks.

The collaboration between public and private organizations is very important for pandemic preparedness. The concept of the use of PPPs to mitigate the risks, while the country is faced with the threat of emerging infectious disease, is a relatively recent phenomenon. After the relatively mild H1N1 pandemic in 2009, a lot of trust needs to be re-built. Effective PPPs projects are crucial to strengthening Thailand's national health security.

This study is based on the existing approach of public health PPPs embedded in the national pandemic preparedness plan and aims at contributing to the PPPs theory that can better enable the use of PPPs in Thailand's public health community. It will also illustrate the effectiveness of public health PPPs ability to achieve

Thailand's national public health goals on pandemic preparedness. The expected outcome of the study is to demonstrate that public health PPPs will facilitate the public health readiness and strengthen national health security.

1.3 Objective of the Study

The objective of this study is to illustrate the value of the contributions of public health PPPs projects which target a national pandemic preparedness plan for Thailand. The study will explore the objectives and rational for establishing these PPPs. Furthermore, the impact of PPPs will also be identified to demonstrate that effective PPPs are able to strengthen the public health system in preventing, or mitigating the risks of influenza outbreaks.

1.4 Research Questions

In Thailand, designing and managing the implementation phases of public health PPPs remains largely under explored. In the main, the few research attempts in this field were aimed at documenting and assessing certain aspects of PPPs activities in public health. However, the deficiency in public health PPPs project management, both in theory and practice, in Thailand and internationally, represents a significant gap in the current PPPs literature and presents a problem, because poorly managed public health PPPs are more likely to result in potential failure, particularly in developing countries like Thailand, where resources are scarce.

The current study is significant in attempting to answer the following principal research questions and to explore how public authorities and private entities can collaborate to build effective PPPs in order to strengthen national preparedness for action for influenza disease outbreaks in the future.

There are three research questions to explore that are relevant to public health PPPs in pandemic influenza preparedness that will be addressed, as follows:

1) What are the objectives of the PPPs arrangement?

2) Why public authorities and private entities participated in public health PPPs?

3) How these PPPs projects are an effective method to strengthen national preparedness for action in the future?

1.5 Scope and Limitations of the Study

1.5.1 Scope of the Study.

This study is based on the mixed research method to examine public health PPPs for a pandemic in Thailand. Within the research method, a qualitative research method was conducted to identify public health PPPs arrangements that closely aligned with the objectives of this study. This can be especially useful when relationships between individual organizations, and the larger context are not clear (Yin, 2012). The case study will explore how public authorities and private entities can collaborate to build effective public health PPPs against the threats of influenza disease outbreaks. Furthermore, quantitative research will also be conducted to determine the effectiveness of PPPs projects.

This study uses an embedded case study design in which the primary case (PPPs projects) is examined within a larger case (influenza pandemic preparedness). The case study is surrounded and influenced by contextual forces, specifically, public health policy, international health regulation and international alliance policies. This structure is useful for examining relationships between PPP initiatives and the policy arena, as well as changes over an extended period of time.

Initially, the study used the documentary research method to assess and evaluate all relevant national preparedness plans for influenza outbreaks/pandemic. Then, the researcher organized the method of locating, assembling, and evaluating a body of literature on PPPs for influenza preparedness plans using a set of specific criteria to identify the effectiveness of public health PPPs. The systematic review contains a description of the findings of the collection of research studies. A quantitative pooling of data is also included. A quantitative method to demonstrate the outcome of an effective PPPs project will also be taken in to account.

1.5.2 Limitation of the Study

This study focused on the public health PPPs which are addressed in the current National Strategic Plan for Prevention, Control, Preparedness and Response to

Avian Influenza, Influenza Pandemic, and Emerging Infectious Disease (EIDs), 2012-2016, in light of pandemic influenza preparedness which has been ranked as the top priority for action from the national and supranational organizations throughout the world.

1.6 Benefits of the Study

It is important for public authorities and private entities in Thailand to work together in developing PPPs for public health in order to prepare for future infectious disease outbreaks in order to strengthen national health security.

From the study, the research derives findings for resource dependence theory, inter-organizational relations theory, networking theory and the implications of the public health PPPs. The effectiveness of the partnership between public authorities and private entities which may have an impact the national health security will also be identified.

1.7 Organization of the Study

The research is separated into five chapters to provide the reader with a sequential view of the study and the results. The introduction chapter is the first chapter that lays out the issues and provides a brief narrative of the study.

The literature review in chapter two consists of eight primary sections. The first section defines and investigates PPPs. The second section covers Resource Dependence Theory (RDT). The third section discusses inter-organizational relationship theory (the foundation for this research) by examining the public administration literature focusing on PPPs and inter-organizational networks. In the fourth section is the Logic Model. The fifth section identifies the associated literature that provides an overview of health security and the sixth section discusses the impact of emerging infectious diseases and pandemics. The seventh section identifies the preparedness plan for a pandemic. In section eight is the Health Belief Model and the final section is the conceptual framework. In this chapter the relevant theories and approaches to answer the research questions are reviewed. The theories reviewed are the basis for

the framework for answering the research question and for the discussion of the findings of the analyses.

Chapter three is the research methodology chapter which identifies the steps used to collect and analyze data and the details used to explain the documentary research. In-depth interviews, quantitative and quantitative research are also mentioned in the study design.

Chapter four contains the research results that illustrate the findings to research questions on how public authorities and private entities can collaborate to build effective public health PPPs in order to improve pandemic readiness competencies against the threat of influenza disease outbreaks.

Finally, chapter five is the conclusion, contributions and recommendations. Chapter five is also a discussion of the analysis of the findings and subsequent contribution to the field of how public health PPPs are contributing to the effectiveness of the national preparedness program for pandemics.

CHAPTER 2

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1 Public Private Partnerships (PPPs)

PPPs can be defined as the public sector or private business venture which is funded and operated through a partnership of the government and one or more private organizations (PricewaterhouseCoopers' Health Research Institute, 2010). Moreover, PPPs can be described as a contract between a public sector authority and a private sector organization operating as a legal entity (Aginam, 2007). The government provides the support of its authority, outlines goals for an optimal public management system, and empowers the private sector to innovate, build, maintain and/or manage delivery of agreed-upon services over the term of the contract. The private sector receives payment for its services and assumes substantial financial, technical and operational risk while benefitting from the upside potential of shared cost savings (Barlow, Roehrich, & Wright, 2013). PPPs are not easy to define as they refer to many different types of entities resulting in little consensus as to the definition of a PPP (Ridley, 2001). Lob-Levzt (2001) identified that "these partnerships can produce innovative strategies and positive consequences for well-defined public health goals, and they create powerful mechanisms for addressing difficult problems by leveraging the ideas, resources, and expertise of different partners" (Lob-Levzt J., 2001).

2.1.1 The Nature and Attributes of Partnership

The dictionary definitions the term of 'partnership' (from The American Heritage® Dictionary of the English Language, 2009) as the state of being a partner and that of a relationship between individuals or groups that is characterized by mutual cooperation and responsibility, for the achievement of a specified goal. From the review of literature, there are many references to the attributes of a partnership. The key characteristics include, the need for trust, governance structures, equity,

respect, the sharing common goals, agreed objectives and transparent lines of communication between partners (Robinson & Cottrels, 2005; Masterson, 2002; Buse & Walt, 2000a; Gallant, Walsh, & Carroll 2002).

From the concept analysis framework published by Carnwell and Buchana in 2005, the attributes, antecedents and consequences of a partnership are addressed in table 2.1 (Carnwell & Buchana, 2005).

Table 2.1 Attributes, Antecedents and Consequences of Partnerships

	Partnership
Defining attributes	1) "Trust and confidence in accountability" 2) "Respect for specialist expertise" 3) "Joint working" 4) "Teamwork" 5) "Blurring of professional boundaries" 6) "Members of partnerships share the same vested interests" 7) "Appropriate governance structures" 8) "Common goals" 9) "Transparent lines of communication within and between partner agencies" 10) "Agreement about the objectives" 11) "Reciprocity" 12) "Empathy"
Antecedents	1) "Individual, local and national initiatives" 2) "Commitment to a shared vision about the joint venture" 3) "Willingness to sign up to creating a relationship that will support the vision" 4) "Value cooperation and respect of what other partners bring to the relationship"

Table 2.1 (Continued)

	Partnership
Consequences: Benefits	1) "Social exclusion tackled more effectively through multi-disciplinary action" 2) "Less repetition of service provision from different organizations" 3) "Less dilution of activities by agencies" 4) "Less chance of agencies producing services that are counter-productive to each other"
Consequences: Barriers:	1) "Complexity of relationships" 2) "Representativeness of wider public" 3) "Tokenism and excessive influence of vocal groups" 4) "Desire of individuals not to be involved in making decisions about their care" 5) "Threat to confidentiality" 6) "Role boundary conflicts" 7) "Inter-professional differences of perspective" 8) "Threats to professional identity"

Source: Carnwell & Buchana, 2005, pp. 8-9.

2.1.2 PPPs for Health

According to the data from Pricewaterhouse Coopers Health Research Institute published in 2010, it revealed that incremental healthcare expenditure is putting pressure on governments to seek financial alliance from private (Pricewaterhouse Coopers Health Research Institute, 2010). Nowadays governments are increasingly looking to PPP arrangements to solve larger problems in healthcare delivery. There is not a country in the world where healthcare is financed solely by the government. "… the provision of health is widely recognized as the responsibility of government, private capital and expertise are increasingly viewed as welcome sources to encourage efficiency and innovation. As PPPs move from financing

infrastructure to managing care delivery, there is an opportunity to reduce the overall cost of healthcare" (Widdus, 2003).

PPPs for healthcare are an arrangement of cooperation of various types, with the common objective of improving health care, combining the best the public sector (regulation protection of the public interest) and the private sector (creativity, technology, management and finance) have to offer and avoiding the excesses of either an exclusively public service, or a fully private one. Healthcare PPPs also encourage all the partners to make sure that the PPP increases equity and improves access and efficiency in healthcare for patients. Several studies on PPPs for healthcare described how performance metrics and financial details are frequently viewed as confidential. However, it was argued that where there was discussion of transparency there was a risk of misinformation, or the distortion of the limited information available. Indeed many countries do not regularly monitor the performance of their PPPs, which leads to ineffective project management.

There are many PPPs for healthcare which have been established within the last ten years (Kettler, White, & Jordan, 2003). The question though is whether PPPs for the public sector have the ability to operate in the public's interests. PPPs for healthcare should be distinguished from the trend to privatization (Widdus, 2001). Literature on PPPs for healthcare are replete with synonyms referring to the need for health and social care agencies to 'work together' more effectively in 'partnership' and in 'collaboration' (Carnwell & Buchan, 2005). The words 'partnership' and 'collaboration' are frequently used interchangeably, often within the same paragraph or even sentence. From the public health sector perspective, the public health policy goal and the rules under which for-profit entities operate are set and enforced solely by government agencies. The premise of PPPs for public health is different from that for PPPs not related to health. Firstly, partnerships for public health must commit to social values as the fundamental guiding pillar. Second, PPPs for public health must aim at improving the health and well being of the population (Reich, 2000; Reich, 2002). The definitions of public-private partnerships are described in table 2.2.

Table 2.2 Summary of the Definitions of Public-Private Partnerships for Health.

Author	Definition
Ridley, 2001, p. 694	"…it implies a commitment to a common goal through the joint provision of complementary resources and expertise, and the joint sharing of the risks involved".
Buse & Walt, 2001a, p. 699	"…collaborative relationships which transcend national boundaries. Each partnership brings together at least two parties, among them a corporation (and/or industry association) and an intergovernmental organization, to achieve a shared health-creating goal on the basis of a mutually agreed division of labour".
Widdus, 2005, p. 4	"Most PPPs comprise partners from three distinct spheres. These are (a) the public sector, essentially governmental agencies and those institutions at the international level that are controlled by governments, such as WHO, (b) the for-profit sector, which includes the pharmaceutical and biotech companies; and (c) the civil society sector, which includes academia, non profit organizations, such as NGOs and philanthropic institutions. Public-private partnerships are not legally joint ventures in the business sense. Rather, they are joint ventures sharing a set of attributes, the most important of which is a shared objective".
Reich, 2000, p. 618	"…these partnerships involve at least one private for-profit organization with at least one non-for-profit organization"… " the core partners provide a joint sharing of efforts and of benefits"… " (PPPs for public health) are committed to the creation of social value (improved health) especially for disadvantaged populations".
The Canadian Council for Public-Private Partnerships	"A cooperative venture between the public and private sectors, built on the expertise of each partner, that best meets clearly defined public needs through the appropriate allocation of resources, risks and rewards".

Table 2.2 (Continued)

Author	Definition
Peters, 1998, pp. 12-13	"… [PPPs] involve two or more actors, at least one of which is public" … " each participant is a principal…or must have a good deal of latitude for action" … " there is a continuing relationship, the parameters of which are negotiated among the members from the outset"… "each of the participants bring something to the partnership [material resources, authority and any symbolic values]" … " and finally a partnership implies some shared responsibility for outcomes of their activities".

2.1.3 Categories of PPPs for Health

The designation ''PPPs'' is claimed by a wide variety of arrangements. "They range from small single product collaborations with industry to large entities hosted in UN agencies or private not-for-profit organizations" (United Nations, 2005).

The word "partnership has been used loosely to include factors such as, communication, consultation, coordination, and collaboration" (Widdus, 2003). The range of PPP arrangements vary from focusing on the organizational or institutional form to the activities that they implement and the outcomes. This categorization divides PPPs into those that are product based (the donation or distribution of existing products), product development based (the creation of new products) and issues or systems based (raising awareness, funds and capacity building), (Bustreo, Harding & Axelsson, 2003).

According to Reich, 2000; Widdus, 2001, and Widdus, 2003, there are two broad categories for healthcare PPPs. The first category refers to hospital-based PPPs and the second is public health-based PPPs, this refers to the use of PPPs in delivering public health programs. The four sub-categories of hospital-based PPPs are, infrastructural PPPs, integrated PPPs, facility-based hospital PPPs and lease contracts. Whereas, the second category of public health-based PPPs, can be defined into five broad sub-categories. They are, product development, improvement of access to health products, public advocacy and increasing awareness, regulation and quality

assurance and training and education (Reich, 2000; Widdus, 2001; Widdus, 2003). The not-for-profit organizations are a bridge between public and private sector interests, with a view towards resolving the specific incentive and financial barriers to increased industry involvement in the development of safe and effective pharmaceutical products.

Based on the case study overview, public health-based PPPs are aimed at low income, developing countries, while hospital based-PPPs target mainly advanced, developed countries. It can be seen that both types of PPPs share a few characteristics. Both are not privatized, where the state relinquishes control, but each has a need for the state to oversee the project. PPPs have been acknowledged by some economists who state that these partnerships are only successful if they take into account issues of trust and reciprocity. The issues of trust and reciprocity are seen as components of social capital or the norms and networks that produce collective action. The social capital argument is one aspect of social theory that explains the usefulness of PPPs in producing tangible and intangible outputs. An aspect of social theory argues that society has fragmented so that the policy process is no longer a hierarchical process but is increasingly interactive (Engberg, 2002). Networks or 'constructive partnerships' are deemed useful when there are positive externalities whereby there is greater public than private benefit and when there is high uncertainty for private actors and high costs, including the governance costs for contract, coordination and enforcement activities.

2.1.4 Factors Contributing to the Rise of PPPs for Health

PPPs are well accepted as an innovative approach to addressing health challenges in developing countries. The preventable loss of life and disability suffered by people in developing countries is unconscionable and can no longer be ignored by countries with the funding and resources, including universities and institutes, technology and skills needed to discover and develop medicines for disease management. PPPs have existed in the United States and United Kingdom for several decades (Lob-Levzt, 2001). "…until the late 1970's there was little collaboration between the private and public sectors in health research however, by the early 1980's, changing attitudes enabled broader relationships to be formed with

international agencies looking for a greater role for the private sector" (Reich, 2000). By the 1990's, both the private and public sectors acknowledged that "a pure market mechanism generally does not work" where medicines are involved and new approaches need to be developed (Buse & Walt. 2000). Public attitudes and civil involvement facilitate the private sector to deliver corporate responsibility and accountability (Reich, 2000).

Public pressure drive the private sector to enter into PPPs as part of the business strategy of private philanthropy (Buse & Walt, 2000). Furthermore, the value in excess of contributions is an intangible part of the participation process offering crucial benefits to the partnership (Kettler et al, 2003). The values contribution from PPPs for both financial and non-financial, are the keys to the support and success of these ventures.

2.2 Resource Dependence Theory

In describing Resource Dependence Theory (RDT), it will also be important to address the success of organizational management, which is defined as organizations maximizing their power (Pfeffer & Salancik, 1978). According to Pfeffer and Salancik (1978) "….RDT proposes that actors lacking in essential resources will seek to establish relationships with others in order to obtain said resources. Also, organizations attempt to alter their dependence relationships by minimizing their own dependence, or by increasing the dependence of other organizations on them. Within this perspective, organizations are viewed as coalitions altering their structure and patterns of behavior to acquire and maintain needed external resources". The external resource acquired by an organization can be achieved in three major categories, a) decreasing the organization's dependence on others, b) increasing others dependency on it, c) modifying an organization's power with other organizations (Davis & Cobb, 2010; Drees & Heugens, 2013).

Recently, RDT has been used as a fundamental concept in social sciences research: the importance of RDT in describing the actions of organizations, by forming several patterns of partnership activities, in order to overcome dependencies (Sharif & Yeoh, 2014). RDT offers a basis with which to examine why organizations

create an environment to obtain support from the large social system and shape government regulations to yield a favorable environment for their own interest.

The improvement of organizational legitimacy is considered an important motivator for organizations to interconnect with others. Legitimacy is defined as the process by which an organization has accountability to a peer or a system, this process reinforces its right to exist (Pfeffer & Salancik, 1978). The concept refers to how well an organization is meeting the demands of the various groups that are concerned with its activities. Several organizational theorists also explain that since organizations obtain or consume society's resources, the society itself should assess the usefulness and legitimacy of the organizations' activities (Oliver, 1990; Pfeffer & Salancik, 1978). Meanwhile, the external environment imposes pressures on organizations to justify their internal activities or outcomes to the social system (Oliver, 1990).

An organization may undertake changes or redefine its operations to conform to a new concept or social value in order to attain legitimacy from other organizations and individuals (Pfeffer & Salancik, 1978). Pfeffer and Salancik also stated that managing social legitimacy is an important aspect of organizational management (Pfeffer & Salancik, 1978). Peters explains that legitimacy alludes to the members of the business community as well as other political actors, and it is relevant to ensure that the initiatives undertaken by organizations are indeed appropriate and represent the values of their members (Peters, 1998).

Control over resources or the capacity of an organization to determine the allocation or use of resources is another concept useful for understanding power and dependence. This attribute gives an organization the ability and freedom to make decisions over resource allocation and use, this being a major source of power, particularly in situations when the resources are limited. According to RDT, Pfeffer and Salancik stated that the four dimensions of control over resources include possession, access, use, and regulation (Pfeffer & Salancik, 1978).

2.3 Inter-organizational Relations Theory

Since 1960s, scholars have had a growing interest in how the environment affects organizational behavior (Badmead & Cowley, 2005). There are numerous

references in literature concerning inter-organizational relations (IORs), particularly strategic alliances, joint ventures, and social network analysis, that have increased rapidly. Especially, interest in how organizations could decrease uncertainty in the environment through collaboration. The design of the IORs, including its structure and processes, will reflect the degree of complexity of the environment in which the organization operates (Barringer & Harrison, 2000).

At the micro level of IORs analysis, inter-personal links offer individuals the opportunity to share and learn skills that will improve their personal lives. At the macro level of analysis, IORs often provide a forum for providers to share and receive knowledge which may result in improving their organization's competitiveness and profitability. It is this level of analysis that this literature review addresses focusing on the ways in which learning through IORs improves organizational life (Knight, 2002). IORs have the potential to add value to organizations through providing the possibility for organization innovation and enhancement (Dyer & Kentaro, 2000).

2.3.1 The Benefits and Critical Factors of IORs.

The factors to IORs formation include, realizing of required external resources which impact the mandatory from regulatory body (Kraatz, 1998). According to Scott, "… the benefits of interrelationships among organizations are covered by several values e.g. access to new ideas, material and other resources, reduced duplication of services, more efficient use of resources, increased power and influence, ability to address issues beyond a single organization's domain and a shared responsibility for complex or controversial issues. Meanwhile, the costs of collaboration include, diversion of organizational resources or mission, incompatibility with partner organizations' policies or positions and delays in taking action due to consensus building" (Scott, 2003).

2.3.2 Networking Partnership

Environmental changes have led organizations to react and adapt for risk mitigation. According to Kraatz (1998), IORs may also help organizations to become adjust to the environment. "These adaptations include, changing consumer preferences, eroding industry boundaries, changing social values and demographics,

change in government regulations, new technologies, and other exogenous developments" (Kraatz, 1998). A networking partnership provides researchers with a method with which to study organization adaptation.

Governments and public health supra-national organizations are looking forward to develop successful partnerships with the private sector and to build the powerful coalitions with the key stakeholders (Barlow, Roehrich, & Wright, 2013). Moreover, there are several stakeholders participate actively in developing the new way of collaborations which aim to meet their ultimate goals (Martin & Halachmi, 2012). Therefore, the need for partnerships between central government and local governments to work towards on agreed ambitions. Furthermore, partnerships between communities have been set up to support action through local partnerships (Carnwell & Buchana, 2005). There is also the need to drive demand and consultation that ensures the sustainability of partnerships.

2.3.3 Relating of IORs to Organization Theory

Organization theorists have studied the use of IORs by business organizations, governmental organizations and non-profit organizations for more than 10 years. Predominantly, "….these scholars view organizations as open systems, or those organizations that are capable of self-maintenance on the basis of throughput of resources from the environment" (Scott 2003, p. 89). Meanwhile, organizations do not operate as stand-along entities. They actively engage with other organizations. Resource dependence theory focusing on the conceptual of organization behavior in relation to interact with external environment. Table 2.3 provides a brief description of the RDT theoretical paradigm and examples of the types of IORs most likely to be linked to the paradigm.

Table 2.3 Linking IORs to Theoretical Paradigms

Theoretical Paradigm	**Description**	**Kind of IORs**
Resource Dependence	1) Related to the open systems 2) "...organizations do not operate in a vacuum-they rely on other organizations for resources and must adapt to changing external Circumstances**"**	1) "…partnerships -take advantage of complementary assets of the other firm." 2) "…consortia-firms benefit from pooling their resources to advance their knowledge" 3) "…trade Associations-members have access to professional lobbying efforts; provides forum for learning**"**

Source: Barringer & Harrison, 2000, p. 370.

2.4 The Logic Model

A large number of PPPs scholars have offered their perspective and views on why and how partners enter into partnering relationships in order to provide a deeper understanding of an effective measurement framework of PPPs for health. The general meaning of effectiveness entails the ability of an organization to achieve its goals (Koza & Lewin, 2000). These goals are assumed to be stated in the vision and mission statement of the organization, and reflected in the way the organization goes about its activities to achieve those goals. In this regard, "…. key determinants of PPPs from the business literature are essential, often echoing the frequent recommendations for greater formality and clarity in the healthcare PPPs evaluation" (Kotelnikov, 2004).

According to McLaughlin and Jordan (1999) and the McCawley (2002) studies, logic models are the tools used to identify the effectiveness of programs and enable anticipation of the resources that will be needed to achieve success.

According to the Kellogg Foundation (W. K. Kellogg Foundation, 2001), when logic model apply for program evaluation then the measurement and achievement parameters will be described.

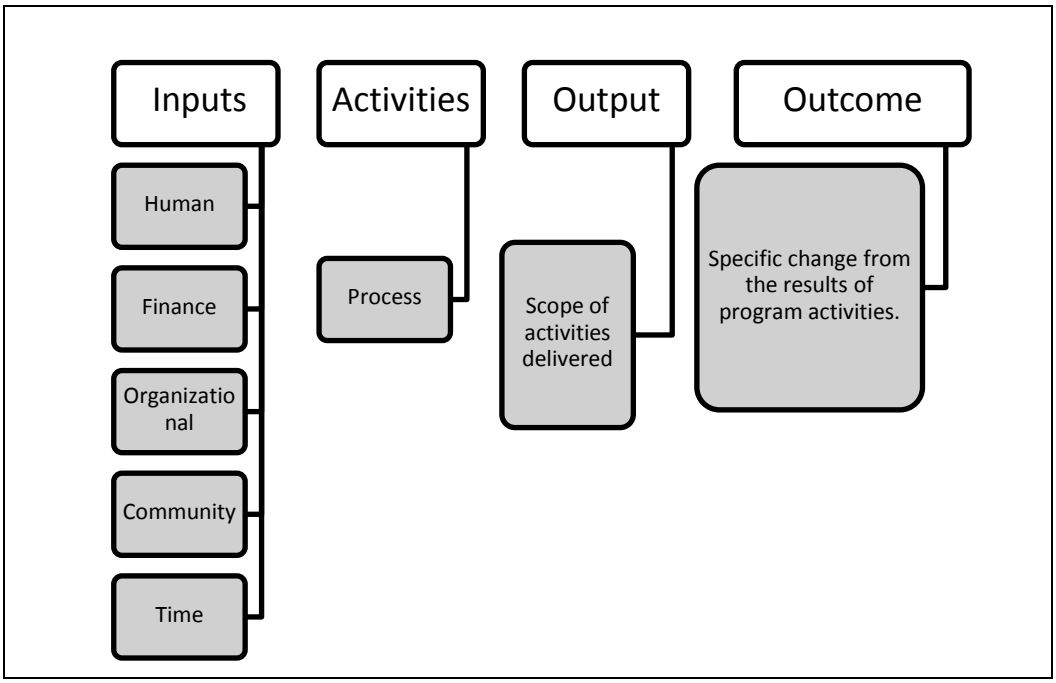


Figure 2.1 Logic Model

Source: W. K. Kellogg Foundation, 2001.

Inputs include the all resources for example human capital, financial, organizational which required for doing the work. Activities are the processes and activities that are the key driver for the program execution. Outputs are the direct products of program activities which will to be delivered according to program roll-out. Outcomes are the specific changes in the program participants' for example behavior, knowledge, skills, status and level of functioning expected to result from program activities and which are most often expressed at an individual level. Short-term outcomes should be attainable within 1 to 3years, while longer-term outcomes should be achievable within a 4 to 6 year timeframe.

The logic model has the purpose of measuring the effectiveness of a given program or project (McCawley, 1997). The name indicates a logical coherence between each aspect of the model. Illustrated by the figure 2.2, McCawley (1997) explains the logic model with the point of departure from the current situation, which is desired to change.

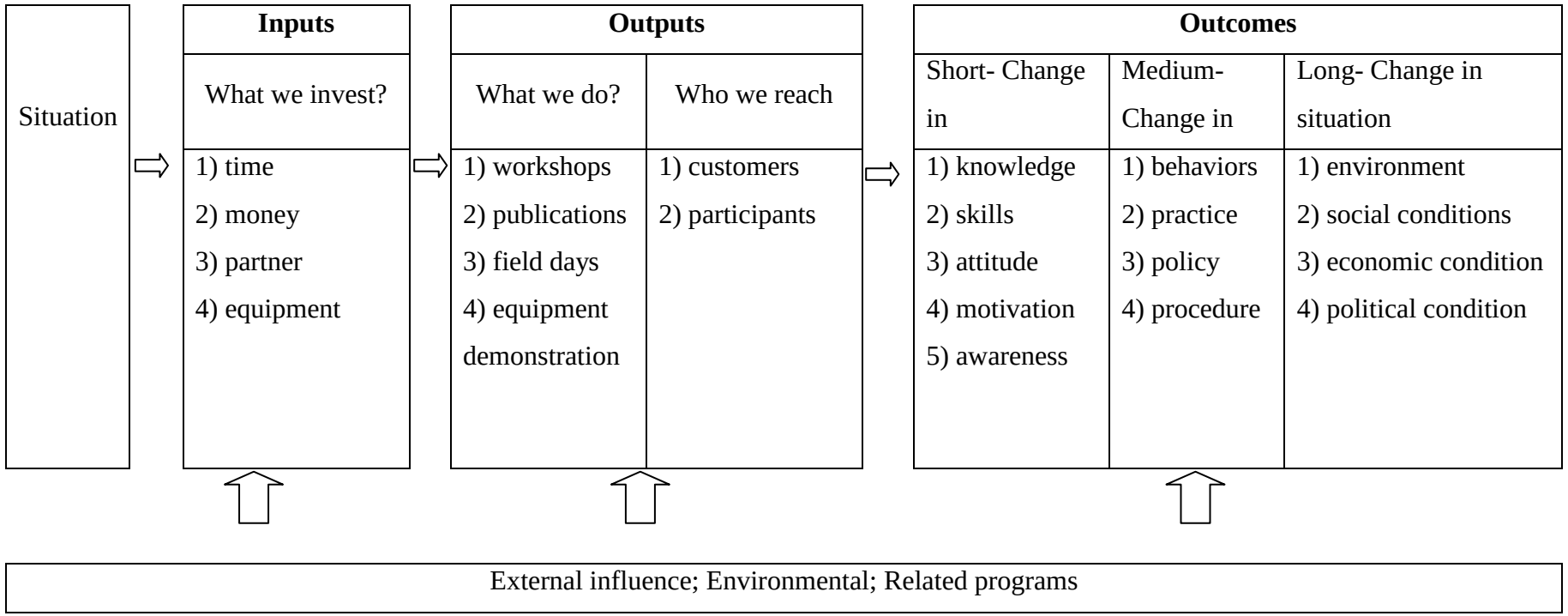


Figure 2.2 Logic Model for Measuring the Effectiveness of a PPP Project.

Using a logic model for program evaluation, it helps determine what to evaluate and identify if resources are used effectively and efficiently (Davies, 2008). Millar, Simeone, and Carnevale (2001) however, pointed out that "taking the point of departure of the inputs, i.e. the resources the organization has, can have the effect of limiting the thinking on existing activities and thus limiting the creative opportunities for generating something new".

2.5 Health Security

The World Health Organization (WHO) descried that "a public health emergency in one country is only a few hours away from affecting another" (World Health Organization, 2004). The concept of health security is well accepted. There are a variety of health security definitions among different countries. Policymakers in well developed countries point out protection of their populations against external threats, for example terrorism and pandemics. However, healthcare policymakers in developing countries define the meaning in a broader public health condition. "Governments at all income levels are increasingly prepared to cooperate to prevent the emergence and spread of infectious diseases and provide public health security, defined as the provision and maintenance of measures aimed at preserving and protecting the health of the population" (Brower & Chalk, 2003).

The spread of emerging/re-emerging infectious diseases is defined as significant emerging transnational threat which every single country faces with a cross border challenges that cannot be handle solely by the action of a single country (Brower & Chalk, 2003). For the purposes of this analysis, health security is defined as "the collection of preventative and response activities that minimize the vulnerability of populations to communicable disease transmission across geographical, national or regional boundaries" (WHO, 2007).

2.6 Emerging Infectious Diseases and Pandemics

2.6.1 Emerging Infectious Diseases

Emerging Infectious Diseases means new types of infectious diseases with an increase in patient reports over the past 20 years, or infectious diseases with an increasing possibility in the near future. It also includes diseases that once were controllable by antibiotics, but apparently are becoming resistant(Brower & Chalk, 2003).

2.6.2 Pandemic

Pandemics are one of the most devastating forms of disasters. It can destroy the lives and livelihoods of a vast section of the population and have global ramifications. The involvement of UN agencies and other international organizations to boost the efforts of various nations is an indication of the gravity that this menace is accorded at the international level (United Nations, 2005).

The WHO stated that “pandemics are a source of concern, not only for health experts but, also for policy makers and the corporate sector. India has already realized the seriousness of this threat” (WHO, 2004). Effective surveillance and response, bio-security aspects and communications are required from the commitment of decision makers. Lesson learns from avian influenza outbreaks, effective planning align with a accuracy assessment of surge capacities, which are essential to handling crisis situation which may occurred (WHO, 2007a).

2.7 Pandemic Preparedness Plan

2.7.1 Pandemic Preparedness Plan in Overview

Pandemic preparedness plan is the holistic management of a pandemic outbreak which aims to prevent and mitigate the risk (WHO, 2007a). An integrated strategy of across public and private can avert a disaster (WHO, 2005). Not merely restricted to health issues, the comprehensive process of preparedness includes identification of various key stakeholders at country and above country levels (WHO, 2007b).

Public health officers are responsible for ensuring the health of the nation, which requires that planners for public health emergencies. “To ensure the protection of these populations in the event of a pandemic outbreak, preparedness planning will benefit from the application of several principles of social justice in assuring the protection of all individuals” (Kayman & Ablorh-Odjidja, 2006).

2.7.2 Analysis of the Cooperation between Government and Private Sectors in Thailand’s National Strategic Plan for Emerging Infectious Disease Preparedness, Prevention and Response (B.E. 2556-2559)

The Thailand National Strategic Plan for Emerging Infectious Disease Preparedness, Prevention and Response (B.E. 2556-2559) was approved by the cabinet on 28th August B.E. 2555. Its vision was that Thailand could protect itself from communicable diseases efficiently, had the required standards, that would be acceptable to the international community and which had the latency and readiness in both human management administration and knowledge management. Additionally, that Thailand could reduce sickness rates, death rates, and reduce the impact on social economics and the environment caused by a communicable disease epidemic.

Thailand’s National Strategic Plan for Emerging Infectious Disease Preparedness, Prevention and Response (B.E. 2556-2559) recognizes that influenza is a contagious disease which has the opportunity to spread quickly and expand worldwide, and then it becomes the problem for many countries and internationally. Every country must accelerate the development of latency in systems and equipment for the protection and control of diseases, and to prepare efficiency against diseases to reduce the impact on social economics, and must cooperate with international agencies to monitor, protect, and control transnational diseases. The operation in a country’s government sector, private sector, and civil society sector must cooperate closely and continually under the government policy and strategic plan about preparation to protect and solve problems from national communicable diseases (B.E. 2556-2559)

This strategic plan specifies the process for participation of every organization, from the government, private, and civil sectors in making a strategic plan which encompasses all the important situations of communicable diseases both inside and outside the country. The plan should incorporate integrated ideas and direction for the

making of the plan and conform to a national strategy as well a commitment to an international cooperation framework that specifies the participation from related organizations in the process of identifying the strategy's points, strategy, and plan.

Table 2.4 Strategic Plan about Preparation to Protect and Solve Problems from National Communicable Diseases (B.E. 2556-2559) Includes the 5 Strategies and the Target of Each Strategy as Detailed Below.

Strategy	**Target**
The first strategy The strategy to strengthen disease surveillance, prevention, treatment and control systems under "One Health" concept.	The strategy in developing, monitoring, protection, and disease control under the concept of one health. Thailand has cooperation from human, animals, wild animals, and environment health agencies and has latency to monitor, protect, and control communicable diseases in terms of integration.
The second strategy The strategy is to strengthen systems to enhance disease-free animal husbandry, improve animal health and the health of wild animals.	The strategy in the system management for feeding and health of animals and wild animals to be free from diseases. Thailand has good management in the animal feeding systems, reducing the effect on economics from export inside the country from animals or processed products from animals.
The third strategy The strategy is to intensify knowledge management systems and promote research and development on EIDs.	The strategy to develop management and support research in the knowledge system. Thailand has management in the knowledge system about communicable diseases in terms of integration and support for research for development.

Table 2.4 (Continued)

Strategy	Target
The fourth strategy The strategy in establishing an integrated management of preparedness and response for public health emergencies.	The strategy in development of the administrative system in terms of integration and preparation for readiness for an emergency situation. Thailand has an administrative system and the readiness to deal with an emergency situation for communicable diseases.
The fifth strategy The strategy to enhance public information, risk communication and relations on emerging infectious diseases.	The strategy in communication and public relations about the risk of communicable diseases. People have the knowledge and correct understanding about protection from diseases and trust in the ability to solve communicable disease problems of country.

All 5 strategies had a related, systematic relationship beginning from developing a monitoring system, protection, and disease control in humans, animals and wild animals. It is able to have environmental efficiency and control contagious diseases quickly and support the safety of humans in the risk group and normal people. At the same time there was the preparation readiness for the epidemic of communicable diseases which supports latency for Thailand which could be self-sufficient and reduce the damage which could happen to the economy and society.

This strategy will help all sectors in society to support the potential and knowledge for the protection, control, and problem solving by working together in the present. Communicable diseases in each country have the opportunity to quickly expand worldwide. The protection and control of diseases must operate pugnaciously from the international strategy framework. It was found that it was necessary to develop the strength of personnel and preparation system of the country from all sectors and to reduce the impact from diseases and others communicable illnesses which could happen in the future.

From the analysis it was found that 3 of the 5 strategies of the strategic plan identified cooperation between the government and private sectors, such as, the third strategy: intensify knowledge management systems and promote research and development on EIDs, the fourth strategy: establish integrated management of preparedness and response for public health emergencies and the fifth strategy: enhance public information, risk communication and relations on emerging infectious diseases.

The third strategy: intensify knowledge management systems and promote research and development on EIDs. The development in knowledge management and support the research for development aimed at letting the country have the knowledge management for communicable diseases in term of integration and bring knowledge to use systematically and permanently, and to support the research to develop suitable knowledge about communicable diseases. Those strategies include the important strategy to manage knowledge systematically which identifies the cooperation between the government and private sectors and the strategy to set up mechanisms for the cooperation between academic institutions to exchange knowledge between organizations and experts in academic institutions inside and outside the country.

The fourth strategy: to establish integrated management of preparedness and response for public health emergencies. The development in administration in terms of integration and preparation for an emergency situation had the aim for Thailand to have administration management and have the readiness to deal with an emergency situation involving communicable diseases efficiency to reduce sickness, death, and reduce the effect on the economy and society which resulted from a communicable disease epidemic. These strategies included with the other important strategies are strategies for developing a system to support the resources and maintenance protocols. These in turn will identify the cooperation between government and private sectors in quantity and method, about strategic operations to mobilize cooperation and resources inside the country from both government and private sectors in setting up a resources map beforehand and develop latency in research and produce vaccines and necessary medicines inside the country for self-sufficiency in the long term in cooperation with the business sector.

The fifth strategy: enhance public information, risk communication and relations on emerging infectious diseases. Communication and public relations about the risk of communicable diseases had aim to provide people with the knowledge and correct understanding about disease protection and believe in solving the problems from communicable diseases of the country with a cooperation mechanism such as spread he public relation information about the risk of protection and control of communicable diseases correctly and quickly, timed to the situation and contagion in national, international, and related personnel. People who have the correct knowledge and understanding and could protect or control diseases quickly and suitably. Those strategies are included with important strategies such as, an approach strategy to disease spread and public relations for protection and control of communicable diseases to people. This also provides an indicator of the cooperation between the government and private sectors in the measures and method of strategy operation for the public relations campaign to support correct behavior for protection and control of communicable diseases to the general public. This can be demonstrated via the methods of communication and the degree of integrated cooperation between government and private sectors.

2.8 Health Belief Model

The health belief model is generally taken as marking the beginning of systematic and theory-based research on health behavior. It has been widely used and applied to explain health behaviors as well as used to design PPP intervention programs. The model has also been used to develop effective interventions to change health-related behaviors by targeting various aspects of the model's key constructs (Carpenter, 2010) and (Rosenstock, Strecher, & Becker, 1988).

Many studies regarding the topic of influenza vaccination demonstrated the importance of the health belief model's constructs as influential factors in influenza vaccination behavior of health care workers. A review of these studies helped to clarify how the model can be applied to the issue of influenza vaccination among community healthcare workers. The health belief model consists of six constructs, including perceived susceptibility, perceived severity, perceived benefits, perceived

barriers and cues to action (Harrison, Mullen, & Green, 1992). This is an individual-level theory that is founded on the concept that behavior is directed by value and expectancy beliefs (Brewer & Rimer, 2008). In the health belief model, the likelihood that a person will follow a preventive behavior is influenced by their subjective weighing of the costs and benefits of the action; this perception involves the following elements:

2.8.1 Perceived Susceptibility

Perceived susceptibility is an individual's belief in his or her personal risk of acquiring influenza and has been identified as a predictor of influenza vaccination among healthcare workers by many researchers. Some of the research specifically focused on perceived susceptibility and its positive relationship with influenza vaccination. A study by Looijmans-van, Delden, Verheij, Essen, Sande, Hulscher, and Hak (2009) found that awareness of influenza risk for health care workers and for patients was closely associated with influenza vaccination (Looijmans-van den Akker et al., 2009). Similar results were found among health care workers in United Kingdom hospitals, physicians and nurses at a veterans' affairs medical center, and medical residents at a Pennsylvania hospital (Prematunge, Corace, McCarthy, Nair, Pugsley, & Garber, 2012).

2.8.2 Perceived Severity

Perceived severity is an individual's assessment of the seriousness of having influenza and its possible complications and has typically been associated with a higher level of influenza vaccinations among healthcare workers (McKenzie, Neiger, & Thackeray, 2009). Association between perceived severity and influenza vaccination was also found among nurses (Campos & Jalaludin, 2002) and hospital workers in the United Kingdom (Stephenson, Roper, & Nicholson, 2002). Perceived severity was also addressed with a focus on healthcare workers' concern of influenza severity for their patients. Looijmans-van den Akker et al. (2009) found that healthcare workers beliefs in the danger of influenza infection for themselves and for their patients were closely related to influenza vaccination of healthcare workers. Some researchers found similar results. However, Raftopoulos (2008) also found that though nurses

believed that influenza was serious for those who were at high risk, but were still not vaccinated. (Qureshi, Hughes, Murphy, & Primrose, 2004).

2.8.3 Perceived Benefits

Perceived benefits are the advantages that an individual believes are gained by receiving the influenza vaccine and have been shown to influence vaccination behavior among healthcare workers (McKenzie et al., 2009). Campos and Jalaludin (2002) found that the perceived benefit of receiving the influenza vaccine significantly differed between those with high intention of vaccination and those with low intention. Manuel, Henry, Hockin, and Naus (2002) surveyed and interviewed healthcare workers from long-term care facilities and found that among those who were vaccinated, there were significantly more individuals who described the vaccine as "valuable" as compared to those who were not vaccinated.

Protection of oneself and of patients was a common element of many studies. Thomas, Winsted, and Koontz (1993) examined influenza vaccination among employees at a long-term healthcare facility. Among those who were vaccinated, 82% stated that personal protection was the main reason for vaccination and 67% stated that protection of patients was the reason. Research among geriatric hospital employees in France (Trivalle, Okenge, Hamon, Taillandier, & Falissard, 2006) supported these findings.

Some studies found that participants felt that alternatives to the influenza vaccine were more effective than the vaccine itself in preventing influenza. They preferred the alternative because they felt that it had greater perceived benefits. Trivalle et al. (2006) found that the belief that homeopathic medicine was more effective than the influenza vaccine was significantly associated with vaccination refusal.

2.8.4 Perceived Barriers

Perceived barriers to action, can be accessed via questions such as, will it involve expense, pain, or embarrassment? or what difficulties do you see in undertaking this action?" There may be difficulties in scoring such responses, and the barriers mentioned may be quite independent of each other.

The perceived barriers are the factors considered to be obstructing an individual's ability to receive the influenza vaccine and often act to discourage healthcare workers from being vaccinated against influenza (McKenzie et al., 2009). Concern about influenza vaccine side effects was a common barrier identified in prior research. Smedley, Palmer, Baird, and Barker (2002) conducted a study of influenza vaccination uptake in a hospital in the United Kingdom and found that 38% of healthcare workers indicated an intention to decline the vaccine, with possible vaccine side effects noted most often as the reason to decline.

Other researchers also found that previous history of influenza-like symptoms following influenza vaccination or belief that the vaccination caused infection were barriers to vaccination (Campos & Jalaludin, 2002; Kimura, Nguyen, Higa, Hurwitz, & Vugia 2007; Looijmans-van den Akker et al., 2009; Stephenson, Roper, & Nicholson, 2002). Concern about vaccine safety was also noted as a potential barrier in some studies. Researchers also found that some participants had a personal belief against vaccination (Looijmans-van den Akker et al., 2009).

2.8.5 Cue to Action

Cues to action are influences that attempt to remind or encourage an individual to receive the influenza vaccine and have been addressed in survey studies, as well as intervention studies in order to determine their role in the influenza vaccination behavior of healthcare workers. Cues to action have taken the form of reminder letters, raffles, verbal or written recommendations, and other influences. These interventions have had varying effects on influenza vaccination. Looijmans van den Akker et al. (2009) found that media influences and social influences were significantly associated with influenza vaccination.

2.8.6 Modifying Factors

Modifying factors are characteristics that influence the individual's perceptions (McKenzie et al., 2009). The relationship between influenza vaccination of healthcare workers and several modifying factors were examined. Most studies found those 50 years and older had higher rates of vaccination. McEwen and Farren (2005) found that over one-third of vaccine receivers noted being 50 years and older as a reason for being vaccinated.

Age was also determined to be an influential factor in studies conducted by other researchers (Campos & Jalaludin, 2002; Looijmans-van den Akker et al., 2009; Stephenson et al., 2002). Results regarding the relationship of gender and vaccine status also varied.

Occupation might have played a role in vaccination status in previous studies. Smedley et al. (2002) found that at 41% each, doctors and nursing assistants had a higher proportion of those who intended to be vaccinated as compared with qualified nurses, at 31%. However, among those who actually received the vaccine later in this study, nursing staff had the highest vaccination rate among their occupational group, with 41% of nurses receiving the influenza vaccine.

Overall only five percent of the total hospital staff received the vaccine. Quigley and Hayes (2006) also found that occupation in some cases was related to vaccination; physicians, catering staff, and cleaning staff were significantly under-represented in the vaccinated group and the proportion of clerical staff among the vaccinated group was significantly higher in proportion to other personnel within the hospital. Occupation was also studied by Looijmans-van den Akker et al. (2009) who reported that nurses and physicians were significantly more likely to be vaccinated against influenza than other occupational groups in healthcare. However, Trivalle et al. (2006) found that while being a physician was closely associated with influenza vaccination, occupation as a nurse or as a nursing assistant was closely related with vaccine refusal. Looijmans-van den Akker et al. (2009) found that the greater the number of years individuals had worked in healthcare was closely related to increased rates of influenza vaccination.

Education and socioeconomic status also may have influenced healthcare worker vaccination against influenza. Looijmans-van den Akker et al. (2009) found that a higher level of education was closely related to increased rates of influenza vaccination. History of chronic disease was found to be significant in some studies. Steiner, Vermeulen, Mullaby, and Hayney (2002) observed a higher vaccination rate among those with a history of chronic illness. Previous vaccination against influenza was a significant predictor of current influenza vaccination (Kimura et al., 2007). Trivalle et al. (2006) also found that previous influenza vaccination was significantly associated with influenza vaccination. Quigley and Hayes (2006) reported that belief

in prior personal prevention of influenza by the vaccine was significantly associated with influenza vaccination.

Previous experience with influenza illness was also examined. McEwen and Farren (2005) found that over one-third of vaccine receivers noted a previous history of influenza infection as an influence to be vaccinated. Campos and Jalaludin (2002) also found that past history of influenza illness was significantly related to influenza vaccination.

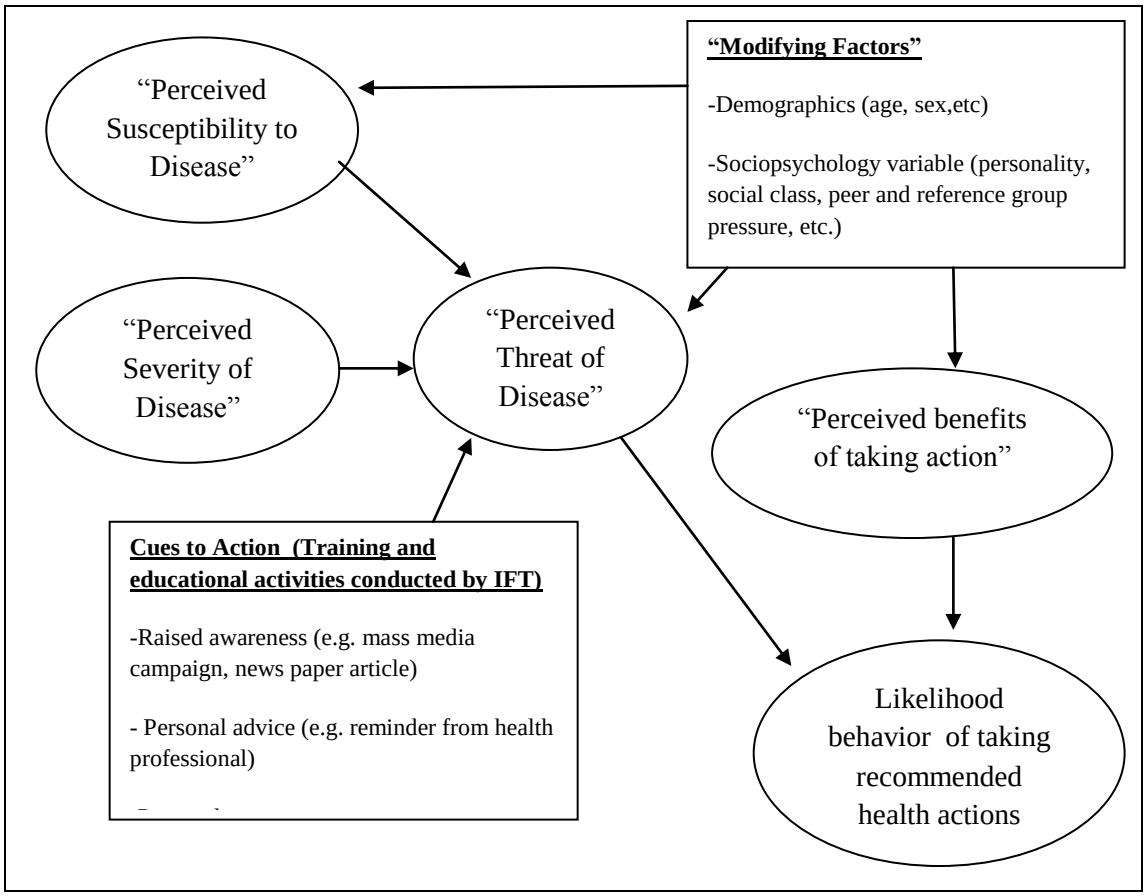


Figure 2.3 The Variables in the Health Belief Model.

Source: Rosenstock et al., 1988; Janz et al., 1984.

2.9 Conceptual Framework of PPPs for Pandemic Preparedness Planning in Thailand

From the literature reviewed, there could be drawn a variety of valuable approaches that fit certain aspects of my object of study. Hence, the proposed research will utilize the framework from Widdus (2003); Buse and Walt (2000a); The World Bank Partnerships Group (1998) to study how public authorities and private entities can collaborate to build effective PPPs in training and education in order to improved pandemic preparedness competencies against the threat of influenza outbreaks?

1) What are the objectives of the PPPs arrangement?
2) Why public authorities and private entities participated in public health PPPs?
3) How these PPPs projects are effective in strengthening national preparedness action in the future?

2.9.1 Research Question 1

What are the objectives of the PPPs arrangement?

Within this goal-oriented classification, there are also several objectives of PPPs for strengthening the public health service. Some authors have used type of membership organizational forms, or the nature of the activity to classify PPPs in public health. The predominant form of classification in the literature is the one based on the goals or objectives of the partnership (Reich, 2002; Buse & Walt, 2000a). Others have used ‘disease focus’ to characterize PPPs, such as PPPs for infectious diseases. PPPs also differ in their organizational structure. Using this classification, the majority of PPPs tend to cluster into partnerships for disease control, which in turn is divide into two sub-categories: PPPs for product development (e.g. research and development of drugs, vaccines and new diagnostics) and PPPs for access to drug and vaccines (e.g. provision of discounted or donated drugs and vaccines) (Kickbusch & Lister, 2006)). Nearly half of all PPPs for disease control focus on infectious diseases, while only approximately 10% of them refer to chronic disease, reproductive health and health-system development (Kickbusch & Lister, 2006).

As described by WHO the objectives of public health PPPs, which have been adopted and classified by scholars in the public health arena, include 4 key objectives, to increase financial advantage, improve efficiency within existing assets, increase access and improve equity, and contribute to meeting the health goals. This dissertation will explore the objectives of public health PPPs for pandemic preparedness as mentioned in the classification and shown in Figure 2.4.

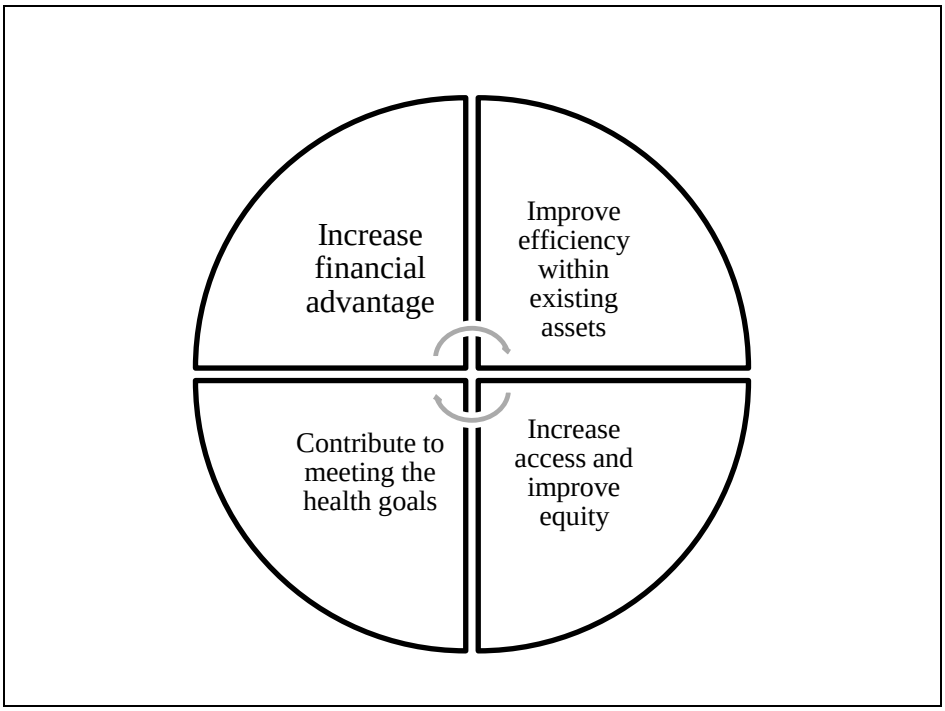


Figure 2.4 The Objectives of Public Health PPPs

Source: Widdus, 2003,

World Health Organization, 2005.

2.9.2 **Research Question** 2

Why do public authorities and private entities choose to participate in public health PPPs?

The literature in inter-organizational relations, focusing on resource-based theory suggests two motives for the formation of partnership 1) gaining access to additional resources possessed by others and 2) retaining one's own resources and identity (Das & Teng, 2000).

Widdus (2003) points out that "the rationale for public–private collaboration in public health is not simply to capture money from profit-making enterprises, or facilitate the intrusion of business into the public policy environment. Thus, the true partnership is really about combining different skills, expertise and other resources to achieve a common goal that is unattainable by independent action" (Widdus, 2003).

According to Buse and Walt, the motives of the public authorities to form partnerships with the private sector are access to the private resource of management expertise, advanced technologies, physical assets and financial resources (Buse & Walt 2000b). Meanwhile, the interest of the private sector to participate in partnerships is to gain financial benefits; access to policy makers, access to information/institutions and an increase in corporate reputation Buse and Walt (2000a). The theoretical framework for the rational of PPPs partnerships is illustrated in figure 2.5

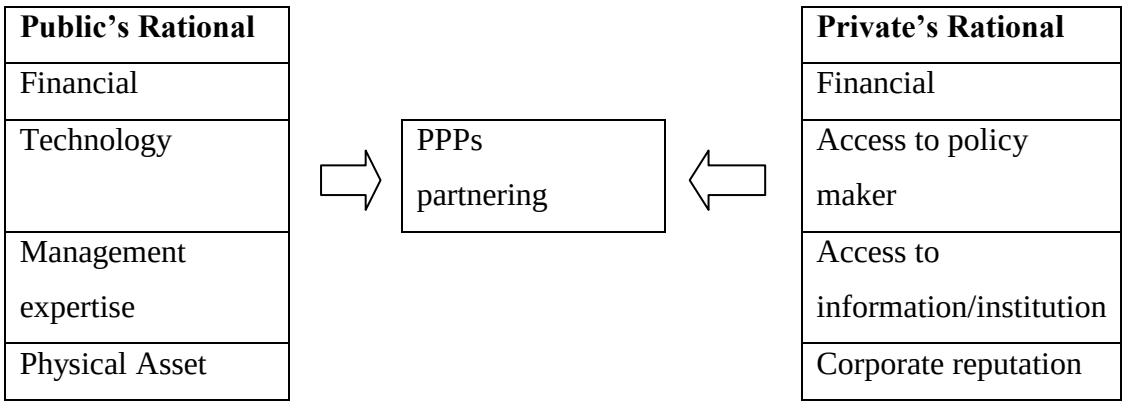


Figure 2.5 Reasons for Partnering in Public Health PPPs.

Source: Buse & Walt, 2000a,
Buse & Walt, 2000b.

2.9.3 Research Question 3

How these PPP projects are effective in strengthening the national preparedness action in the future?

According to McLaughlin and Jordan (1999); McCawley (2002) studies, logic models are the tools used to identify the effectiveness of programs and enable the prediction of resources that will be needed to achieve success.

A logic model will be used in the associated research to identify how the implementation phase of a public health PPP for training and education is managed effectively. The scope of the framework will include, partnership inputs, partnership process, partnership outputs, partnership outcomes and the impact of the partnership.

The logic model provides the explanation to conceptualize an effectiveness of public health PPPs as illustrated in Figure 2.6.

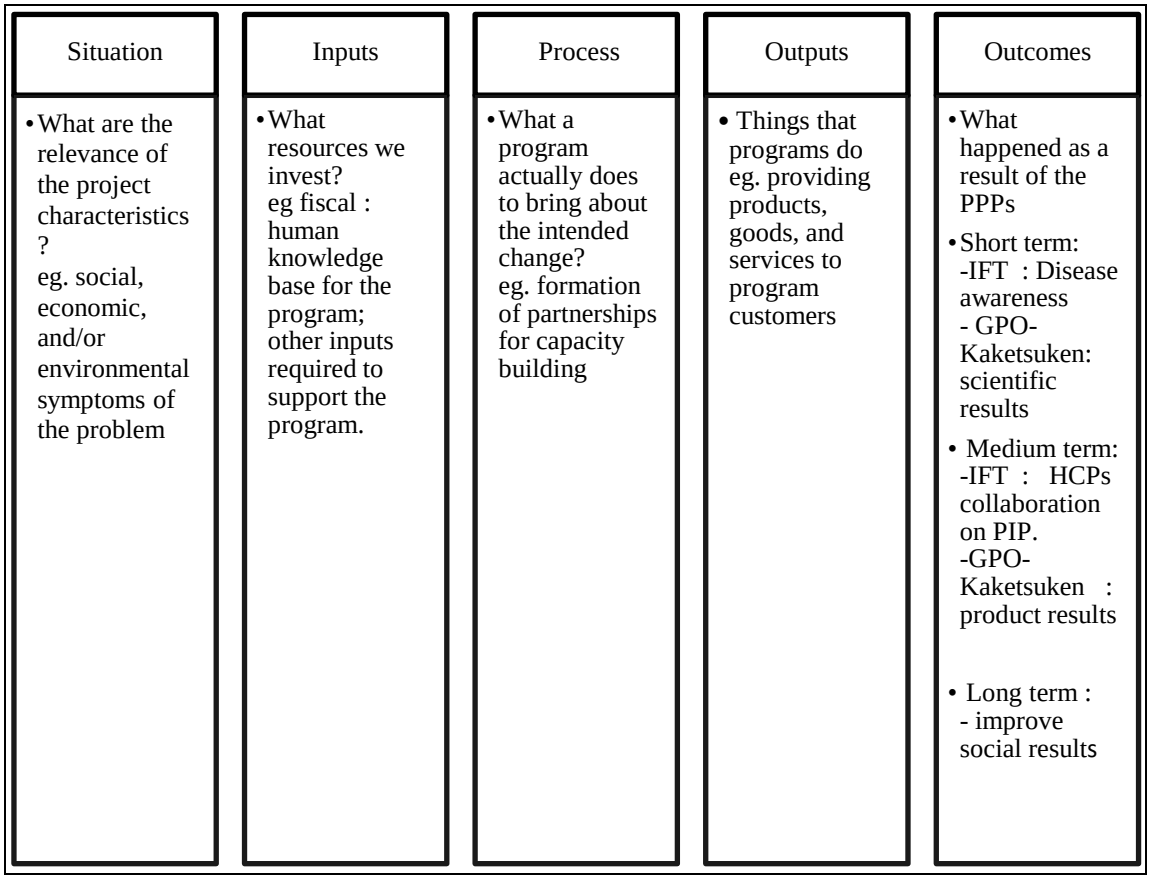


Figure 2.6 Logic Model to Identify the Effectiveness of Public Health PPPs**.**
Source: McCawley, 1997.

2.9.3.1 Situation:

The situation statement provides an opportunity to communicate the relevance of the project characteristics that illustrate its relevance to others and include a statement of what are the social, economic, and/or environmental symptoms of the problem? What are the likely consequences if nothing is done to resolve the problem?

2.9.3.2 Inputs

Inputs include those things that are invested in a program or what is brought to bear on a program, such as knowledge, skills, or expertise. Inputs that communicate to others that the program is of high quality include:

1) Fiscal resources, including appropriate funds, special grants, donations, and user fees,

2) Human resources, such as time invested by faculty, staff, volunteers, partners, and involvement of collaborators – local, state, national agencies and organizations involved in the planning, delivery, and evaluation,

3) Knowledge base for the program, including teaching materials, curriculum, research results, certification or learning standards etc.

4) Other inputs required to support the program, such as facilities and equipment;

2.9.3.3 Outputs

Outputs are those things that we do and the people reached. Outputs that help link what we do with a program impact include:

1) Publications, such as articles, bulletins, fact sheets, handbooks, web pages

2) Teaching aids, such as software, worksheets, models

3) Teaching events, such as workshops, training

2.9.3.4 Outcomes

Program outcomes can be short-term, medium-term, or long-term. Outcomes answer the question “What happened as a result of the program?” and are useful to communicate the impacts of our investment.

Short-term outcomes of educational programs may include changes in perception that target people to understand the causes and potential solutions.

Medium term outcomes may include changes that follow the short-term outcomes, such as changes in:

1) Policies adopted by businesses, governments, or organizations;

2) Management strategies implemented by individuals or groups.

Long-term outcomes follow intermediate-term outcomes when changed behavior results in changed conditions, such as:

1) Improved social conditions
2) Improved political condition and improved participation, or opportunity.

Further to identifying the key influential factors are those that drive outcome behavioral change. This study adopted the quantitative research method to identify the behavior change of healthcare providers who attend educational activities. The change of behavior focused on 2 behaviors, getting the vaccination and its viability, according to the national plan recommendation for healthcare providers. To obtain the research answer, the author applied the health belief model framework, which is a well-established theory of health behavior change. The author also sought to identify modifiable factors that predict behavior change in getting the vaccination and effectiveness according to the national plan recommendation in our sample. Meanwhile, other factors, for example key socio-demographics, influenza risk factors and past vaccination history were also collected and analyzed. The analysis of qualitative data can enhance our understanding of healthcare providers behavior and better explain the key influential factors that drive behavioral change to get vaccination and to work according to policy recommendation.

Conceptual Framework to quantify the outcome of health education PPPs in driving perception and action on influenza preparedness policy adoption among healthcare providers:

The health belief model has been widely used and applied to explain health behavior as well as being used to design PPP intervention programs. It is also generally taken as marking the beginning of systematic and theory-based research on health behavior. The model has also been used to develop effective interventions to change health-related behaviors by targeting various aspects of the model's key determinants. Healthcare providers play a crucial role in influenza preparedness. Health education PPPs are expected to assist healthcare providers and service organizations in planning and responding to a pandemic flu outbreak. Furthermore, the availability of healthcare providers is an essential component of pandemic preparedness. A key to protecting healthcare providers during the influenza outbreak

is vaccination. Vaccination of healthcare providers against influenza is prioritized as essential for outbreak management and healthcare pandemic preparedness. This research focused on the intent to be vaccinated and work to follow national guidelines in pandemic control.

According to the health belief model, prediction of vaccination and intention to work according to the national plan recommendations for healthcare providers can be understood by way of 3 key constructs. These consist of, perceived susceptibility to influenza, perceived severity of influenza and perceived benefits of preventing influenza. Where as, educational training for healthcare professionals conducted by IFT and the Department of Medical services is used to identify a cue to action. As the results of IFT activities conducted, the expected outcome are that healthcare providers are expected to work to align with influenza control recommendations and to be vaccinated against influenza in the year 2016 as described in Figure 2.7.

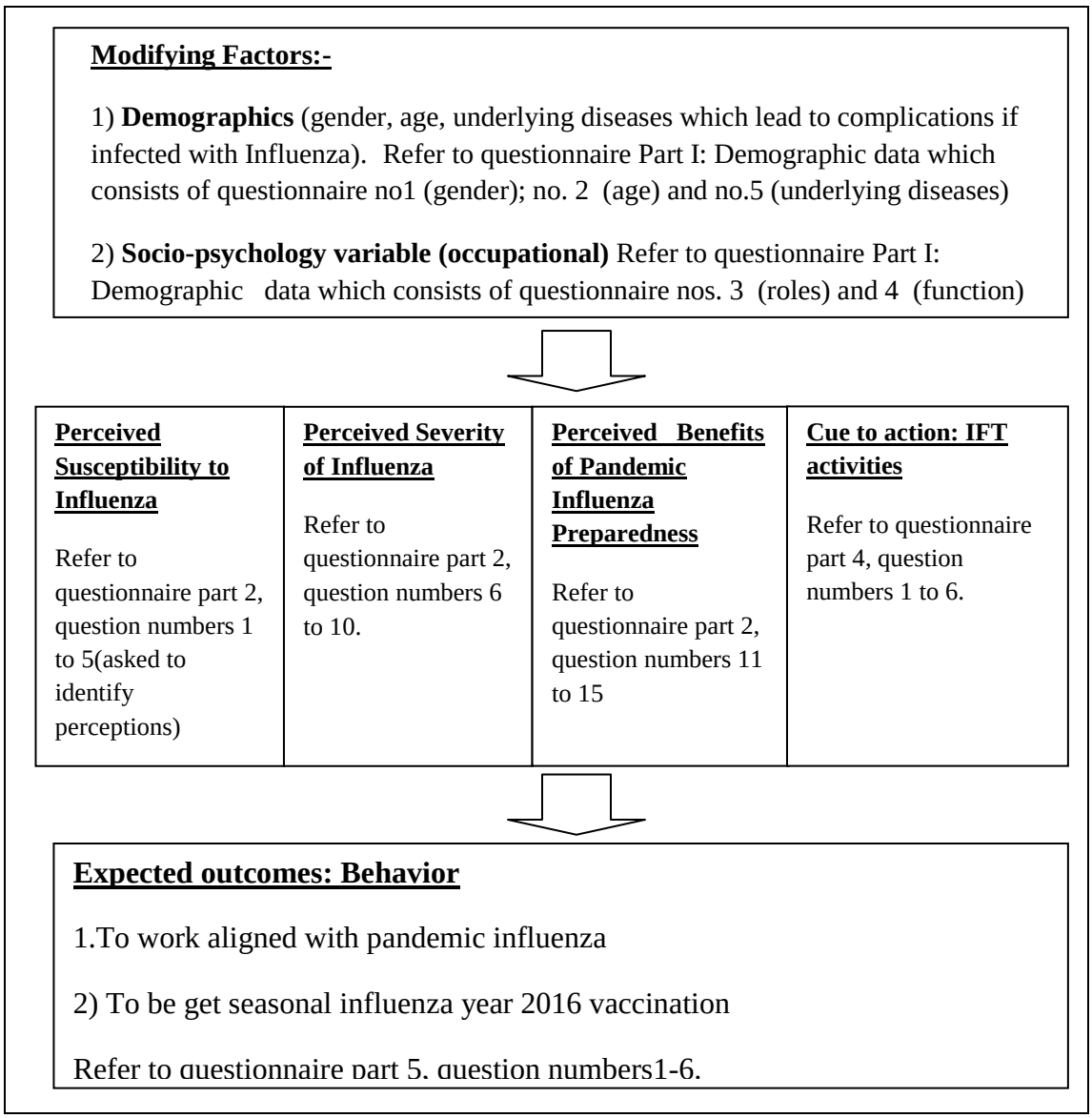


Figure 2.7 Health Belief Model to Identify the Effectiveness of PPPs for Training and Education in Health.

Based on the health belief model, healthcare professionals will become vaccinated and work to follow policy recommendations. The association between HBM constructs and a desired health action is summarized in Figure 2.7

The linkage of the conceptual elements for research questions, theory and key ideas is described in table 2.5

Table 2.5 Summary of Conceptual Elements

Research question	Theory	Key ideas
RQ1. What are the objectives of the PPPs arrangement?	Inter-organizational Relations Theory (IOR)	1) Public health PPPs are described as "any form of engagement or interaction between the public and the private sectors" (Hawkes, 2008) 2) Partnerships as a pluralist approach of working together entail that instead of strong (or exclusive) presence of state in responding to social matters, the focus is now towards a strong society in which the private sector (i.e. corporations, private entities, civil societies) is part of that response (Glasbergen, Birmann, & Mol, 2007). 3) Organizations are expected to be flexible to adapt to institutional arrangements that enable cross-sectorial work" (Klein, 1987). 4) PPPs in delivering health programs can be identified in five categories (1) Research and development (2) Improvement of access to health products (3) Public advocacy and increasing awareness (4) Regulation and quality assurance (5) Training and education vs. Training and education PPPs (Widdus, 2001; Widdus, 2003).
RQ2. Why public authorities and	Resource Dependence Theory	1) In order to cope with environmental uncertainties and increase capacity to attract resources, organizations undertake strategic

Table 2.5 (Continued)

Research question	Theory	Key ideas
private entities participated in public health PPPs?		actions to minimize environmental dependences or to manage interdependence (Pfeffer & Salancik, 1978). 2) The improvement of organization and control over resources are important motivators for organizations to interconnect with others (Oliver, 1990). 3) "The true partnership is really about combining different skills, expertise and other resources to achieve a common goal that is unattainable by independent action" (Widdus, 2003). 4) "The motives of the public authorities to form partnerships with the private sector are access to private resources of management expertise, advance technologies, physical assets and financial resources" (Buse & Walt 2000b) 5) The interest of the private sector to participate in partnerships is to gain financial benefits, access to policy makers, access to information/institutions and an increase in corporate reputation (Buse & Walt, 2000a).
RQ3. How PPP projects are effective in strengthening the	Resource Dependence Theory	1) "External factors of organizations affect the behavior of the organization. Resource dependence theory has implications regarding the optimal divisional structure of

Table 2.5 (Continued)

Research question	Theory	Key ideas
national preparedness action in the future?		organizations, recruitment of board members and employees, production strategies, contract structure, external organizational links, and many other aspects of organizational strategy" (Pfeffer & Salancik, 1978). 2) Resource Dependence Theory challenges the view that organization outcomes are derived exclusively from the function of the organization, its structure, its leadership, its procedure, or its goals. Studies have shown that only 10% of the variance in organizational performance is explained by the effects of administrators or individual efforts (Pfeffer & Salancik, 1978). 3) The political or social system becomes relevant to the organization because this system affects the organizational outcomes (i.e. survival, growth, legitimacy and enhancement) (Pfeffer & Salancik, 1978). Input: "The inputs of an effective partnership can be categorized as: goals and scope. The goals of an effective partnership can be summarized using the familiar acronym SMART: Specific, Measurable, Achievable, Realistic and Time-Bound. The McKinsey study identifies two fundamental prerequisites for

Table 2.5 (Continued)

Research question	Theory	Key ideas
		partnership success: a simple and compelling goal, together with a clearly defined and focused scope (disease, geography, population, activities)" (McKinsey & Company, 2002). Process: 1) "A partnership with a clear institutional structure means that the partners are clear about their roles and responsibilities" (Buse, 2004). 2) Agreement on shared governance structure, under the concepts of 'trust' and "clear communication" are the determinants of the process for an effective partnership (Adams & Goldsmith, 1999). Output: 1) Establishment of defined metrics to track, measure, monitor and provide feedback on the progress and thus gauge the effectiveness of the partnership. "Partner alignment and mobilization through the committed and informed senior champions among wider stakeholders; alliances with other partnerships, expert networks and institutions; affected communities and civil society and the private sector contributing to the wider forum; and regional or other groupings where appropriate" (Anslinger & Jenkra, 2003).

Table 2.5 (Continued)

Research question	Theory	Key ideas
		2) Raised profile and political commitment: Partnerships have achieved high levels of knowledge about the partnership strategies in the national disease programme and among wider political stakeholders. Raised profile and political commitment through advocacy at national levels; joint commitment, including institutionalizing technical strategies (treatment and quality standards), key monitoring indicators. The majority of partnerships were deemed to add value in enhancing efforts to establish norms and standardization in treatment protocols. Outcomes: "Possible indicators of PPPs outcomes are: 1) coverage and take-up of a service; 2) effects on other parts of the (health) system; 3) improvements in the life-conditions of people for whom the partnership was established". (Brower & Chalk, 2003)

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Overview of Research Design

The research strategy used in this study was determined by the main purpose of the study and the nature of the research questions posed. The purpose of this study is to describe the value of the contributions from public health PPPs as described in the pandemic preparedness plan. The study was designed as a mixed research method. Beginning with a qualitative study using documentary research and in-depth interviews, followed by a quantitative study to determine the outcome of the implementation of PPPs.

In the qualitative methodology, this research aims to explore the public health PPPs embedded in emerging infectious pandemic preparedness planning through qualitative research methods for both documentary research with systematic review analysis and in-depth interview procedures. The systematic review of empirical studies will be the guide to deeper understanding of the social phenomenon, values and challenges faced in establishing public health PPPs to prevent and/or mitigate risks in confronting the outbreak of emerging infectious organisms. The author conducted in-depth interviews using a semi-structure interview guide. The informants are the key stakeholders involved in establishing the current version of the Thailand national preparedness strategic plan for emerging infectious diseases B. E. 2556.

In the quantitative study, this research aims to determine the outcome of the public health PPPs which will raise public health preparedness for a pandemic influenza pandemic in the future.

3.2 Qualitative Study Method

3.2.1 Documentary Research

The documentary research with systematic review will explore the attributes related to the training and education PPPs in healthcare to strengthen national health security in confronting emerging infectious diseases.

A search of computerized major databases will be conducted (e.g. Academic Search Premier, Emerald Management Plus, Taylor-Francis, Science Direct, SpringerLink and PubMed) during November 2013-January 2014 and since updated to account for additional articles that appeared.

Articles were considered eligible if they:

1) Had been published in a peer-reviewed journal, in English, between 2000 and 2015, included descriptions about the PPPs in establishing the preparedness planning for the outbreak of emerging infectious diseases and/or lessons learnt from the previous outbreak of pandemic influenza in Thailand.

2) Included narrative descriptions, qualitative, quantitative or mixed data indicators

3) Involved both public and private organizations.

This review is restricted to influenza strains. Outcomes of interest were aspects in the attribute of training and education PPPs in healthcare that were described as effective.

The articles will be selected for full-text review and were assessed using a checklist tool designed to verify the consistency in the eligibility criteria and richness of the content. The checklist will get pre-tested in pilot searches with 10 full-text articles. The amount of final synthesis papers will be shown.

Qualitative content analysis was conducted by interpreting elements with regard to the research questions. The synthesize findings also included studies (Barnett-Page & Thomas, 2009; Graneheim & Lundman, 2004). Then, the information is categorized in multiple stages. The first stage involved identifying sentences or phrases in the article that referred to the rational of the PPPs performance. These phrases were underlined and then re-written into a spreadsheet in a condensed manner, preserving the core meaning of the text (Graneheim &

Lundman, 2004). These were given codes and assembled into a condensed meaning unit. The condensed meaning units were identified as part of the texts that shed light on the PPPs elements. Units were then compared and reassembled into tentative sub-themes. Sub-themes were further compared, reorganized and merged into overarching themes according to the type of PPPs. The aim of the systematic review analysis is to make the literature review replicable, scientific, and transparent (Tranfield, Denyer, & Smart 2003). The review procedure comprised of four steps for framing the research questions and presenting the results, which are summarized in Figure 3.1

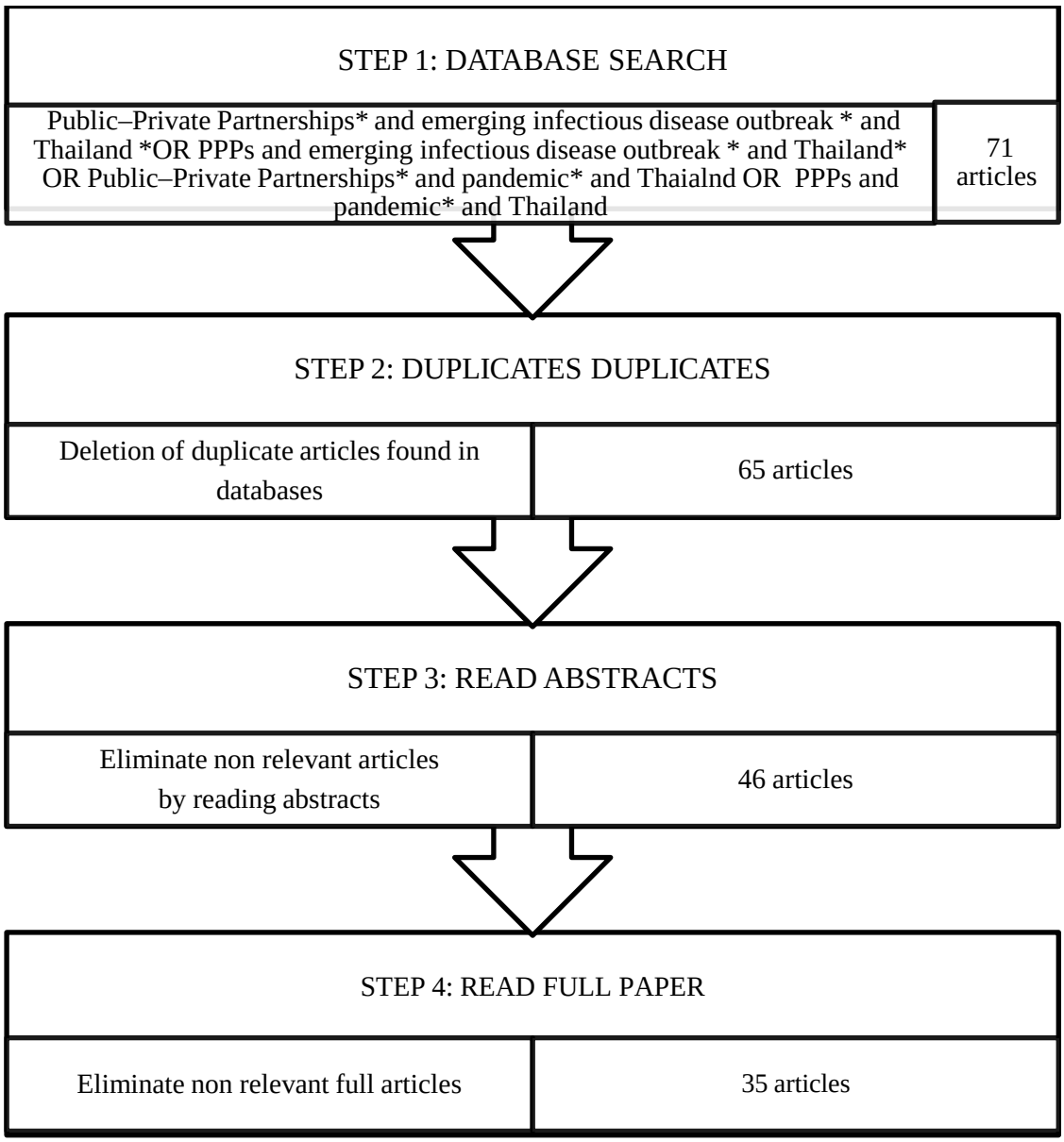


Figure 3.1 Summary of the Systematic Review Process

3.2.1.1 Step 1: Search Published Articles

A key tool in the search process was the database search. The databases used were Academic Search Premier, Emerald Management Plus, Taylor-Francis, Science Direct, Springer Link and PubMed. The search period was limited to the years 2000–2015. This period was selected because some scholars noted that before the 1990 the term public–private partnership rarely appeared in academic articles

(Barr, 2007), where as public health issues concerning the impact of a pandemic outbreak had been featured since the year of 2000.

The search covered peer reviewed articles written in English. The search terms applied across the databases were: Public–Private Partnerships* and emerging infectious disease outbreak * and Thailand* OR PPPs* and emerging infectious disease outbreak* and Thailand* OR Public–Private Partnerships* and pandemic * and Thailand* OR PPPs and pandemic * and Thailand* in the abstract. The database searches resulted in seventy one initial references. The software program NVivo was used to manage selected articles electronically.

3.2.1.2 Step 2: Delete Duplicated Articles

In the second step duplicated articles were deleted from the searches carried out in two different databases. Sixty five articles were eliminated from the sample.

3.2.1.3 Step 3: Read Abstracts

In the following step, standards of eligible criteria for inclusion and exclusion were set. The relevant articles were taken into consideration.

3.2.1.4 Step 4: Read Full Articles

The seventy-four remaining articles were read in their entirety. Data extraction sheets were designed and used as a template for the full readings of the articles and application of inclusion criteria. They include: details of the publication, aims of the research, research design, definitions of key terms, relevance to the PPP framework, whether the article was theoretical or empirical, country of analysis, and results and conclusions. The data extraction sheets aided reading, analysis, and synthesis, and also provided an additional quality control stage. The final number of research articles included in the systematic review were thirty five articles.

3.2.2 Data Collection for Case Study Research

3.2.2.1 Unit of Analysis

This study aims to describe the effectiveness of public health PPPs to provide healthcare, which currently exists in Thailand, to support pandemic influenza preparedness.

This study utilized in-depth interviews and documentary research as the tools to investigate the main criteria described in the conceptual framework. The research focused on discovery, insight, and understanding how the perspectives of those being studied offers the greatest promise of making significant contributions to the knowledge and practice of IFT in training and education PPPs, as described in the national strategic plan for pandemic preparedness.

Semi-structured, in-depth interviews were conducted with individual stakeholders involved in the Influenza Foundation of Thailand that were formed to carry out training and education tasks in the area of Thailand's national strategic plan of emerging infectious diseases preparedness. Once it was decided that an exploratory and descriptive study was the best approach for studying, a decision had to be made regarding the area from which the data should be gathered.

As illustrated in Chapter 2, public health PPPs is an area where PPPs have been increasingly utilized. The idea was that focusing on an area where training and education PPPs have been widely used as a new form of partnerships for a relatively long time period would provide the author with an opportunity to reach a better understanding of establishing and evaluating the contribution from the PPPs by the people involved in those settings.

According to the characteristics of exploratory research, it is expected that both research methodologies will bring the desired results in an increased use of PPPs in many areas of research focusing on healthcare related to pandemic preparedness in these multi-sectorial, collaborative arrangements. The current study is thus largely exploratory in nature.

3.2.2.2 Selection of the Interview Sample

Intensity, or elite, sampling was employed as the process of selecting the participants for the study. That is, participants were approached by the author because they are experienced experts and/or authorities of a particular occurrence. This method of sampling is also known as purposive sampling. According to Patton (1990), many qualitative researchers employ purposive sampling because they seek out groups, settings, and individuals where (and for whom) the processes being studied are most likely to occur.

The informants are identified by selecting from the delegate lists in PPP projects where this affiliation had been identified as one of the board, or committee members, for Thailand national preparedness strategic plan on emerging infectious diseases B.E. 2556. The dates of the interviews process were between Apr–Dec 2015. The initially 4 informants that were identified are described in table 3.1.

Table 3.1 The Proposed Informants for Interviewing and their Affiliations.

Public/ Private	**Informant Position**	**Institutional**	**Code**	**PPPs Project**
Public	President of IFT	Mahidol University	G1	IFT
Public	Committee representative from public sector	Department of Diseases Control, Ministry of Public Health	G2	IFT
Public	Committee representative from public sector	Department of Diseases Control, Ministry of Public Health	G3	IFT
Public	Committee representative from public sector	Government Pharmaceutical Organization	G4	GPO-Kaketsuken TA project
Private	Committee representative from pharmaceutical company	Biogenetech Thailand Ltd.	P1	IFT
Private	Committee representative from pharmaceutical company	Biovalys Thailand Ltd.	P2	IFT
Private	Committee representative from pharmaceutical company	GlaxoSmithKline	P3	IFT

3.2.2.3 Interview Format

Semi-structured, in-depth qualitative interviews were conducted to gather field data for this study. Patton (1990) describes three approaches to interviewing, namely, informal conversational, interview guide, and standardized. An interview guide, with a complete list of fully worded questions to be explored with each and every participant, was developed specifically for this research.

Furthermore, the author was keen on asking the same questions to all participants and following the same order of the questions. However, a degree of flexibility was practiced over the course of interviews to avoid the rigidity which is so common in standardized, or fixed-question—open-ended response approaches to interviewing. For example, whenever necessary and appropriate, probing questions were asked to encourage participants to expand/elaborate on their thoughts and the information they have just provided.

3.2.2.4 Development of Interview Guide

This study represents one of the first attempts to explore why the government incorporated training and education PPPs into the national pandemic preparedness plan and how these public health PPPs are effectively managed in a situation where a country is confronting the outbreak of an influenza virus. Thus, it is also deemed necessary to gain insight into a relatively broad range of key determinants of effective PPPs.

The author also developed the interview guide based on the research questions and interview questions which incorporated the major findings categories described in the systemic review analysis. Expected key findings will cover the major area to gain a deeper understanding of the IFT establishment for training and education PPPs in the health system in Thailand.

In order to ensure that the interviews yielded the quantity of data that the author expected, the author will pilot this interview protocol with two individuals outside of, but similar to, the research sample. Pilot interviews will be conducted before going into the field to interview the informants.

3.2.2.5 Interviewing Procedures

The interviews for the purpose of the study will be conducted in Apr-Dec of 2015. The author is aware that working in the field is unpredictable a great

deal of the time. So, the author must be ready to adjust schedules, to be flexible about interview times and about adding or subtracting observations or interviews. The time of each interview will be determined by the participant's availability.

The interviews will take place at any time during the day, from as early as 7:30 a.m., and up to 5:30 p.m. The length of time for the interview is expected to take about 2 hours on average. All interviews will be asked permission for audio recording to be made during the interview and for notes to be taken.

3.2.2.6 Interview Guide

Informants were asked a number of questions designed to elicit their views to a range of research questions. The questions asked are designed to explore the reasons for partners to participate in public health PPPs. Furthermore, the questions aim to gain a deep understanding of what they considered to be the greatest potential benefits from public health PPPs formation. Interviewees responded as representatives of their organizations. The content of the questions in interview guide are addressed in Appendix 1. The interview questions were linked to the research questions as shown in Table 3.2

Table 3.2 The Linkage between Research Questions and Interview Questions

Research Question	**Interview Questions**
1) What are the objectives of the PPPs arrangement?	1) What are your expected results of public health PPPs projects? (1) Increase financial advantage (2) Improve efficiency within existing assets (3) Increase access and improve equity (4) Contribute to meeting the health goals
2) Why public authorities and private entities participate in public health PPPs?	2A.What is the rationale for establishing public health PPP projects with private entities? (Question for informant from public organization) 2B.What is the rationale for establishing public health PPP projects with public organization? (Question for informant from private entities)

Table 3.2 (Continued)

Research Question	**Interview Questions**
3) How these PPPs projects are effective in strengthening the national preparedness action in the future?	1) Inputs What resources do public health PPPs projects invest in? (1) fiscal (2) human (3) knowledge base for the program (4) other inputs required to support the program, 2) Activities (1) What a program actually does to bring about the intended change? (2) Is there any formation of partnerships for capacity development? 3) Outputs Please describe the activities that public health PPPs projects delivered. 4) Outcome What is the outcome?

3.2.2.7 Documents

The informants will be asked during the interviews as to whether they have any written materials from their partnerships (e.g., minutes from meetings, evaluation forms, interim and/or progress reports, annual reports, promotional materials, etc.). The documents will serve two major purposes. Firstly, they will help the author gain a deeper and better understanding of the scope and content of partnership programs and the activities in which the practitioners in the sample were involved. Secondly, whenever available and appropriate, the documents can be utilized as a secondary source to validate data and to draw conclusions from the interview data pertaining to the practices reported.

3.2.3 Sorting, Validity, Coding, and Analysis of Interview Data

According to Holliday (2002), "the qualitative researcher uses inductive analysis, which means that categories, themes, and patterns come from the data. The categories that emerge from field notes, documents, and interviews are not imposed prior to data collection". Another important component of the qualitative research process is "the writing of the data in narrative form supported by evidence from the statements recorded in the notes and interviews." The author makes empirical assertions supported by direct quotations from notes and interviews. So, several archival documents (e.g. the minutes of meetings between the parties; procedures from educational meetings and annual performance reports) and third party data (e.g. published articles; news clippings and reports from other organizations) are collected and analyzed as part of the data verification procedure.

In the analysis and reporting of interview data for this study, an issue-focused, generalized approach was taken. An issue-focused analysis moves from the discussion of issues in one area to the discussion of issues in another, with each being logically connected to others in a PPP context. The analysis of the interviews proceeded in the following steps.

Step one, all audio recorded interviews were transcribed by the author into word processing documents. Thus, individual files were created for each informant.

Step two, to conduct an issue-focused analysis. The interview questions were specifically designed to gather information on defined issues.

Step three, coding of categories for answers to the questions to correspond into the four categories mentioned above were developed. The coding of the participants' responses to the question of "to whom" was a straightforward process in that listing each and every stakeholder group mentioned by the participants was all that was needed to complete the coding process. Similar observations can be made about the coding of participants' responses to the questions concerning "for what" of PPPs, as well as those related to stakeholders' differences, difficulties and challenges, and recommendations associated with PPPs.

On the other hand, as addressed above, the coding of the responses from the interviews will not always a straightforward process. In some cases, it will involve a number of iterations before categories emerged that are felt to be sufficiently inclusive and descriptive. The coding of participants' responses to the questions related to

words/phrases associated with PPPs, the functions, purposes, and importance of PPPs, significance of PPPs, and informal-formal dimensions of PPPs is a case in point.

Once coding is completed, response categories for each issue of concern are recorded onto spreadsheets. Then, summary tables are produced based on the number of responses falling into each category.

Finally, a final effort will be made to obtain an integration of the interview material throughout the analysis, presentation, and discussion of the findings from the field research.

3.2.4 Consent, Confidentiality, and Other Issues

The informants will be assured of confidentiality regarding the information and opinions they are going to share with the author. At the beginning of each and every interview, the informant's oral consent to audio-record the interview will be sought and obtained. Before and throughout the interviews, the author will try to establish an atmosphere of trust and congeniality to make the informants comfortable sharing their information, insights, and documents regarding the PPPs in which they were involved.

In other words, the author made every attempt to go beyond developing a good rapport with the informants, toward establishing "an interviewing relationship" between author and the informants based on mutual respect.

Finally, the author would like to express her gratitude to all informants for their participation and time, as well as for the information, insights and documents they shared with the author.

3.3 Quantitative Study

The results of the research showed that PPPs for training and education with IFT is the only project that delivered an outcome which could be measure the effectiveness of PPPs. The GPO-Kaketsuken project is still in the process of implementation and is not able to assess the outcome of PPPs establishment during the research study period. And with respect to the requirements, there is no outcome available to assess the effectiveness of PPPs for product development.

The author conducted quantitative research to assess the effectiveness of the training and education activities conducted by IFT for healthcare provides. Expected results will reflect how the project is effective in strengthening the national preparedness action in the future. In order to achieve the objective of this research, the methodology is described as follows:

1) Population and sample
2) Variables
3) Research tools
4) Questionnaires design
5) Data collection
6) Data analysis

3.3.1 Population and Sample

3.3.1.1 Population

The population in this study was the medical and public health personnel who attended the conference to prepare for clinical management on diagnosis and treatment of emerging/re-emerging infectious diseases in Thailand. The event was organized in cooperation with the IFT and the Department of Medical Services, Ministry of Public Health. The two key events were conducted in February 2016 with a total attendance of 504 people. The attendees were the representatives of healthcare providers from 4 northern provinces in and 4 provinces from the southern part of Thailand. The first meeting was held in Nan province on 9 and 10 February 2559 with a total of 266 participants. The second meeting was held in Chumphon province on 24-25th February 2559 with a total of 238 participants, as detailed in table 3.3

Table 3.3 Number of Healthcare Providers Attending the Meeting

	Event date	**Representative for the province**	**Number of attendances**
1	9 and 10 February 2016	Chiang Rai	59
2	9 and 10 February 2016	Nan	75
3	9 and 10 February 2016	Phrae	65

Table 3.3 (Continued)

	Event date	Representative for the province	Number of attendances
4	9 and 10 February 2016	Phayao	67
5	24 and 25 February 2016	Chumphon	71
6	24 and 25 February 2016	Surat Thani	62
7	24 and 25 February 2016	Ranong	53
8	24 and 25 February 2016	Phangnga	52
	Total		**504**

3.3.1.2 Sample

The sample used in this study was the medical and public health personnel who attended the conference to prepare for clinical management on diagnosis and treatment of emerging/re-emerging infectious diseases in Thailand. The event was organized in cooperation with the IFT and the Department of Medical Services, Ministry of Public Health in February 2016.

The study determined the sample size, according to Yamane's formula, as detailed in following:

$$n = \frac{N}{1 + N\,(e^2)}$$

Whereas n = sample size

N = population

α of .05

Calculating, the formula: $n = \frac{504}{1 + 504\,(0.05^2)}$

$= 223.01$

The sample size was calculated as 223 people.

The sampling method used was by simple random sampling distributed to all attendees. There were a total of 328 respondents from medical and public health providers who attended the conference.

3.3.2 Variables

Variables that were used in this study consist of independent and dependent variables as follows.

3.3.2.1 Independent Variables

In this study, independent variables were collected on the following variables:

1) Modifying factors which include, demographic data

(1) Gender (Female, male)

(2) Age

(3) Nature of patient care (direct contact vs. support function)

(4) Professional designation (physician who works in OPD or IPD; nurse who works in OPD or IPD; any specialty of healthcare workers who work in OPD/IPD; medical/nurse student who works in OPD/IPD; field epidemiology staff; staff and volunteers who destroy poultry carcasses, or any other animals with suspected bird flu infection; laboratory diagnosis of influenza virus staff; any others).

2) Perceptions pertaining to influenza were measured in the survey using the health belief model (HBM) domain that examined the perception of susceptibility to influenza (five questions), perceived severity of influenza (five questions), perceived benefits of influenza vaccination (five questions). The 15 items in this section of the questionnaire were measured using a Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Knowledge is defined as a "general awareness or possession of information, facts, ideas, truths, or principles."

(1) Perceived Susceptibility

Janz and Becker (1984) defined perceived susceptibility as "one's subjective perception of the risk of contracting a condition" (p. 2). Using the concepts of the HBM to explain the receipt of influenza vaccination and taking action

to prevent and manage the control of influenza among healthcare providers, the perceived susceptibility of contracting influenza contributes to the overall perceived threat of contracting influenza. Perceived susceptibility was measured by five items (Section 2, Items 1-5, Appendix B) that elicited information pertaining to the perceived risk of contracting influenza.

(2) Perceived Severity

Perceived severity, as defined by Janz and Becker (1984), is the individual's "feelings concerning the seriousness of contracting an illness (or of leaving it untreated)..." (p. 2). Consideration for both medical and social implications contributes to the perceived severity of the illness (Janz & Becker, 1984). Thus, the extent to which being sick with influenza impacts on home and work obligations for healthcare providers will contribute to their overall perception of the severity of the illness and influence their decision to be vaccinated. This concept was measured with four items (Section 2, Items 6-10, Appendix B):

(3) Perceived Benefits

Janz and Becker (1984) indicate that perceived benefits are "… beliefs regarding the effectiveness of the various actions available in reducing the disease threat" (p. 2). According to the HBM, nurses must believe these benefits outweigh the perceived barriers in order for influenza vaccination to occur. This concept was measured with five items (Section 2, Items 11-15, Appendix B). Each variable examined a perceived benefit of receiving the influenza vaccination as supported in the literature review.

3) Cues to action (six questions). According to the HBM, "cues to action" are statements, warnings, comments, or other external signals that initiate, or perpetuate. a person's realization that he, or she, is at a health risk" (Burns, 1992, p. 38). This concept was measured by seven items (Section 4, Items 1-6, Appendix B) that examined the impact of IFT educational training which provided information on influenza disease prevention and management control.

In addition, the final versions of the HBM scales were decided upon after a pre-test questionnaire was distributed. Finally, only those scales whose internal consistency reliability (Cronbach's alpha) was higher than 0.60 were retained. Items in the HBM predictor categories and the categorical variables were measured on

a 5-point Likert-type scale, with the following possible responses: strongly agree 1) agree 2) neither agree nor disagree 3) disagree 4) and strongly disagree 5) The scores on each of the scales were averaged to form the independent variables. The values of the independent variable predicted the participant's intention to take the recommended health action for pandemic influenza preparedness.

The dependence variable is defined as, the likelihood of taking recommended health action for pandemic influenza preparedness (Section 5, Items 1-10, Appendix B).

Data Analysis

SPSS 15 was used to analyze the data. Prior to the actual analysis, the data was explored and screened for violations of univariate and multivariate assumptions of parametric statistics. Missing data on an independent variable was assigned a conservative value as appropriate (0 for discrete variables and the mean group value for continuous variables). Data analysis procedures included, basic descriptive statistics, univariate analysis (Chi-square, *t*-test and ANOVA), and stepwise regression analysis.

Basic descriptive statistics included, general frequencies of the discrete and categorical variables, as well as the means and standard deviations (SD) of the variables. Univariate correlation analysis using Chi-square comparisons was performed to compare the vaccinated and unvaccinated groups on their nonparametric independent variables. Student t- tests were performed to compare the two groups on each parametric independent variable.

Survey data from Section 2, 5 and 6 was collected using a Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Data from Section B was then recoded into a categorical reference of agree and disagree. The Likert scale of 1 = strongly agree, 2 = agree, and 3 = somewhat agree were all given the value of 1 = agree. The Likert scale of 4 = disagree and 5 = strongly disagree were re-coded as 0 = disagree.

The re-coding of data was necessary to meet the assumption for stepwise regression that variables be dichotomous or continuous. This allowed the variables to be entered into the regression model. However, it is acknowledged that re-coding the scale in this manner may have resulted in a loss of important data.

Stepwise regression analysis allows the researcher to determine which variables affect the probability of a particular outcome by finding the best fitting model that describes the association between the outcome variable and a set of independent predictors. A 95% confidence interval (CI95) was the criteria used to determine whether or not a variable was an independent predictor. The resulting regression model was examined for appropriateness through goodness of fit statistics (Hosmer & Lemeshow, 1989). Forward stepwise regression was used for the analysis. Sensitivity, specificity and positive/negative predictive values of the regression model were also examined.

CHAPTER 4

RESEARCH RESULTS

The research results illustrate the findings from the mixed method which is relevant to answering how public authorities and private entities can collaborate to build effective PPPs in order to improved pandemic preparedness competencies against the threats of influenza disease outbreaks. Three research questions were posed in Chapter 1. The first research question is, how many public health PPPs projects are conducted to improved pandemic preparedness competencies against the threats of influenza disease outbreaks in Thailand? The second research question is, why do public authorities and private entities participate in public health PPPs? Furthermore, the data also relating to the third research question is presented for the question, what are the objectives of the PPPs arrangement? Finally the data will reveal the findings for the fourth research question, was the PPPs project administered effectively?

With regard to the research questions the process by which data were generated, gathered, and recorded is depicted by using qualitative research. The researcher describes the systems used for keeping track of data and emerging results through the use of field notes and qualitative software. The findings build logically from the problem and the research design and are presented in a manner that addresses the research questions. All salient data is accounted for in the study results. A discussion on evidence of quality shows how this study followed procedures to assure accuracy of the data (that is, trustworthiness, and triangulation). Appropriate evidence is detailed in the appendices; this includes sample transcripts, analysis tools, and field notes.

In order to provide the answer for research questions, the interview protocol instrument described in Chapter 3 was used to conduct the interviews for 2 public health PPPs projects. The key informants are from government authorities and private entities that play a key role in project management. The interviews were

recorded using a voice recorder. An introduction was given at the beginning of each interview, and each interviewee was given a copy of the questions to refer to during the interview.

Field notes were taken during each interview, and the audio portions of the interviews were transcribed. The transcribed responses were coded by the participant. Informants from government authorities were coded G-1 to G-4; participants from private entities were coded from P -1 to P- 3. The interviews were conducted from April to Dec 2015. Data gathered from interview questions, archival data, and third party reports were used to answer these questions. Below are examples of responses to interview question one.

4.1 The Results in Regards to Research Question1

Research Question 1 stated: What are the objectives of the PPPs arrangement**?**

From documentary research, it was found that there were 2 public health PPPs projects that have been conducted for pandemic preparedness in Thailand they are 1) The Influenza Foundation of Thailand (IFT) and 2) The GPO-Kakaetsuken Collaboration for Influenza Vaccine Development (GPO-Kaketsuken).

PPPs in delivering health programs can be placed into five categories 1) Research and development, 2) Improvement of access to health products, 3) Public advocacy and increasing awareness, 4) Regulation and quality assurance, 5) Training and education vs. training and education PPPs.

4.1.1 Influenza Foundation of Thailand (IFT)

IFT works to achieve its mission through collaboration to develop training opportunities, particularly in influenza prevention and control, which can strengthen health care professionals knowledge capacity. IFT engages both public health and private partners and builds networks. Its strong national collaborations complement a network of regional and global partners, all committed to reducing emerging infectious disease threats.

IFT has a strong history of collaboration with the Royal Thai Government at all levels. The program partners with the Ministry of Public Health, Department of Disease Control (the Bureau of Emerging Infectious Diseases, the Bureau of

Communicable Diseases and Bamrasnaradura hospital); Department of Medicine Services (Institute for Infectious Diseases, the Queen Sirikit Institute of Child Health; Bureau of Medical Technical and Academic Affairs); Department of Medicine Sciences and the Ministry of Agriculture and Cooperatives (Department of Livestock Development).

Interview results revealed the objectives of partnership in the IFT activities arrangement, in the case of Pandemic Influenza Preparedness are as follows.

IFT aims to promote the study of influenza for the purpose of dissemination of medical knowledge. The result of a partnership that will determine the healthcare and the general public knowledge on the influenza and the many influenza outbreaks that have happened during the last 13 years since the program began in year 2004 and up to 2016. IFT is expected to become an effective advocate for social awareness in the prevention of influenza and to encourage preparedness behavior against influenza amongst healthcare providers. The successful of the program implementation will enable more access to pharmaceuticals vaccine products for influenza prevention.

G1 (personal communication, April 2, 2015)

G1 identified the cooperation activities as:

> In the government's view, physicians and medical staff have a lack of deep understanding and knowledge in handing influenza disease management. The public-private partnership in the fields of training and educating are crucial. IFT is an organization with the expertise and is well recognized by the Ministry of Health and relevant agencies. IFT has been proving that it can carry out activities to educate medical and public health officials for a long time, its programs have been ongoing for a period of 12 years.

P2 (personal communication, June 5, 2015)

P2 has also identified the collaboration between public and private to disseminate medical knowledge contributes to the awareness of the social sector and access to influenza vaccines.

> We hope that if healthcare providers have appropriate knowledge and the general public obtains appropriate information from the media, they will

understand the importance of influenza vaccination which will help to prevent influenza infection. The raising of awareness levels and better knowledge about influenza will give them to access to medicinal products. In particular, access to influenza vaccines.

The archival documents for the years 2004-2015 were collected and also used to respond to the research questions. These documents included the original charter and subsequent revisions, along with strategic plans and implementation activities. The mission and vision statements of the IFT, government agencies and private entities were also gathered. A review of the archival documents produced the following findings.

Information from IFT website showed that the IFT described the objective in establishing the foundation. It aims to be a center for influenza disease management in Thailand. The founding objectives are to provide information, to conduct training and also to provide recommendations about influenza to healthcare providers and the general public. Meanwhile, IFT also intended to collaborate with other public organizations and private entities in organizing training on influenza for healthcare providers and the general public through newspapers and any other media vehicles. With respect to IFT's objectives as published, IFT implemented several activities which aligned with its objectives. For example, IFT worked in collaboration with public and private organizations to conduct training & seminars for healthcare providers in Bangkok and upcountry from 2004 until 2016. Also IFT not only conducting training and seminar at country level, but they also conducted international conferences on influenza.

The data gathered from the training & educational activities IFT has conducted, is shown in Table 4.1. These results indicate that IFT started its activities by organizing educational conferences for medical professionals and public health in 2004, the year the foundation was established. The main focus is, to be prepared for dealing with influenza and pandemic influenza. The meeting with the media and the public began in 2007, the year of the outbreak of bird flu during which World Health Organization urged support from each country to help prepare plans to cope with a possible influenza pandemic. The collaboration with both the public and private

entities which occurred were aimed at preparing to dealing with a flu pandemic in 2009 as a result of the emergence of a pandemic influenza strain, H1N1-2009.

Table 4.1 The Summary of Key Meetings to Educate Healthcare Providers Conducted by IFT During 2004-2016

Year	Key meeting
2004	Moving Towards Prevention and Control of Influenza Pandemic in the Next Decade
2005	Influenza Inter-Pandemic Preparedness
2005	Influenza Inter-Pandemic Preparedness from Plan to Action
2006	1) Influenza Inter-Pandemic Preparedness Plan Episode III -V 2) Pandemic Influenza; past, present & future, Impact of pandemic flu" 3) Influenza vaccine 4) Influenza Pandemic: What is it and how to respond? 5) Past, present and future of emerging infectious diseases
2007	1) Avian Influenza 2) Diagnosis, Treatment and Prevention of Human Seasonal Influenza 3) Influenza Pandemic Preparedness 4) Biosafety Issues in Emerging and Re-Emerging Disease 5) Influenza Disease Management Guideline for Healthcare Providers
2008	Diagnosis Treatment and Prevention against Influenza for Healthcare Providers for Government Fiscal Year B.E. 2551
2009	1) Influenza and Emerging Infectious Diseases Educational Training for Healthcare Providers for Government Fiscal Year B.E.2552 2) From Human to Avian and Swine – Origin of Influenza Viruses 3) Tracking an Important Milestone for Influenza Vaccine Development 4) Influenza New Strain H1N1: Learning Module for Healthcare Providers 5) The Second Thailand Human Influenza Research Meeting.

Table 4.1 (Continued)

Year	Key meeting
2010	1) Influenza and Emerging Infectious Diseases for Healthcare Professionals and Public Health Officers 2) Clinical Practice for Emerging Infectious Diseases in Thailand for Government Fiscal Year B.E.2553 3) National Seminar on H1N1
2011	1) Workshop on Tuberculosis and Influenza. Management for Government Fiscal Year B.E.2554 2) Clinical Practice Guideline for Emerging/Re-emerging Infectious diseases in Thailand
2012	1) Clinical Practice Guideline for Emerging/Re-emerging Infectious diseases 2) National influenza research agenda for Thailand for Government Fiscal Year B.E.2555
2013	Emerging Infectious Diseases: Key Challenges for Healthcare Professionals and Public Health Officers
2014	Clinical Practice Guideline for Emerging/Re-emerging Infectious diseases
2015	Clinical Practice Guideline for Emerging/Re-emerging Infectious diseases and Healthcare Preparation for Handling Ebola
2016	Preparedness for Diagnosis and Treatment of Emerging/Re-emerging Infectious Diseases in Thailand, for Government Fiscal Year B.E.2559

Table 4.2 The Summary of Key Meetings to Educate the Private Sector and the General Public Conducted by IFT During 2007-2009

Year	Key meetings
2007	1) Private Sector Preparedness for Pandemic Influenza and Avian Flu Outbreak 2) General Knowledge About Influenza/Avian Flu. The Impact of a Pandemic and Guidelines for Business Continuity Plan during an Outbreak. 3) Preparedness to Deal with the Disasters of Influenza / Avian Flu for the PEA 4) The Pandemic Preparedness and Business Continuity Plan, Training for the private Sector
2008	Meeting for the Preparation of Thailand for influenza H1N1 Business Continuity Plan
2009	Influenza 2009: Media Training for Thai Journalists

During the years 2004-2009 IFT has published and distributed information and clinical practice guidelines about avian influenza for healthcare providers in Thailand and also distributed to neighboring countries; a total number of 39,700 pieces as shown in Appendix C.

It was also found that the activity of the IFT has been identified as that which could be categorized as PPPs for public advocacy and increase awareness PPPs in that it provides knowledge about influenza to the public through public media communications, for example, making a website to disseminate information to the general public, educating television stations, giving interviews with newspapers, lecturing to employees in private organizations and state enterprise, organizing booths at exhibitions, making printed posters and pamphlets as shown in table 4.3.

Table 4.3 List of ITF's Activities for General Public Through Mass Media

Year	Activities for general public through mass media
2004	Preparation of information posted via web site: ift2004.org to provide answers via IFT web site.
2005	Provided knowledge on free TV program channel 11: health documentary on the topic, "Influenza, disaster in the near future." Provided knowledge on cable TV program, the Nation channel: health documentary on the topic "Avian Flu". Provided knowledge on cable TV program on the UBC channel: health documentary on the topic "Avian Flu". Gave an interview to the Bangkok Post newspaper on the topic of "Avian Flu". Joined a booth exhibition activity organized by TCELS on the topic "Influenza and Avian Flu. The readiness of private organizations in Thailand". Joined booth exhibition activity organized by Thai Airways public company.
2007	Gave an interview on a national broadcast radio program on the topic "Why the elderly could get influenza and how to prevent it".
2008	Organized media training on the topic "Influenza 2009: facts for the general public".

During the years 2005-2008 IFT published and distributed mass media information about avian influenza, and to prepare for the general public and various agencies through 24,000 pieces, as shown in Appendix C.

Reviewing the third party documents that included news from a cabinet meeting on the 14th March year 2006, online newspaper ASTV on the 16 February 2007 and APACI's announcement in organizing the First Asia-Pacific Influenza Summit on the 12-13th June 2012 revealed that the core responsibilities of IFT is that of a training and education PPP. The details are as follows.

1) Cabinet Meeting on the 14th March 2006

During the 2nd and 3rd March 2006, the IFT and the Ministry of Public Health (Department of Disease Control, Department of Health and Department of Medical Science) organized an annual symposium for the year 2006 on the topic of "Influenza: Influenza Inter-Pandemic Preparedness Plan Episode lll" in Phuket. It aimed to increase avian flu awareness for the policy and technical perspective. The topic also included surveillance, prevention and control of pandemic influenza. In attendance were 320 people from several stakeholders, including, policy decision makers, public health scholars and stakeholders from both within and outside the Ministry of Public Health.

2) Online Newspaper ASTV on the 16 February 2007

Under the partial funding from the US Agency for International Development (USAID), IFT worked with the Department of Diseases Control, Ministry of Public Health to conduct the workshop for the business continuity plan preparation in response to pandemic influenza and avian influenza for the private sector in Thailand. To encourage the business sector to be aware of the importance of a preparedness plan to cope with an outbreak of influenza. This included the creation of cooperation networks between businesses to operate continuously if a crisis situation occurs. In addition, the workshop also included the dissemination of knowledge on the prevention and control of avian influenza to the public through various media, such as television, radio, print media, electronic media, etc.

3) APACI's announcement in organizing the First Asia-Pacific Influenza Summit on the 12-13th June 2012

From APACI 's announcement, IFT worked with APACI to organize the Summit meeting, in accordance with input from WHO and CDC regional offices. The audience was representatives of healthcare provider organizations, public health authorities and others with an interest in the control of influenza. The Summit was modeled on the successful European (ESWI) and United States (CDC/ AMA) Influenza Summits held in 2011, and the forerunner of new initiatives to promote influenza awareness in the region. The summit addressed the challenges of combating influenza in the region, by focusing on influenza control policy, funding availability and policy implementation, leading to improved influenza vaccine uptake.

From the analysis of national strategic plan 2013-2016, it was revealed that there are several parts of the national plan in which IFT has played a key role in supporting the government measures on pandemic preparedness. The details of this analysis is to demonstrate the alignment of the role IFT contributes to pandemic influenza preparedness, according to the national strategic plan as described in the table 4.4.

Table 4.4 The Analysis of IFT's Roles in Supporting Government Measures on Pandemic Influenza Preparedness

Strategy	**Tactics**	**Measures of public-private partnerships**	**IFT activity that contributes to pandemic influenza preparedness**
Strategy No.3 The strategy in intensifying knowledge management systems and promote research and development of EIDs	Systematic knowledge of management	1) The creation of a mechanism to coordinate technical cooperation. An exchange of knowledge between international organizations and experts, academic institutions, both domestic and international. 2) Manage knowledge sharing and educational activities on prevention and control of emerging infectious diseases for healthcare providers at all levels.	1) Supporting the creation of knowledge within the National Network of Excellence Center 2) Establish educational training courses to disseminate knowledge on prevention and control of emerging infectious diseases for relevant healthcare providers. 3) Develop educational materials to promote the value of research on influenza prevention and control. 4) Organize training and educational activity/conference/knowledge exchange events on

Table 4.4 (Continued)

Strategy	**Tactics**	**Measures of public-private partnerships**	**IFT activity that contributes to pandemic influenza preparedness**
			research in emerging infectious diseases.
Strategy No.4 The strategy to establish integrated management of preparedness and response for public health emergencies.	Development of resources and logistics	1) Collate the collaboration and domestic resources from both the public and private entities and mapping resources in advance 2) Capacity building for research & development and production of vaccines and essential medicines at national level for self-reliance in the long run by working in cooperation with the business sector.	1) Support surveillance and outbreak alerts to relevant authorities 2) Provide support in organizing educational conferences focusing on research & development and production of vaccines and essential medicines to combat influenza.
Strategy No.5 The strategy to enhance public information, risk communication and relations on emerging infectious diseases.	Accelerate the implementation of proactive dissemination and public relations for the prevention and control of emerging infectious diseases	Accelerate the outreach campaign to promote preventive behavior against communicable diseases through various communication channels by integrating collaboration between the public and private entities	1) Prepare communication materials and disseminate knowledge on the prevention of emerging infectious diseases. Materials to be ready to distribute to various organizations, including schools and the general public.

Table 4.4 (Continued)

Strategy	Tactics	Measures of public-private partnerships	IFT activity that contributes to pandemic influenza preparedness
			2) Provide updated information about emerging infectious diseases on the website and link with other potential websites.

The Value of Training and Education PPPs

When looking at the effects on the health security of the country, according to the definition of World Health Organization, the value of PPPs in the health system can be classified into four categories 1) increase financial advantage, 2) improve efficiency within existing assets, 3) increase access and improve equity, and 4) contribute to meeting health goals.

The study found that the cooperation between the IFT and private and public networks, such as the Department of Disease Control, Department of Medicine, Center of Cooperation Thailand-US, are beneficial to the health security of the country in terms of increasing access to influenza vaccine and increased equality in health services. Moreover, this partnership also delivers value to achieving the objective of public health goals. The details are as follows.

G1 (personal communication, April 2, 2015)

G1 mentioned the benefits of the partnership on increased access and improving equity:

> By raising the awareness of diseases and the importance of vaccination in general public. When the government introduced the influenza vaccination national campaign, people easily understood and were ready to get vaccinated. Compare that to the situation in the past, when the knowledge on the importance and benefits of vaccination were limited within the general public.

> Only a small number of people were willing to get the vaccination. Now, there are more people getting vaccinated. This is demonstrated by National Health Security Office creating an influenza vaccination database which revealed higher numbers of vaccine distribution and coverage

From IFT's committee meeting minutes (No. 7/2548) which addressed the execution of IFT in driving the national campaign for influenza vaccination and a clinical guideline on vaccination, it revealed the value of influenza vaccination for national health security. Meanwhile, IFT issued letters to relevant medical associations and societies to endorse the 1st National Influenza Vaccine Clinical Practice Guideline. This proposes the need for vaccination against influenza. IFT also hosted meetings to brainstorm with the representatives of various medical associations and societies prior to submission for central government approval through the Department for Diseases Control. It was generally accepted that IFT is a key player in initiating and driving the successful establishment of the national influenza vaccination guideline, which has led to the successful implementation of influenza vaccination programs at national level in Thailand.

According to the National Vaccine Institute committee meeting minutes for year 2010, it was stated that the meeting agreed on the wide use of vaccines to prevent seasonal influenza. This is not only to reduce sickness and mortality with influenza but also to prevent changes to the viral strain which may be the cause of a pandemic. The process used to identify the target population of who should be vaccinated against seasonal influenza was done in accordance with the instructions in the Immunization Handbook. For the fiscal year 2006 the Department of Diseases Control decided to purchase vaccines estimated at between 300,000-400,000 doses. Priority was given to government officers at risk to exposure to avian influenza and seasonal influenza. Priority was also given to other high-risk groups such as, medical staff, public health staff and livestock staff. According to the recommendations from the Thailand National Advisory Committee on Immunization, IFT and WHO, the NVI suggested that the Ministry of Public Health provide vaccination to high-risk groups in the general population who were at risk of contracting influenza with complications. Several groups were identified, such as patients with chronic illnesses,

the elderly (over 65 years), children (ages 6-23 months), which would require vaccinating. It has decided that it will require 9-10 million doses of vaccine per year. The Office of the National Vaccine Committee has prepared a proposal to expand the influenza vaccine to the Board of the Committee for National Health Security Office for their approval for a budget allocation to procure vaccines and provide vaccines accordingly. Starting in 2008 a total quantity of 120,000 doses of influenza vaccines were obtained for high risk people, those who are elderly and suffering from a list of 7 chronic illness e.g. chronic obstructive pulmonary disease; asthma; cardiovascular problems; stroke; chronic renal failure; cancer with chemotherapy and diabetic millitus. In 2008 the Ministry of Health, in collaboration with the National Health Security Office expanded the targeted groups by giving the vaccine to patients with the 7 listed chronic diseases but to cover all age groups, a total of 1.8 million doses of the vaccine. This has been in operation since July 2008.

According to the data from the Ministry of Public Health of Thailand dated May 8, 2015 Public Health Minister Professor Rajata Ratchtanavin said, "Now the Ministry of Health has organized a vaccination campaign against seasonal influenza for the general public to reduce illness, reduce economic loss and reduce complications from the influenza virus. Because Thailand is now starting the rainy season, this season is when the greatest number of infections from influenza disease occurs. The disease is easily spread through coughing and sneezing. The Ministry of Public Health aims to immunize 8 groups of high-risk people using 3.4 million doses. Included in these high-risk groups are: 1) pregnant women for the gestational period of 4 months and up; 2) children aged between 6 months to 2 years 3) people with any of the identified seven chronic diseases (chronic obstructive pulmonary disease; asthma; cardiovascular problems; stroke; chronic renal failure; cancer with chemotherapy and diabetic millitus) 4) elderly people aged 65 years and up 5) the disabled, 6) people suffering from thalassemia and the immunocompromised. 7) the obese, weighing over 100 kg or more. 8) healthcare providers, public health officials and volunteers who destroy poultry. The National Health Security Office provides three million doses of vaccine for the general population and the Department of Disease Control provides four hundred doses for healthcare providers, public health officials and volunteers who destroy poultry. "

Information from the website of the Ministry of Public Health revealed the importance of vaccination against influenza on the public health agenda. The authority allocated resources against the influenza virus to protect the Thai population in both the general public and public health arenas. The influenza vaccine uptake figures for the national vaccination program are shown in Figure 4.1.

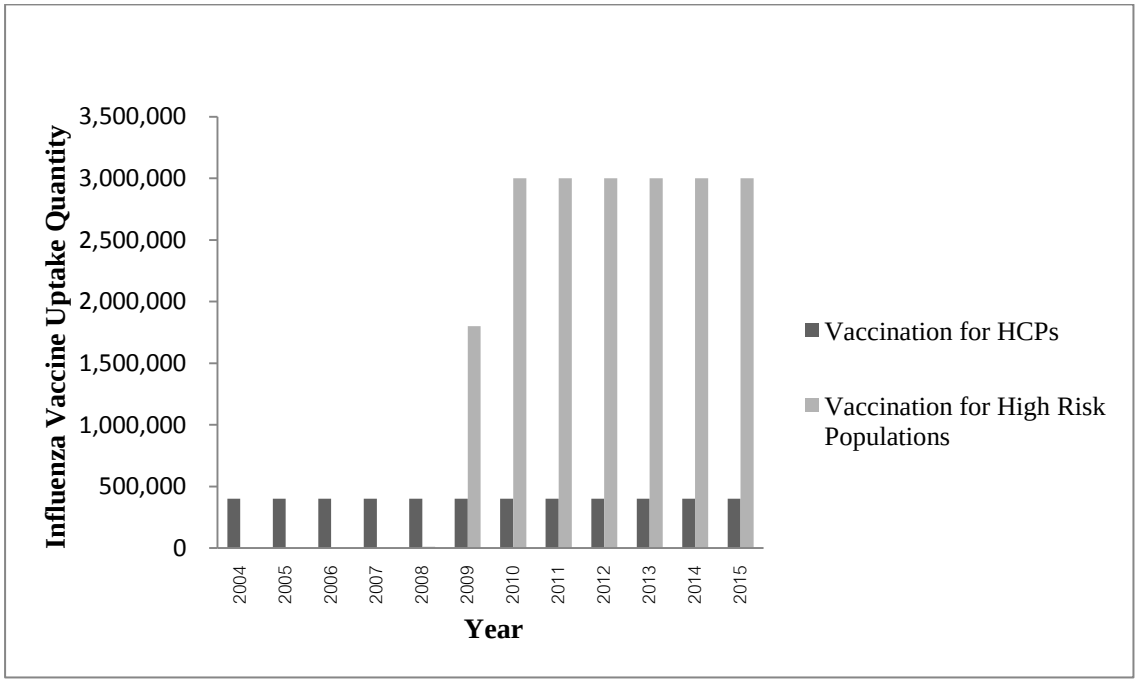


Figure 4.1 The Amount of Influenza Vaccine Uptake for the National Vaccination Program.

IFT's contribution to achieving public health goals and in achieving the objective of health care is to support the Ministry of Public Health in driving the national strategy for preparedness for influenza outbreaks.

IFT has been involved in the strategic plan for the creation of a mechanism to coordinate knowledge and technical cooperation, such as, knowledge sharing amongst international organizations and experts, academic institutions, both domestic and international on the prevention and control of emerging infectious diseases. IFT has also conducted public relation activities to raise awareness of influenza for the general public which is aligned with the national strategy on

pandemic preparedness. These activities have involved health behavioral change, for example, washing and wearing a mask for personal hygiene protection and prevention of spreading influenza.

The national strategic plan for pandemic preparedness in the year 2013-2016 indicated that cooperation between the public and private sector in the strategic plan is a crucial process to develop the national strategy and its execution and to strengthen Thailand's national capacity. Establishment of international cooperation is also important to develop Thailand's guidelines and standard operating procedures which are relevant to international frameworks. It will support Thailand's strategic guidelines more effectively in handing a possible influenza pandemic.

IFT activities to support the Thailand National Strategic Plan for Pandemic Influenza Preparedness are well recognized. It also demonstrates the consistency of IFT's role in contributing to the strategic plan. With respect to the Thailand National Strategic Plan, the Ministry of Public Health is the core function in cooperation with the relevant authorities. Furthermore, in order to prepare and respond to a possible influenza pandemic the roles of government agencies and private sector in cooperation between the public and private sector were identified.

4.1.2 The GPO-Kaketsuken Collaboration for Influenza Vaccine Development (GPO-Kaketsuken)

Development of the Influenza Vaccine Project was undertaken in response to the problems caused by outbreaks of the influenza virus/avian flu, which could lead to the loss of life and cause immense economic damage. These outbreaks have been a worldwide threat in the past and will continue to be so in the future. In response to this threat the World Health Organization (WHO) has devised strategies and plans to ensure the world's readiness to combat it; this mainly involves the creation and production of vaccines, as, in the event of a pandemic, there is a risk that these will be in short supply. In answer to the pandemic influenza challenges, Thailand has developed strategy plans designed to combat avian flu and to ensure the country's readiness to prevent and solve the problems that would be created in the event of pandemic influenza; the first edition of these strategy plans was developed for the period 2005-2007 and a second edition was prepared for 2008-2010. The strategic plan currently in operation (2013-2016) is aimed at preparations to prevent and solve

all cases of newly emerging diseases within the nation. GPO is the main agency responsible for developing influenza vaccines in Thailand.

G4 (personal communication, September 16, 2015)

G4 mentioned;

> GPO has been assigned by the Ministry of Public Health, to take responsibility for the production of influenza vaccines in preventing influenza. Vaccine production requires manufacturer technology.

To achieve successful influenza vaccine production, from the research & development stage, right through to the launch of the vaccine onto the market, requires an industrial manufacturing plant which meets the WHO GMP standards. In 2009, Kaketsuken agreed to provide technical assistance in the development of technologies to produce seasonal inactivated influenza vaccines and to the knowledge transfer in influenza vaccine production to the GPO for production in Thailand. This cooperation is in line with the ASEAN+3 agreements, that a country with high technology has to support other member countries for enhancing disease prevention systems in the region. The project is set to proceed in three years so that the Thai factory can produce the vaccine for domestic use and that will help the country reduce vaccine imports. The GPO vaccine plant is located in Tub Kwang Sub-District, Kaeng Khoi District, Saraburi Province. The goal of the plant is, in the first instance, to have the capacity to produce 2 million doses of seasonal influenza vaccines; this production will later be expanded to 10 million doses and the plant will have the ability to expand still further, to not less than 60 million doses, in the event of a pandemic. Once the plant is in complete operation it will represent a major achievement for Thailand, as it will represent true self-reliance and demonstrated production. In addition, the health of Thai people throughout the entire country will be safeguarded by this plant's operations should a pandemic occur.

4.2 The Results in Regards to Research Question 2

Research Question 2 stated: Why public authorities and private entities participated in public health PPPs?

4.2.1 Influenza Foundation of Thailand (IFT)

The rational why public organizations participate with the private entities to deal with a possible influenza pandemic is a need to access the resources of the private sector, meanwhile the private sector also needs access to public resources, especially government budgets. PPPs will enhance the effectiveness of the project activities by getting greater access to target the population, to which the private sector can contribute to better.

Public organizations obtain their financial support from the private sector for project establishment especially for expenditures which the public sector is not able to pay for. In this situation, financial support from the private sector is necessary for the success of the project e.g. initial support from the private sector to set up IFT amounted to two hundred thousand baht for the foundation registration procedure to comply with legislation. Moreover, at the project implementation stage, project activities still need to be supported by the private sector for those activities that have limited spending regulations in the public sector. Activities such as inviting guest speakers from abroad, inviting attendees from the private sector, participation at the international level, conducting activities to educate healthcare professionals and the general public through various activities. It has been found that the government has constrained the budget.

The public sector wants to increase its potential to reach target populations more comprehensively than if the public sector acts alone. This is one of the reasons why the private sector has several associations which play key roles at national and higher levels which are crucial for the readiness of national pandemic preparedness.

G1 (personal communication, April 2, 2015)

G1 responded there was a match between the rational for establishing training and education PPPs in regards to and actual PPPs arrangement and stated:

> In order to be prepared to handle situations the public and private entities must cooperate with each other to work together successfully. If any party lets the opponent do the same it will not succeed, hence the need to work together to help both parties, as an example in 2004 with the outbreak of avian flu. This was very dangerous it had a mortality rate, as high as sixty percent. The preparation to the awareness is very important.

> As a virologist, I knew that it was very serious. The number of people who died because of influenza is higher than the people who died in the First World War. So, the goal of IFT is committed to combat influenza. Meanwhile, IFT also works in coalition with the Ministry of Public Health in handling influenza outbreaks. In the IFT establishing stage, we didn't have enough money. We got donations for two hundred thousand baht for the registration of the foundation from private entities. According to the regulation, IFT is required to specify an official address. I decided to use my own home as the IFT office. It's free and no need to pay any rent. Eventually the IFT registered in 2004. It took two weeks for official approval to be granted from the government. The IFT committee has been working since then. We realized that the doctors and healthcare providers lacked knowledge on influenza. This is a crucial finding and IFT aimed to complete this mission by holding nationwide training courses. The IFT training course must reach officials at operational levels, especially in the provinces where the outbreak may occur and where the healthcare providers may face the disease outbreak situation. For this reason, IFT started training courses at Nong Khai and Udonthani provinces. We trained healthcare providers how to manage and how to report the results to central government properly especially in the situation when a patient has symptoms of the flu in the village or a chicken has got avian influenza.
>
> G2 (personal communication, April 2, 2015)

G2 responded there was a match between the relationship arrangements of PPPs in regards to inter-organizational relation and actual PPPs arrangement and stated:

> The reason for the public organizations to establish collaboration between public authorities and private entities was where fulfillment of the other side's shortfalls would be possible, for example, the limitation of the public authorities in obtaining budgets for organizing required activities, while private entities have their own policies for funding the public or foundations. Then, they would be able to cooperatively arrange meetings for medical and

public health officers with the fund supported by the foundation for preparing the speakers. And public authorities of the Department of Disease Control or Department of Medicine would allocate their budget for the meeting and travelling arrangement. That would increase the number of meetings and the arrangement in various provinces. At the same time private entities could invite physicians and medical officers from private hospitals or private organizations to attend the meetings. That would increase the diversity of the participants who were involved in the preparation for an outbreak of influenza.

Reasons of Private entities:

The reason that private entities collaborated with the public sector in preparation for an outbreak of influenza was the need to get access to public resources. The public resources that private entities want to have access to is direct access to public policy makers, access to target groups and access for business expansion. Private entities also have an opinion that collaboration with public authorities is a CSR activity for the prevention of loss if affected by an influenza outbreak.

Direct Access to Public Policy Issuers: Cooperation with public authorities in organizing any activities will give the chance for private entities to get to know the officers in related official organizations, as well as the issuers of the policy for strategic preparation against an outbreak of influenza, and the direct data beneficial for such preparation and private business can be obtained.

Access to Target Groups: Public authorities can help to initiate access to target groups better than if the private entities have to do it alone.

Business Expansion: Private entities can create business opportunities from the influenza orientations as the awareness of medical officers and general people on influenza prevention will trigger an increase in the value of the influenza vaccine market, higher than in the past; the value before the foundation conducted the orientation.

CSR activities: In the view of private entities, providing support to the foundation is a CSR activity for building awareness on an influenza outbreak.

The support for giving knowledge to related people, including public officers and public people will help lessen the impact from an influenza outbreak.

P1 (personal communication, May 29, 2015)

P1 responded there was a match between the rational of PPPs in regards to resource dependence theory and actual rational and stated:

> An outbreak of influenza, its impact and consequences and potential to occur are high, however, it hasn't yet happened. But historical occurrences inspire future concerns. We expect it will happen in the future, but don't know when. If it does happen in the future, there will be a severe impact and possibly chaos. It is still uncertain how medical officers can prepare themselves for the situation. What will be the business impact? Business sectors are concerned that if a massive outbreak occurs, how do they prepare for it? As in their view the public authorities lack the knowledge, so they want to educate those people as well as the public to be aware of the extent of the chaos and how to prevent it. This will lessen the impact when an outbreak occurs".
>
> In general public authorities have more resources while private entities are more flexible. Public authorities, therefore, may be seen to be better in preparing for an outbreak of influenza. Whereas, international organizations, such as, USCDC and Kenan have the opinion that public authorities have the potential to invite specialist speakers from abroad and the ability to organize international conferences related to the national preparedness for influenza outbreak. Hence, the foundation can grant support for the payment beyond the budget obtained from public authorities. This is a two-way assistance.
>
> The reason private entities started from Sanofir Pasture Company was an interest in executing activities to provide knowledge about influenza, they then gained cooperation from many companies, e.g. Roche, Biogenetec and GSK. All 4 companies have indicated that if this was done by private entities alone, acknowledgement by social and academic sectors may be not achievable. They, therefore, invited influenza specialist, Professor Prasert

> Thongcharoen, M.D. to be the president. The president, later, invited related academic professors and specialists from other public authorities to join in establishing the foundation and was able to initiate understanding and awareness about influenza. Since then, the foundation has been acknowledged by the Ministry of Public Health and has received full support from Director-General level management in arranging related activities.

P2 (personal communication, June 5, 2015)

P2 responded there was a match between the rational of PPPs in regards to resource dependence theory and actual rational and stated:

> The private entities were also relatively obligated for business reasons. The collaboration between public authorities and private entities in IFT was aimed at providing knowledge to related people, including the public for better awareness of influenza. If private entities performed this by themselves the acknowledgement from the public may not be satisfactory. Academic associations have also been invited to get involved. Professor Prasert Thongcharoen, M.D., and academic professors from the Ministry of Public Health and related organizations were invited to join in giving knowledge to related people to increase awareness about influenza. That will bring a business advantage as the influenza vaccine market will expand and increase in value.

Third party data consisted of meeting minutes performed by cabinet, news clippings, and IMS data. Reviewing the third party documents revealed that adherence to the rational for public participation in PPPs for training and education is to acquire financial support and access to target audiences. The private sector can help the public sector access more healthcare professionals in private hospitals and/or institutions; private associations; and media reach.

The information from IMS healthcare revealed the statistic for influenza vaccine market expansion was that it has expanded continually. In 2003, usage of the vaccine was only 15,341 dosages per year, but after the campaign about influenza by

public authorities and private entities under the strategic plan for preparation for an outbreak of influenza, the influenza vaccine market in large private hospitals has expanded continually since 2004 Later, in 2009, there was a massive outbreak of Influenza A 2009 (H1N1) so usage of influenza vaccine has increased constantly as shown in figure 4.2.

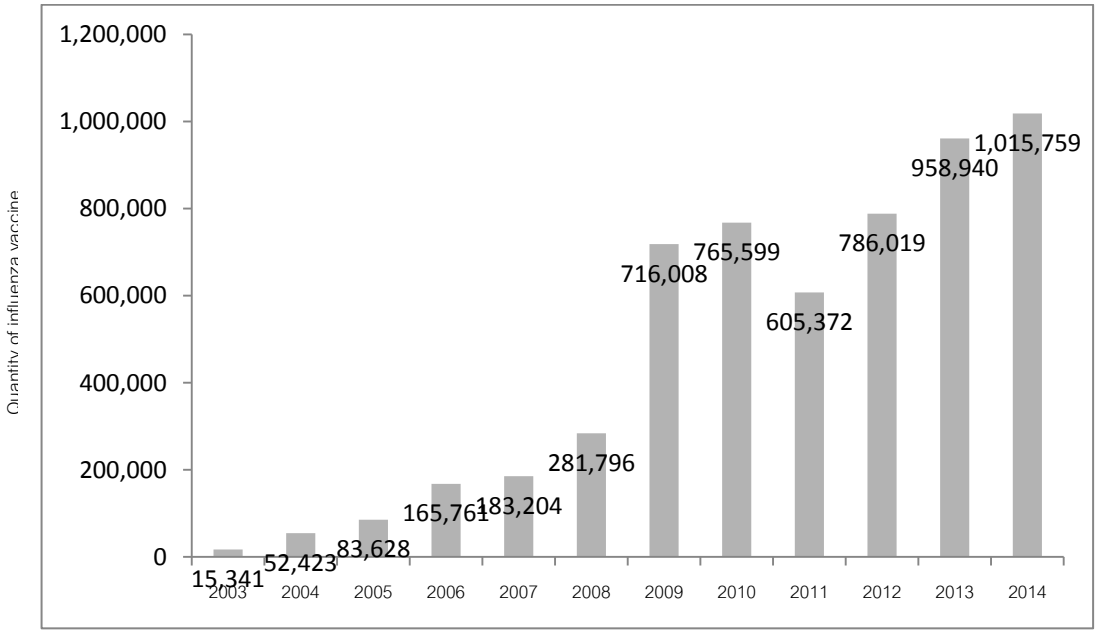


Figure 4.2 Quantity of Influenza Vaccine Uptake in Private Hospitals

4.2.2 The GPO-Kakaetsuken Collaboration for Influenza Vaccine Development

In late 2006 the WHO established a project for developing vaccine production potential by supporting a fund for influenza vaccine technology transfer. Then, in 2007 GPO became one of the six vaccine manufacturers in developing countries (first group) to benefit from this fund. GPO received a supporting fund to the amount of 1.996 million USD to develop the technology for the production of influenza vaccines in Thailand to combat pandemics of both influenza and avian flu. During this period there was an outbreak of avian flu (H5N1) in Thailand which resulted in major problems both for the economy and public health; this included 17 deaths out of 25 infected patients (reported 2004-2006). In response to the above reason, GPO

developed a vaccine by using a technology which produces vaccine via the use of chicken eggs and has been used for industrial scale production around the world. The types of vaccine which GPO has developed are inactivated influenza vaccine, which is for seasonal use and live attenuated influenza vaccine which is used for the control of pandemics.

In 2009, WHO supported the fund to the amount of 2.064 million baht and also provided support for GPO's research and development, which was undertaken, complete with pre-clinical and clinical trials, with the aim of enabling GPO to register its vaccine formulae in accordance with international standards. Following outbreaks of avian flu and influenza (2009) A/H1N1, The royal Thai government came to realize the importance of protecting the health of the Thai people via vaccines and by the development of the potential for domestic production of these vaccines. The government approved a budget for the construction of an industrial manufacturing plant for influenza/avian flu vaccine. GPO, which was assigned to produce the vaccines, worked concurrently to develop its knowledge on vaccines and its potential for vaccine production in order to support future manufacturing. GPO also commenced its research and development of the production process for inactivated influenza vaccine (split vaccine) on a laboratory scale.

G4 (personal communication, September 16, 2015)

G4 mentioned:

> The reasoning of the public authorities was that the Government Pharmaceutical Organization (GPO) was assigned by the Ministry of Public Health to produce vaccines for the preparation of disease prevention and as GPO did not have the technology for the production of influenza vaccine at an industrial level, finding the technology was required. At the primary stage, it was proposed by the World Health Organization (WHO) in 2007 that if any country has an interest in producing vaccine for influenza prevention, then a proposal should be prepared to obtain funding from WHO for vaccine production technology development. At that time, GPO cooperated with the Ministry of Public Health to prepare the proposal to obtain funding support from the WHO. The fund was granted and WHO sent specialists to provide

advice on influenza vaccine production. In 2008, vaccine production on a laboratory scale was developed with satisfactory results at the primary state. Later in 2009, when the proposal was prepared for obtaining second year funding, there was an outbreak of H1N1 2009, GPO, therefore, changed its preparation from producing vaccine for purchase to be the vaccine of a kind that is possible to be produced in greater volumes within short period of time. For this in 2009, GPO got assistance from the Japanese government in ASEAN+3 Conferences by introducing Kaketsuken Company which GPO expected to get assistance from in producing the vaccine at industrial level. The required assistance was technical assistance in the development of production processing, testing process, validation and performing a pilot scale. At present, the cooperation is stepping up to the clinical testing phase, I/2 of inactivated influenza vaccine which will then conduct human trials in July 2015.

If Thailand did not possess the potential to produce vaccines itself, then its access to vaccines would be extremely limited because the capacity of global vaccine production is not nearly sufficient to meet the demand. Countries with vaccine manufacturing plants keep the bulk of their vaccines for their own use, with only a limited amount available to be given or sold to other countries.

G4 (personal communication, September 16, 2015)

G4 presentation at an Academic Meeting:

We cannot work and build up GPO capacity alone. We must involve and build up capacity of partners like TFDA, NCL, Bureau of Epidemiology, the Department of Livestock Development, and universities. The capacity building has to be comprehensive, involving institutional and individual capacity building as well as networking. That is the main reason for the formulation of a capacity building program. International support is essential for our future success.

4.3 The Results with Respect to Research Question 3

Research question 3 stated: How these PPP projects are effective to strengthen national preparedness action in the future?

Determinants that indicate the effectiveness of public health PPPs arrangement for pandemic influenza preparedness are identified by the logic model including input, process, output and outcome of the project. The effective PPPs could support national health security in confronting a pandemic influenza threat. Cooperation between the public and private sector in the strategic plan is to develop a mechanism to strengthen the capacity of relevant agencies in the country.

> The collaboration between public authorities and private entities in the strategic plan was the mechanism for promoting capability development of related national organizations and the development of international collaboration and initiated the improvement of related operational methods and standards consistent with the method, strategy, and scope of the collaboration. The driving and managing of the strategy, effectively and specifically, both in normal and crisis situations, should be done by public authorities in close cooperation with private entities by allowing public involvement that will enhance the implementation of various measures and achieve the objectives of the strategy: Thailand is able to prevent and control emerging communicable diseases effectively and uniformly at national and international levels.

4.3.1 Effectiveness of Influenza Foundation of Thailand

Data was gathered from interviews, archival documents, and third-party reports to answer Research Question 3. The factors indicating the efficiency of the cooperation between public authorities and private entities that have been chosen to use in the preparation for the influenza outbreak plan by considering the components related with a primary management process, include input factor, process, produce and result, details are as follows: (The factors indicate the efficiency of the cooperation between public authorities and private entities chosen to be used in the

preparation for the influenza outbreak plan by considering the components, related to management processes at various levels, including input, process, products and results, details are as follow):

4.3.1.1 Inputs

The inputs of an effective partnership can be categorized as: goals and structure.

1) Goals

The McKinsey study identifies two fundamental prerequisites for an effective partnership: an agreed simple and compelling goal, together with a clearly defined and focused scope (disease, geography, population, activities) (McKinsey, 2002).

A. Agreed simple and compelling goal; clearly defined and focused scope. A study's findings revealed that both parties agreed on a compelling goal with clearly defined and focused scope.

G1 (personal communication, April 2, 2015)

G1 identified the reasons for establishing IFT as follows:

> The objectives for establishing the foundation are for implementing the clearly identifiable collaboration project and to have a well-defined scope of works; to be the coordination and distribution center of influenza related information; for the distribution of knowledge, arranging training and giving advice about influenza to medical officers and the public; to cooperate with other public and private organizations in warning and preventing influenza and to operate or cooperate with other charity organizations for the public advantage.

P2 (personal communication, June 5, 2015)

P2 identified the reasons for establishing IFT as follows:

> At present, physicians, medical officers and the public lack the knowledge and still misunderstand influenza. Occurrences of influenza in Thailand have increased every year. The establishment of the foundation related to influenza prevention is a way to trigger awareness on influenza among physicians, medical officers and the public and to conduct campaigns about influenza prevention, to reduce the outbreak and economic loss, and consequently, result in a significant benefit to the country and society overall.

From the minutes of the IFT meeting and information from website, the objectives of the foundation have been determined as follows:

From the minutes of the IFT meeting no.1, on Monday 19 July 2004;

Foundation Objectives:

(1) To be a center for the coordination and distribution of information about influenza.

(2) To contribute knowledge, arrange training and give advice associated with influenza to doctors, medical officers and general people.

(3) To cooperate with other organizations, both public and private entities, in warning and prevention of influenza.

(4) To operate or cooperate with other charities for the public benefit.

(5) Not be involved with any politic activities.

Foundation Activities

(1) Prepare annual general meeting, at least once a year.

(2) Prepare short academic training course for physicians, medical officers and arrange training course for the general public.

(3) Distribute information about influenza via various media formats, e.g. brochures, newspaper, radio and TV, etc.

(4) Coordinate the cooperation, related to information and activities, between public authorities and private entities, national and international.

Foundation Guidelines:

(1) To be a center for the coordination and distribution of information about influenza.

(2) To contribute knowledge, arrange training and give advice associated with influenza to doctors, medical officers and the general public.

(3) To cooperate with other organizations, both inside and outside the country.

(4) In case of funding support, the Foundation is responsible for selecting people to formulate regulation.

The consultation process involves appropriate and influential stakeholders. The evidence was used appropriately and the processes related to stakeholders were suitable.

P1 (personal communication, May 16, 2015)

P1 identified that evidence was used appropriately.

The selection of the committees or the advisors was based on their experiences, knowledge and capability. The list shall be proposed to the foundation founding committee for approval prior to appointment as a committee member or advisor.

G1 (personal communication, April 2, 2015)

G1 identified the process related to stakeholders, as follows:

The process for considering selection of a stakeholder from a private entity is, they should be an influenza vaccine manufacturer, be without conflict between the public authority and private entity and both shall value collaboration.

P2 (personal communication, June 5, 2015)

P2 identified the process related to stakeholders, as follows:

The Sanofi Pasture, Roche, Biogenetec and GSK have discussed together the importance and necessity for giving knowledge and promoting awareness to the public based on academic information associated with influenza, they, then, have been granted a fund of 500,000 baht each to establish the foundation in August 2004. An additional support fund has been provided until now. In addition, the foundation has gained support for arranging academic meetings from the Department of Disease Control. Particular stakeholders among private entities and the four companies may gain more benefit than others from different market shares.

From the minutes of the Influenza Foundation of Thailand committee meeting, no. 1 held on Monday 19 July 2004, it was found that the appointment of the committee and the identification of the positions of the committees and the determination of foundation’s operational policy have

been done after the foundation was established. There are various committees groups, such as Consulting Committee and Academic Committee. The resolution on agenda 1 of 2004 stated to appoint 12 committee members with the positions specified in table 4.5 and 4.6.

Table 4.5 List of Names of the IFT's Establishing Committee for Year 2004

List of Committees	**Positions**
Professor Prasert Thongcharoen, M.D.	President of the committee
Dr. Sirisak Warintrawat	Vice president no. 1
Dr. Kanchit Limpakarnjanarat	Vice president no. 2
Dr. Rungruang Kijphati	Committee and secretary
Mr. Weerachai Tarnmaneewat	Committee and treasurer
Dr. Ruecha Wanarat	Committee
Dr. Pilaipan Puttawattana	Committee
Ms. Pranee Thawatsupa	Committee
Tassaneeya Lorchaiwet, Pharmacist	Committee
Prapassorn Sawetnisakorn	Committee
Kosol Ngarmkham	Committee
Kiatisak Luangkamchorn	Committee

Table 4.6 List of Names of the IFT's Advisory Committee

Name	**Organization**	**Specialization**
Associate Professor Dr. Chantapong Wasee	Department of MicrobioIogy, Medical Faculty, Siriraj	MicrobioIogy Specialist
Dr. Supamit Choonsutthiwat	Department of Disease Control, Ministry of Public Health	Professional Public Health
Dr. Somchai Saengkijporn	Department of Medicine Science, Ministry of Public Health	Medical Science Specialist
Dr. Prapasri Chongsuksantikul	Department of Disease Control, Ministry of Public Health	Public Health Specialist

Table 4.6 (Continued)

Name	Organization	Specialization
Dr. Prathom Sawanpanyalert	Food and Drug Administration, Ministry of Public Health	Public Health Specialist

From the minutes of the committee meeting no. 2/2547 on Tuesday 14 September 2004, it was found that IFT had registered as a foundation with registration no. Kor Thor 1369, dated 13 August 2004 and the foundation tax registration no. 3031502710.

Available tools and realistic strategy assessment and strategic planning:

G1 (personal communication, June 5, 2015)

G1 identified the assessment of resources in project implementation as; The foundation has made the assessment of the revenue and expenses of the project by preparing the balance sheet and sending it to the District Office annually.

P1 (personal communication, May 29, 2015)

P1 identified the assessment of resources in project implementation as;

> The resources regarding financial and human resources have been assessed in the foundation committee meeting and the balance sheet was also proposed in the annual general meeting for approval. So the consideration and planning of financial resources available have been made to ensure financial sufficiency throughout the short term and long-term operation. Human resources, job obligation and staffing as well as job responsibility were assessed to ensure conformity with the foundation's commitment.

P2 (personal communication, June 5, 2015)

P2 identified the assessment of resources in project implementation as;

Resources and tools in terms of support cost can be seen from the foundation's expenses, such as fixed costs for office materials and only 1 staff's wages. The expenses for the activities were the responsibly of the Department of Disease Control and the Department of Medicine Services. In addition, there were some expenses that were not payable by public authorities, so the foundation would pay for them. It was a win-win situation as the Department of Disease Control and the Department of Medicine Services would be able to achieve the objective for organizing the activities for providing knowledge to public health officers while the foundation has got the chance to contribute the information. The Department of Disease Control was responsible for the operation while the foundation was responsible for the information.

From the minutes of IFT committee meeting, no. 1 on Monday 19 July 2004, it was found that the revenue of the foundation came from 2 resources, i.e. donations and the organization of seminars. The account was opened under the name "Influenza Foundation of Thailand" with the Thai Military Bank, Sirirat Branch. Savings and Current Account, money is withdrawn with the authorization of 2 out of 4 authorized persons. The withdrawl authorized persons are;

President of the committee:	Professor Prasert Thongcharoen, M.D.
Vice president no. 1:	Dr. Sirisak Warintrawat
Vice president no. 2:	Dr. Kanchit Limpakarnjanarat
Committee and treasurer:	Mr. Weerachai Tarnmaneewat

The registration fund of 200,000 Baht (two hundred thousand baht) shall be deposited into a current account and licensed auditors shall be appointed for the balance sheet annual audit.

2) Organizational structure conforming to core commitment

Organizational structure conforming to core commitment, all the partners clearly understand about the conception, planning, and implementation

A. G1 identified organizational structure conforming to core commitment as;

> The foundation has invited potential foundation committees by considering their experience and their interest, as well as the establishment of an advisory committee.
>
> P1 (personal communication, May 29, 2015)

P1 identified clearly the understanding about conception, planning and implementation.

> The foundation clearly understands about conception, planning and implementation, for example, the selection of competent personnel to work for the foundation, such as for finance. The company gives support/sends the representative to get involved with the Department of Disease Control. Dr. Rungruang Kijphati was sent as a representative to coordinate with a related organization and invited Dr. Chitsanu to handle the foundation's activities according to their capabilities, while Prof. Prasert is a magnet or a coordination center who will drive the foundation forward.

IFT has adjusted its list of the committee members after the completion of 4 years service and replaced them with new committee members conforming to the core commitment. In 2015, there were 10 members from public organizations and private entities, 7 from public organizations and 3 from private entities. Details are shown in table 4.7.

Table 4.7 List of IFT Committee

Position	Name	Organizations	Sectors (Public, Private)
President	Prof. Emeritus Prasert Thoncharoen, M.D.	Department of MicrobioIogy, Medical Faculty Siriraj	Public
Vice President	Dr. Sirisak Warintrawat	Department of Disease Control	Public
Advisor	Asst. Prof. (special) Dr. Tawee Chotpittayasunon	Queen Sirikit National Children Health Institute (Children Hospital)	Public

Table 4.7 (Continued)

Position	Name	Organizations	Sectors (Public, Private)
Committee	Dr. Luecha Wanarat	Public Health Academic Office, Ministry of Public Health	Public
Committee and secretary	Dr. Rungruang Kijphati	Department of Disease Control, Ministry of Public Health	Public
Committee	Dr. Tassanee Lorchaiwech	Biological Product Group, Drug Control Department, Food and Drug Committee	Public
Committee	Dr. Chitsanu Pancharoen	Pediatrics Dept., Medical Faculty, Chulalonkorn University	Public
Committee and Treasurer	Pharmacist Weerachai Tarnmaneewong	Biovalys Co.	Private
Committee	Pharmacist Kiatisak Luangkamjorn	Biogenetech Co.	Private
Committee	Pharmacist Tuanchit Nakorntham	Sanofi Pasture Co.	Private

Support from the management team with sufficient resources; funds, staff, materials and time and senior “champions” in partner organizations, are actively and enthusiastically engaged;

G1 (personal communication, April 2, 2015)

G1 identified the support from senior management in public organizations; “Supported by public organizations at management level.”

G2 (personal communication, July 15, 2015)

G2 identified the support from high management of both public organizations and private entities;

> The contributions made by public organization administrators such as the Department of Disease Control, the Department of Medicine Services and private entities. For the private entities, if the management did not agree to give support, the collaboration project would not happen.

P1 (personal communication, May 29, 2015)

P1 identified the support from senior management of both public organizations and private entities;

> For private entities, there were support for finances, activity organization and public relations to private entity medical personnel and for public organizations; there were support from policy identifiers such as the Director General, the Deputy Director General on financial and personal support.

From the summary of the minutes of meeting from 2004 to present, it was seen that each private entity provided funds to IFT of 500,000 baht each annually from 2004 to 2011 and from 2012-2015 the support fund from each private entity was 250,000 baht annually. The support was approved by private entity management. At the same time public organizations have provided support budgets in organizing meetings and approved reimbursement from individual organizations for the costs incurred when attending the meeting. In addition, IFT has got support budgets from international organizations, such as IEIP-USDC and Kenan that enable more activities and to support conformance to the requirement of the organization for influenza education.

From the minutes of IFT committee meeting no. 1/2013, it was found that the annual support fund for 2012 of 250,000 Baht from each private entity had been well received. In 2013, the support fund from IEIP-US CDC for 2 issues of printing media: Rabad Banlue Lok on the topic of influenza/bird flu and Corona Virus (3,000 units each) at a total of 500,000 baht and for website maintenance and development at 150,000 baht. IFT had also joined with the Department of Medicine, the Ministry of Public Health in organizing 6 courses for the training of physicians and medical personnel in 2013 in “The Treatment of Emerging Infectious Diseases in Thailand.”

ASTV news, Manager Online on 16 February 2007 stated that;

The foundation cooperated with the Department of Disease Control, the Ministry of Public Health in arranging the preparation project for an outbreak of influenza and bird flu under a partial support budget from United States Organization of International Development (USAID) to promote the preparation and

development skills for planning against influenza as well as establishing business network collaborations to enable the continuity of business in a crisis situation. Furthermore, the project has included the distribution of knowledge on influenza and bird flu prevention and control via various media channels such as TV, radio, print and electronics, etc.

3) Adequate resources: The resources were adequate to cover the budget, human resources, operational material and time.

G1 (personal communication, April 2, 2015)

G1 identified adequate resources in terms of budget, human resources, operational material and time;

> The resources from private entities were in the forms of a support fund and human resources where specialists in various fields were invited as speakers in arranged conferences: basic specialists were invited to give knowledge on basic knowledge.

P1 (personal communication, May 29, 2015)

P1 identified adequate resources in terms of budget, human resources, and operational materials and time;

> Resources including the budget was enough for activity arrangement but R&D was not covered. The foundation did not receive the budget directly from the Ministry of Public Health but received support in the form of the permission for public organization personnel to be reimbursed expenses when travelling from their offices. The foundation arranged the meeting and finding the trainers.
>
> The example of the support other than the funding of 500,000 Baht a year was in 2004 the director of Bio-Technology Center accepted in writing to be the host of the seminar and donated an additional 100,000 Baht (one hundred thousand baht) for arranging the seminar on “Influenza Inter-Pandemic Preparedness Plan Episode III.

4.3.1.2 Process.

Crucial to the process of an effective partnership is agreement by all partners of its governance structure-who has responsibility for what. A key factor for effective partnership working is a strong and shared vision for the partnership itself, one in which partners feel equal in terms of commitment and how they are valued, and clear about their roles and accountabilities.

1) Partnership arrangements adequately reflect underlying power relations; effective communication and inclusive participation. Partners understand roles and processes; make and deliver on, commitments (financial, technical assistance etc.). Agreed partner roles and commitments (people, money, technology), including at national level. Detailed operating, reporting and financial plans and progress reports that are publicly available. There was also the agreement under good governance of the structure and functional identification of the partners such as a basic rules set up; commitment to transparency/without "hidden agendas" and the anticipation of potential conflict situations.

G2 (personal communication, July 15, 2015)

G2: Clearly identified the role and responsibility of the public organizations and private entities by stating that;

> The collaborative responsibility between public organizations and private entities has been identified as follows: the public organizations determined topics, speakers and related issues for the meetings of each activity year while the private entities may give related comments. Activity planning should be included in the agenda of every meeting where the private entities take the responsibility of inviting the speakers and the participants.

P2 (personal communication, June 5, 2015)

P2 Clearly identified the role and responsibility of the public organizations and private entities by stating that;

> The partner's roles and responsibilities were identified as basic rules e.g. transparency commitment/without "hidden agenda" and anticipation of possible conflict between public organizations and private entities through a middle party, the IFT committee. Every party shall accept and follow the

meeting resolutions even though the 4 private entities were market competitors but all of them had the goal for creating awareness to expand market size. It was up to the individual company to get more or less market share.

From the structure of the foundation committee in the website and the meeting resolutions, it's obvious that the identification of roles and responsibilities of partners is crucial as it enables the collaboration between public organizations and private entities and can reduce future conflicts.

2) Communication of partnership position and individual commitments within partner organizations (taken forward among partners at country level).

G1 (personal communication, April 2, 2015)

G1: identified communication between partners that; "Most of the communication was informal but there were not any communication problems both in formal forms and informal forms."

P1 (personal communication, May 29, 2015)

P1: identified communication between partners that; "There was adequate and consistent communication between public organizations and private entities."

From the IFT minutes of the meetings from 2004-2015, it was found that there were 46 meetings and a summary of the numbers of the committee from public organizations and from private entities is shown in figure 4.3. The number of the meetings demonstrated the communication throughout the organization and conformance to the preparation for an outbreak of the influenza. This is demonstrated by the high number of meetings during 2005 -2009 as presented in figure 4.4.

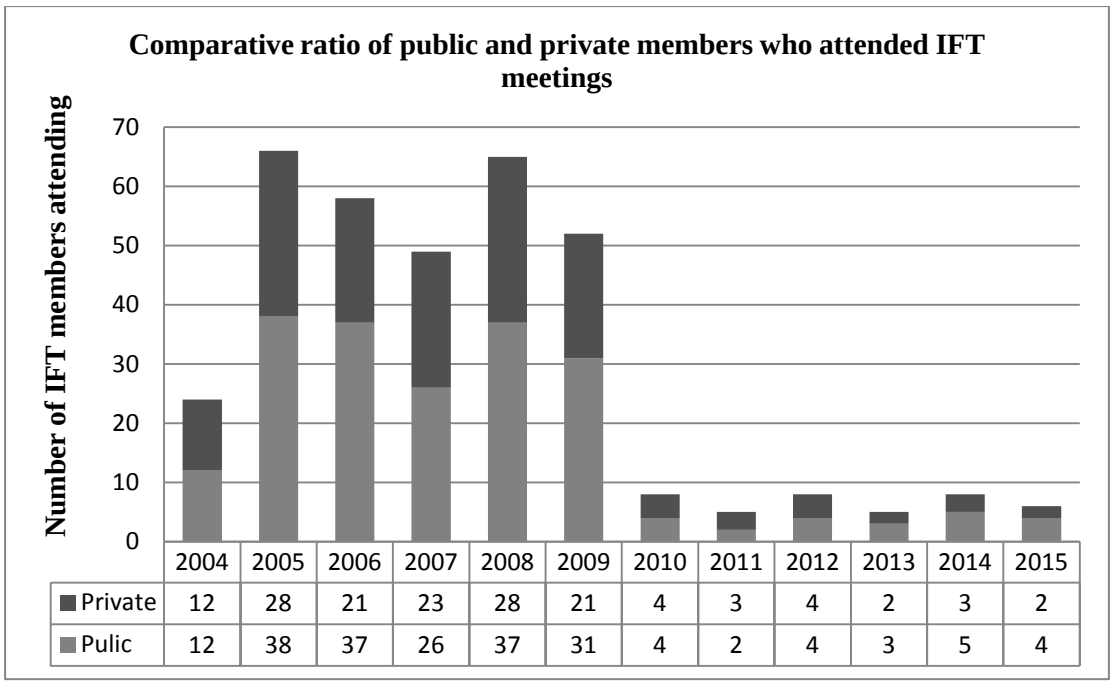


Figure 4.3 Number of IFT Committee Members Who Attended the Meetings and the Ratio between Private and Public Representatives

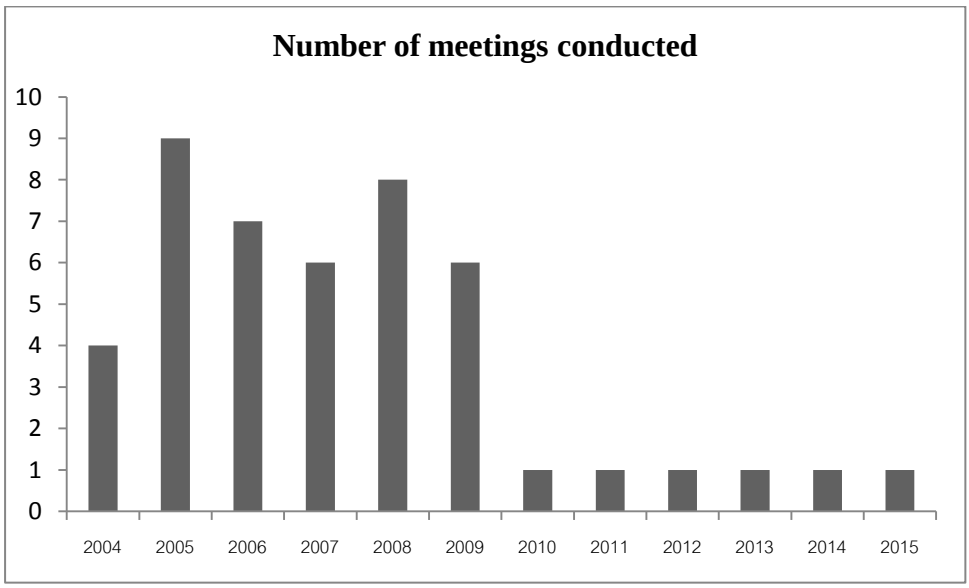


Figure 4.4 IFT Committee Meeting Frequency

4.2.1.3 Outputs

Performance metrics and milestones agreed by partners are in place and in use to identify performance; track and measure success; review progress; and modify plans as necessary (in advocacy, financing, partner involvement, country ownership, stakeholder mobilization etc.).

1) Agreed operational plan and performance metrics by all.

IFT held the committee meeting that included the representatives from public organizations and private entities. In the annual general meeting an annual activity plan was presented and a collaboration agreement between public organizations and private entities was proposed. Public organizations and private entities provided support to IFT according to their specialization and strengths to enhance meeting activities' objectives.

G1 (personal communication, April 2, 2015)

G1 identified that;

> IFT held committee meetings at least twice a year. The 1st meeting of the year was for discussion and to agree on what activity, with whom, where and how to arrange the activity. Public organizations and private entities gave comments and advice to enable IFT with the successful implementation.

P1 (personal communication, May 29, 2015)

P1 identified that;

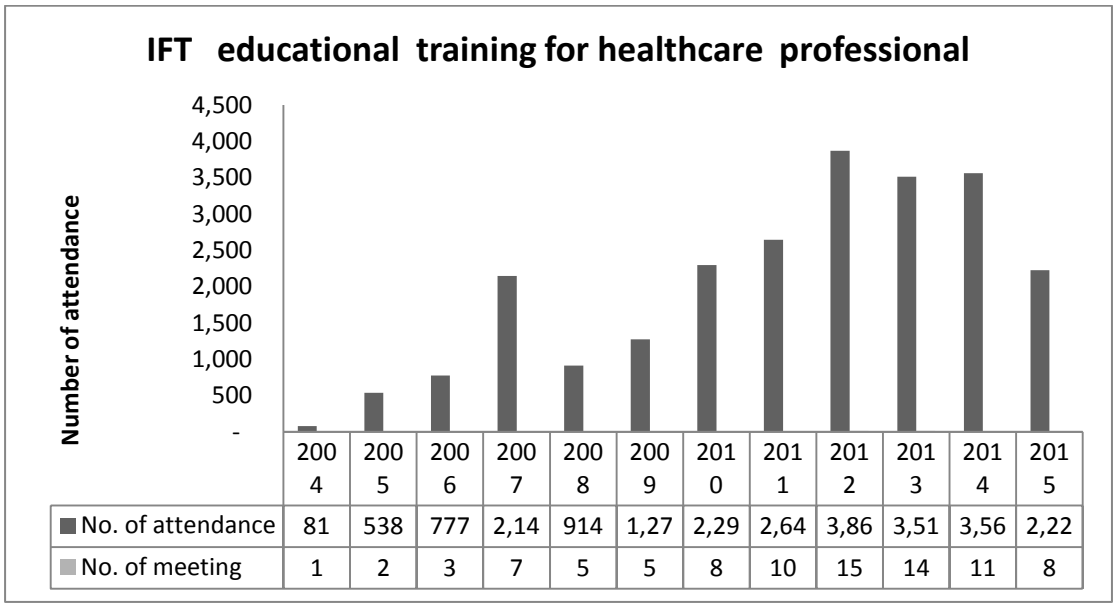
> Private entities realize the importance of IFT identification for annual activities and provided comments to enhance the annual objectives achievement. The situations were different for each year and in each location, planning of the activity in advance identified appropriate resource allocation. For example, if it is known that IFT will arrange academic training for medical and public health officers in which province, then it is possible to prepare in advance the invitations for physicians from private hospitals or related organization to attend the meeting. This is the most efficient and beneficial use of available resources for a particular activity.

Summary of the plan and KPI of IFT implementation from the minutes of general meetings demonstrated the collaboration between public organizations and private entities as shown in table 4.8

Table 4.8 Summary of IFT's Action Plans, Metrics and Output During 2004-2015

Action plan approved by public organizations and private entities	**KPI**	**Output during 2004 - 2015**
1. Arrange a general meeting at least once a year.	1. Have a general meeting at least once a year with a meeting summary.	1. Had 46 general meetings at least once a year with meeting summaries.
2. Arrange short term training for physicians and medical officers as well as for the general public.	2. Arrange meetings for physicians and medical officers at least twice a year.	2. Arranged 89 meetings for 23,838 physicians and medical officers.
3. Share influenza related information via various media, such as documents, brochures, newspaper, radio and TV etc.	3. Prepare and share influenza related information via various medias, such as documents, brochures, newspaper, radio and TV etc.	3. Prepared and shared influenza related information via various media to general public and organizations from 2005 – 2008, total of 18 activities with 24,000 media outlets.
4. Coordination of the collaboration on information and activities between public organizations and private entities.	4. Coordination of the collaboration related to activities between public organizations and private entities	4. Coordination of the collaboration of related organizations, such as the Department of Disease Control, the Department of Medicine, the Department of Medicine Science, USCDC, WHO and Pharmaceutical Products Manufacturer Association.

IFT has implemented activities for provide knowledge to physicians, medical officers and the general public according to the establishing objectives of the foundation, i.e. to be a center for the coordination and distribution of information about influenza, to contribute knowledge, arrange training and give advice associated with influenza to doctors, medical officers and the general public and to cooperate with other organizations, both public and private entities, in the warning and prevention of influenza. IFT has arranged academic meetings for physicians and medical officers by cooperating with central, local and international organizations from 2004 to 2015, in total 89 meetings with 23,838 participating people as shown in figure 4.5 and the summary of training topics in table 4.3.



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
No. of attendance	81	538	777	2,14	914	1,27	2,29	2,64	3,86	3,51	3,56	2,22
No. of meeting	1	2	3	7	5	5	8	10	15	14	11	8

Figure 4.5 Number of Educational Training Events and Attendance

2) Partner activities in line with agreed policies and strategies. Partnership activities are on track to achieve milestones, corrective action being taken, political commitment enhanced at international/national levels.

G1 (personal communication, April 2, 2015)
G1 identified that;

> IFT was supported by the management of both public organizations and private entities and has expanded its role to include other emerging diseases. This raises the project to cover other diseases that may cause a pandemic.

P1 (personal communication, May 29, 2015)
P1 identified that;

> Coordination between public organizations and private entities was very good at the initial stage and after the foundation successfully implemented influenza activity, it was extended to the distribution of knowledge of other diseases, such as SARS, Ebola MERS-CoV.

From the minutes of the IFT meeting in 2004, the year the IFT started its operations and was supported by the Department of Disease Control for budget implementation.

In 2010, the year the IFT got more support from the Department of Medicine for the budget for arranging activities and adding more content, including covering Emerging Infectious Diseases, i.e. the return of a diphtheria outbreak and the disease MERS-CoV which was a public health problem.

The WHO Southeast Asia Region (SEAR) Annual report for Fiscal Years 2012 & 2013 on influenza division international activities revealed;

In 2012, Thailand conducted their third self-assessment of the National Inventory of Core Capabilities for Pandemic Influenza Preparedness and Response. The first two assessments were in 2008 and 2010. With multiple time points, Thailand is better able to assess areas of improvement and where more work is needed. As expected, they scored highest in the area of laboratory capability followed by outbreak response.

In 2013, Thailand published the third version of their pandemic preparedness plan called “The National Strategic Plan for Emerging Infectious Diseases (EIDs) 2012-2016” which expands beyond influenza to encompass threats from all emerging infectious diseases.

This past year saw the emergence of two new viral respiratory diseases, influenza A (H7N9) and MERS-CoV.

To address these new concerns and educate the medical workforce, Thailand's Influenza Foundation partnered with the Ministry of Public Health for several training sessions. In addition, the Thai NIC trained laboratory scientists in diagnostics:

(1) Conducted a scientific writing course in conjunction with the Influenza Foundation of Thailand for healthcare personnel (January 2013).

(2) Conducted a course for healthcare personnel on influenza A (H7N9), MERS-CoV and dengue virus with the Influenza Foundation of Thailand (June 2013).

(3) Attended a meeting on influenza A (H7N9) in Beijing (August 2013).

(4) Trained staff in the 14 regional medical science centers on new PCR diagnostics for H7N9 and MERS-CoV.

(5) Conducted a two-day workshop to review the proficiency test program (February 2013.

3) Related Parties Engagement

Related parties engagement to initiate preparation for influenza outbreak.

G2 (personal communication, Jule 15, 2015)

G2 stated that;

The Department of Disease Control has taken the foundation's suggestion as a part of preparation for influenza outbreak.

P2 (personal communication, June 5, 2015)

P2 identified that;

"Everyone is still involved and it will be decrease when the outbreak is over."

In 2005, IFT was assigned by the Department of Disease Control, the Ministry of Public Health for being the host to prepare the National Guideline, IFT, therefore, invited relevant organizations including the Medical Council of Thailand, the Council for Infectious Diseases, the Pediatric Infectious Diseases Society of Thailand, the Thoracic Society of Thailand, the Virology Association (Thailand), the Association of Preventive Medicine and the Emerging

Infectious Disease Project Thailand - US Public Health Center to jointly prepare a National Guideline by finding the guidelines or conclusions to be presented to the experts for their consideration. IFT then presented these to the Ministry of Public Health.

4.3.1.4 Outcome.

Outcome can be assessed from IFT implementation that was consistent with the strategic plan for the preparation for an influenza outbreak at national level. IFT's role has been well acknowledged by senior management.

G1 (personal communication, April 2, 2015)

G1 identified that;

> The Foundation has realized its role as part of the strategic plan and has cooperated by putting a large effort to strengthen the health system based on its expertise.

P1 (personal communication, May 29, 2015)

P1 identified that;

> There were indications that demonstrated the value added to the project. The Foundation has been involved in the expansion of the project to cover emerging diseases, such as Ebola by adding the topic into the training arranged for medical and public health personnel throughout the country.

P2 (personal communication, June 5, 2015)

P2 identified that;

> Overall, IFT is a model of collaboration between public and private sectors in providing knowledge about influenza which is very effective and beneficial for the country. Collaboration in the national strategic plan has been divided into 2 categories as follows.
>
> 1) Promotion of the development of medical and public health personnel, in both government and business sectors, to have knowledge and be

prepared for an outbreak of influenza as well as being extended to cover knowledge on various emerging infectious diseases by establishing a mechanism for academic cooperation, exchange of knowledge between the organizations, departments and the experts at national and international level. Exchange of current knowledge related to the prevention of emerging diseases to related personnel of all parties and all levels, including cooperation with government agencies in other missions upon receiving the request, such as being a co-host in arranging an international conference and being the representative cooperating with international organizations such as WHO, IEIP-USCDC, APACI.

2) The distribution of knowledge and understanding to the general public via various channels including mass media and public websites.

Information from Siamrath Online on October 13, 2012;

Professor Prasert Thongcharoen, M. D., the president of the Foundation has received a plaque of honor for outstanding contributions in the field of prevention and control of avian influenza at national level from the Ministry of Public Health with respect to the distribution of knowledge and guidelines for screening and treating avian influenza patients to physicians in public and private sectors. IFT is responsible for developing the strategic plan in preparation, prevention and solution of Thailand's National Strategic Plan for Emerging Infectious Disease Preparedness, Prevention and Response 2013-2016, namely; 1) promoting the development of both government and business sector personnel to have the knowledge and be able to prepare for the emerging infectious diseases outbreaks. 2) to cooperate in distributing knowledge and understanding to the general public through various channels, including mass media and websites 3) to cooperate with government agencies in other missions upon request which are consistent with the mission of IFT, as stated in the establishment of the collaboration between the public and private sectors. Details are as follows: the Department of Disease Control, the Ministry of Public Health have arranged the meeting to campaign for the control and prevention of "bird flu" or "infected virus H5N1" for the management and those responsible for the prevention of bird flu in the risk areas, including 43 provinces, at the Miracle Grand Convention

Hotel by having Mr. Wittaya Buranasiri, Minister of Public Health and Mr. Paichit Warachit, Permanent Secretary of the Ministry of Public Health attended the meeting. Mr. Wittaya Buranasiri, the Minister of Public Health revealed that there was no case of bird flu for a period of five years, and no poultry have been infected for over three years. This demonstrated that officers and the control and prevention systems of the disease in both humans and poultry in Thailand were effective and served as a role model of other countries, since in our neighboring countries, outbreaks of bird flu and infected poultry still exist. Therefore, Thailand is still at risk of being affected by the disease in both humans and poultry. The Ministry of Public Health, the Department of Disease Control shall have emergency measures to prevent the disease in poultry and in humans in order to maintain effectiveness in the prevention of the disease in Thailand as well as preparing to control the disease if it occurs.

In order to encourage and to be a good example, the Ministry of Public Health has offered a plaque to honor individuals whose work is significant in the field of prevention and control of avian influenza at the national level to, Prof. Emeritus Prasert Thongcharoen, M.D., IFT president and the advisor for the Ministry of Public Health, Prof. M.D. Suchai Charoenratanakul, former Deputy Prime Minister and former Minister of Public Health and Mr. Yukol Limlamthong, former Secretary of the Ministry of Agriculture and Cooperatives.

Dr. Pornthep Siriwanarangsan, Director General of the Department of Disease Control, said in the meeting with provincial Chief Medical Officer, Director of the hospital, District Public Health and officers, and village health volunteers and volunteers from every province that every party shall cooperate with each other in the preparation for and control of avian influenza. They should keep people alert for bird flu and conduct the detection for an outbreak. If found or on being informed, inspections shall be conducted immediately. They shall provide standard treatment to bird flu patients and the dissemination of knowledge and practices for screening and the treatment of avian influenza patients. Doctors of both local public and private sectors shall be informed and give instructions to medical and public health officers to act accordingly.

The significance and effective method of prevention and control of bird flu is the collaboration of government, private and public enterprises as well as foreign countries. The task shall be done continuously in both humans and animals. Currently, Thailand has been operating under the framework of the National Strategic Plan for Emerging Infectious Diseases 2012-2015 by focusing on the development of observation, prevention, and control of disease integration. For bird flu prevention, the detection of patients with bird flu or influenza in Thailand shall be performed in humans. There is the study of the epidemiology of avian influenza, according to individual, time, place and a follow up to detect the change in level of danger of the bird flu virus.

IFT has been integrated into the objectives and operations of the organization according to the national strategic plan. This is another important pillar of stability in the country's public health preparation against pandemic influenza and other emerging diseases that may occur in the future.

In summary IFT/Thailand is working to achieve its mission through collaboration to develop training opportunities, particularly in influenza disease prevention and control, which can strengthen the healthcare professionals knowledge capacity. IFT engages with both public health and private partners and builds networks. Its strong national collaborations complement a network of regional and global partners, all committed to reducing emerging infectious disease threats.

4.3.1.4 Quantitative Study Results

The analysis of quantitative data is consistent with the objectives of the research, the researcher would like to present the results analysis of the characteristics of medical and public health officers in preparation, diagnosis and treatment of emerging infectious disease patients, which is a problem in Thailand, by taking into account the answers to the questionnaires of 328 medical and public health officers, who participated in the meeting, for analysis and present the results by using a narrative table. The results have been divided into 5 sections as follows

1) Descriptive Statistics.

Of the 504 participants who were given the questionnaires, 328 (65.08 % response rate) returned a usable questionnaire. The major reason cited by those who chose not to participate in the survey was that they did not have the time to fill in the questionnaire at the end of the training.

The sample included 72% women and 28% men. Healthcare providers who attended the meeting were aged between 21 to 57 years old. The youngest healthcare providers, who were 21 years old, contributed to 0.3% of the total attendance and the oldest healthcare providers, who were 57 years old, contributed to 0.6% of total attendance. Whereas, healthcare providers who were between 40 and 42 years old were the largest age group representing 6.1 % of the total attendance for each age group. The majority of attendees were aged between 41-50 years old. For the categories of patient care responsibility, 195 people (59.5%) had direct contact with patients. whereas 132 people (40.2%) performed their work as support staff. For professional designations, 50.9 % of attendances were healthcare providers who worked as disease surveillance staff. The details are described in table 4.11, modifying factors for the sample are summarized in table 4.9.

Table 4.9 Samples Modifying Factors

	Number	**%**
Gender		
Female	236	72
Male	92	28
Age group		
21-30	71	21.65
31-40	98	29.88
41-50	131	39.93
51-70	28	8.54
Nature of patient care responsibility		
Direct contact to patients	195	59.5
Support functions	132	40.2
Not valid	1	0.3
Professional designation		
Physician works in OPD or IPD	7	2.1
Nurse works in OPD or IPD	82	25.0

Table 4.9 (Continued)

	Number	**%**
Any specialty of healthcare workers who work in OPD/ IPD	14	4.3
Diseases surveillance staff	180	54.9
Other HCP	43	13.1
Not valid	2	0.6

2) Health Belief Model Domains as Predictors of Intention to take action in accordance to national management guideline for influenza.

The HBM-based statements were grouped according to perception domains (perceived susceptibility to influenza, perceived severity of influenza, perceived benefits for influenza prevention), experience to influenza and cue to actions (IFT educational training). Cronbach's alpha was calculated for the domains with three or more items and Pearson's correlation was used for the domain with two items to assess reliability. A scale mean was calculated for domains with an alpha coefficient or Pearson correlation > 0.5.

(1) Level of HBM on perception domains (perceived susceptibility to influenza, perceived severity of influenza, perceived benefits for influenza prevention).

The scale means for perception of susceptibility to influenza, perceived severity of influenza, perceived benefits influenza prevention were 18.79 (SD ± 2.65); 19.37 (SD ± 2.97) and 21.36 (SD ± 2.65), respectively. A summary of this information is presented in Table 4.10.

Table 4.10 Level of HBM Perception Domain on threat of Influenza

HBM perception domain	$\overline{X}$	S.D.
Perceived susceptibility	18.79	2.65
Perceived severity	19.37	2.97
Perceived benefits	21.36	2.65

(2) Experience with influenza

The majority of participants (89.6%) are the people who are at risk of infection from influenza and almost of them (81.7%) had had an influenza vaccination in the 2015. In addition, the participants had experience in the diagnosis and treatment for influenza pandemics. Experience in diagnosis and treatment for other emerging/re-emerging, experience in tabletop exercise for pandemic preparedness accounted for 69.2 %; 65.5% and 64.0 %, respectively. The results on experience with influenza are shown in Table. 4.11.

Table 4.11 Experience with Influenza

Experience on Influenza	No %	Yes%
Suffered from influenza.	76.5	23.5
Has family member who has experience with influenza.	71.3	28.7
Experience in providing treatment for influenza patients.	46	54.0
Experience in providing treatment for avian flu patients.	93.6	6.4
You are in a high-risk group for vaccination campaign.	10.4	89.6
Got influenza vaccine jab in 2015.	18.3	81.7
Suffered from influenza vaccine reaction.	94.2	5.8
Experience in tabletop exercise for pandemic preparedness.	36	64.0
Experience in diagnosis and treatment for influenza pandemic.	30.8	69.2
Experience in diagnosis and treatment for other emerging/re-emerging diseases.	34.5	65.5

(3) Level of Support from IFT on Educational Training.

Participants demonstrated good recognition of support from IFT on educational training for all types of educational activities as detailed in table 4.12.

Table 4.12 Level of Support from IFT for Educational Training

Support from IFT for educational training	**Mean**	**± SD**
Training program meets the needs for influenza knowledge	4.30	0.70
Provides update situation and impact on influenza	4.21	0.71
Provides information about influenza prevention	4.28	0.66
Provides information about influenza diagnosis	4.19	0.72
Provides a clinical management guideline for influenza treatment	4.20	0.70
Provides a guideline for influenza infection control and prevention	4.29	0.68
Summary of support from IFT on educational training	**25.46**	**3.71**

(4) Analysis on Likelihood of Pandemic Preparedness Behaviors to be Taken.

The participants showed a high level of intention to take pandemic preparedness behavior for all types of behavior as shown in table 4.13. They showed that the highest intention was to cooperate with the seasonal flu vaccine campaign implementation for people in the general public who are at risk of influenza which has a scale mean of 4.47 (SD ± 0.64). Followed by the intention to cooperate with the recommendations for disease surveillance guidelines for pandemic influenza preparedness at the scale mean of 4.43 (SD ± 0.64) and the intention to cooperate with the supporting training and education activities for healthcare providers for pandemic influenza preparedness at the scale mean of 4.42 (SD ± 0.66).

Table 4.13 Likelihood of Pandemic Influenza Preparedness Behaviors

Pandemic Preparedness Behaviors	**Mean**	**±SD**
1. To cooperate according with the seasonal flu vaccine campaign for healthcare providers.	4.34	0.69
2. To get vaccination against influenza in 2016	4.40	0.82
3. To cooperate with the seasonal flu vaccine campaign implementation for people in the general public who are at risk to influenza	4.47	0.64
4. To cooperate with the recommendations on the diagnosis guideline for pandemic influenza preparedness	4.34	0.65
5. To cooperate with the recommendations on the clinical management guideline for pandemic influenza preparedness	4.36	0.67
6. To cooperate with the recommendations on disease surveillance guidelines for pandemic influenza preparedness	4.43	0.64
7. To cooperate with the recommendations of the infectious control guideline for pandemic influenza preparedness	4.38	0.72
8. To cooperate with support training and education activities for healthcare providers for pandemic influenza preparedness	4.42	0.66
9. To cooperate with the healthcare network in supporting disease management for pandemic influenza preparedness and emerging/re-emerging disease outbreak	4.41	0.66
10. To cooperate in educating the public about influenza in a language easily understood and to manage the panic of the general public.	4.41	0.66
Overall of likelihood pandemic preparedness behaviors to be taken;	**43.97**	**5.74**

3) The analysis used to compare the difference in behavior when using knowledge for the benefit in preparation to prevent and resolve an influenza epidemic, of medical and public health personnel attending the conferences was separated by gender and job functions by using t-test comparison statistic. The

analysis used for comparing the differences in behavior in using the knowledge for the benefit in preparation to prevent and resolve the epidemic of influenza with difference in age and operational role was one-way ANOVA.

(1) The correlation of gender and behavior on pandemic influenza preparedness.

The results showed that a gender difference has a significant impact on the behavior in pandemic influenza preparedness as shown in table 4.14.

Table 4.14 The Correlation of Gender and Behavior in Pandemic Influenza Preparedness

		Behavior
Gender	Pearson Correlation	.058
	Sig. (2 –tailed)	.294
	N	328

Note: *Correlation is significant at the 0.05 level (2-tailed)

(2) The correlation of age and behavior on pandemic influenza preparedness;

The results showed that a difference in age has a significant effect on behavior in pandemic influenza preparedness as shown in table 4.15

Table 4.15 The Correlation of Age and Behavior on Pandemic Influenza Preparedness

		Behavior
Age	Pearson Correlation	.125*
	Sig. (2 –tailed)	.024
	N	328

Note: *Correlation is significant at the 0.05 level (2-tailed)

(3) The correlation of the nature of patient care responsibility and behavior on pandemic influenza preparedness;

The results showed the different types of patient care responsibility had a significant difference on the behavior on pandemic influenza preparedness as shown in table 4.16.

Table 4.16 The Correlation of Type of Patient Care Responsibility and Behavior on Pandemic Influenza Preparedness

		Behavior
Job	Pearson Correlation	.126*
	Sig. (2 –tailed)	.022
	N	328

Note: *Correlation is significant at the 0.05 level (2-tailed)

(4) The correlation of professional designation and behavior on pandemic influenza preparedness:

The results showed the different types of professional designation had a significant effect on behavior for pandemic influenza preparedness as shown in table 4.17.

Table 4.17 The Correlation of Professional Designation and Behavior on Pandemic Influenza Preparedness

		Behavior
professional designation	Pearson Correlation	.007*
	Sig. (2 –tailed)	.897
	N	328

Note: *Correlation is significant at the 0.05 level (2-tailed)

4) Correlation analysis between the perceived susceptibility; perceived severity; perceived benefits; training and educational activities conducted by IFT and healthcare providers and the likelihood of behavior of taking recommended health actions for pandemic influenza preparedness.

When considering the correlation between the independent variables (e.g. perceived susceptibility, perceived severity, perceived benefits, experience and IFT support in training and educational activities) and healthcare providers likelihood of behaviors for taking recommended health actions for pandemic influenza preparedness it was found the 95% interval at 0.139-0.612 with significant correlation at 0.01 as described in table 4.18.

Table 4.18 Correlation between Perceived Susceptibility, Perceived Severity, Perceived Benefit, IFT's Support and Behavior

		Behavior	Susceptibility	Severity	Benefit	Experience	IFT Support
Pearson Correlation	**Behavior**	1.000	.391	.376	.443	.139	.612
	Susceptibility	.391	1.000	.535	.446	.173	.363
	Severity	.376	.535	1.000	.567	.289	.330
	Benefit	.443	.446	.567	1.000	.231	.370
	Experience	.139	.173	.289	.231	1.000	.094
	IFT Support	.612	.363	.330	.370	.094	1.000
Sig. (1-tailed)	**Behavior**	.	.000	.000	.000	.006	.000
	Susceptibility	.000	.	.000	.000	.001	.000
	Severity	.000	.000	.	.000	.000	.000
	Benefits	.000	.000	.000	.	.000	.000
	Experience	.006	.001	.000	.000	.	.045
	IFT Support	.000	.000	.000	.000	.045	.

Factors that impact on healthcare providers' likelihood of behavior of taking recommended health actions for pandemic influenza preparedness;

Using stepwise multiple regression analysis to identify the factors (the perceived susceptibility; perceived severity; perceived benefits; experience and IFT support in training and educational activities, which were expected to impact on healthcare providers likelihood of behavior for taking recommended health actions for pandemic influenza preparedness.

The results revealed that there are 3 factors which significantly predict the behavior, adjusted R square value = 0.435, as shown in table 4.19 and 4.20. The factors included IFT support in training and educational activities, perceived susceptibility and perceived severity. Whereas, IFT support in training and educational activities is the most important factor for behavior change (adjusted R square value = 0.373). When combined with IFT support in training and educational activities with perceived benefit, the adjusted R square value will increase to 0.425.

Table 4.19 Regression Analysis ANOVA

ANOVA[d]

Model		Sum of Square	df	Mean Square	F	Sig
1	Regression	4033.891	1	4033.891	195.379	.000[a]
	Residual	6730.740	326	20.646		
	Total	10764.631	327			
2	Regression	4617.030	2	2308.515	122.042	.000[b]
	Residual	6730.740	326	20.646		
	Total	10764.631	327			
3	Regression	4734.939	3	1578.313	84.809	.000[c]
	Residual	6029.692	324	18.610		
	Total	10764.631	327			

Note: 1) Predictors (Constant), SUPPORT

2) Predictors (Constant), SUPPORT, BENEFIT

3) Predictors (Constant), SUPPORT, RISK

4) Predictors Variable: BEHAVE

Table 4.20 Stepwise Regression Model Summary

Model Summaryd

Model	R	R Square	Adjusted R Square	Std.Error of the Estimate	Change Statistics					Durbin-Wastson
					R Square Chamge	F Chamge	Dfl	Df2	Sig F Chamge	
1	.612[a]	.375	.373	4.543	.375	195.379	1	326	.000	
2	.655[b]	.429	.425	4.349	.054	30.828	1	325	.000	
3	.663[c]	.440	.435	4.313	.011	6.336	1	324	.012	1.662

Note: 1) Predictors (Constant), SUPPORT

2) Predictors (Constant), SUPPORT, BENEFIT

3) Predictors (Constant), SUPPORT, BENEFIT, RISK

4) Predictors Variable: BEHAVE

4.3.2 The GPO-Kakaetsuken Collaboration for Influenza Vaccine Development

4.3.2.1 Input;

1) Goal and scope

(1) Strong Rationale

The public sector has a strong rational to partner with the private sector due to the lack of technology for vaccine production, but the private sector did not show strong motivation for partnering. The private sector provides support due to its corporate social responsibility for pandemic threat and not because its business attractiveness for influenza vaccine commercialization in Thailand.

G4 (personal communication, September 16, 2015)

G4 mentioned that;

The objectives and framework were determined clearly as technical assistance with the reason that we want to produce vaccines and require effective knowledge in developing the vaccine at the industrial level and allowing Thailand to produce the vaccine by itself.

> The clear reason for implementing the collaboration project is the technical assistance that pharmaceutical units have targeted for a manufacturing plant of flu/avian vaccines with the quality at industrial standards and in accordance with GMP standards of the World Health Organization and can produce the vaccine according to the target. The case of seasonal pandemic and the huge pandemic of influenza/avian flu in 2009 caused collaboration between the Government Pharmaceutical Organization and Kaketsuken, the major vaccine manufacturer in Japan with the coordination of the Prime Minister and the Minister of Public Health of the two countries due to the resolution of the special meeting of Health Ministers - ASEAN + 3

Objectives of the vaccine manufacture project are to create the sustainable capacity on R&D and influenza vaccine production for self-reliance in a normal situation, and for national security or in the time of a pandemic. Local manufacture of the vaccine is a strategic move, which has been addressed in national strategies for pandemic preparedness. Local vaccine production will bring continuity and sustainability to the pandemic vaccine supply. However, there is a lack of experience and human resources in vaccine production on an industrial scale in Thailand. Therefore, the need for technology transfer, particularly in terms of the production plant and process design is a required resource from the public authorities.

In developing countries, access to medicines is obstructed by various factors, such as an inadequate public medical insurance system and medical infrastructure, shortfalls in the human resources needed for the manufacture and quality management of medicines, the spread of counterfeit medicines and poverty. Japan Pharmaceutical Manufacture Association and its members, including Kakaetsuken, believe that capacity building in developing countries – specifically know-how transfer and educational training – is an important part of improving access to medicines.

(2) Evidence base consultation for process involves appropriate and influential stakeholders:

With the support of a bilateral partner to manufacture influenza vaccine, and its key international partners, the GPO will soon be able to

manufacture influenza vaccine on an industrial scale. Strong policy support from the Ministry of Public Health and the National Health Security Office for routine seasonal influenza vaccination in targeted risk groups has also been critical. These collaborations, and the commitment of the Thai Government, have enabled the GPO to serve as a good example of equitable benefit sharing of influenza virus prevention.

G4 (personal communication, September 16, 2015)

G4 mentioned;

> The stakeholders exist at international and government level due to the collaboration at policy level between government to government that was acknowledged and cooperated in planning by the Thailand Ministry of Public Health.

Kaketsuken provided technical assistance in the development of technology for producing seasonal influenza vaccine (dead sperm type). Also for the development of the production model at manufacturing level, the development of the production at industrial level and for the technology at the factory level to produce influenza vaccine. It was from the technical assistance a special meeting of Health Ministers - ASEAN+3 on new threat of influenza in Bangkok after the outbreak of H1N1 influenza that the capacity of Kaketsuken achieved 20 million dosages per year.

(3) Realistic assessment of tools and strategies available, and resource gaps:

GPO has been selected as one of six vaccine manufacturers in developing countries as the first generation to receive support from the World Health Organization in 2007 with a fund of 1.996 Million US dollars for development of the technology for producing influenza vaccines in preparation for a pandemic of influenza; both human and bird. Stakeholders, including representatives from the four agencies considered that the Department of Medical Sciences, the Medical and the National Center for Genetic Engineering and Biotechnology were not suitable to be the host of this project. The Red Cross refused to handle this project. So, the burden fell to the GPO. GPO needed to accept this mission, even though it was not proposed

initially. GPO accepted the policy implementation despite knowing that it was a hard job since at that time GPO did not have the manufacturing technology as well as the "knowledge" (know-how) in building a vaccine plant at industrial level and the standard to meet World Health Organization (WHO GMP) requirements.

G4 (personal communication, September 16, 2015)

G4 mentioned;

> The assessment of tools, the strategy available and resources that were deficient were based on a realistic situation. From the assessment, it was found that there were deficiencies in the following; 1) Manpower = deficiency of human resources with capability in a live sperm type influenza vaccine production technique 2) Finance = There is no significant problems with the budget 3) Management = Management process was limited by regulations and instruction 4) Technology and basic knowledge about the production was lacking. It is, therefore, very important to get cooperation from Kaketsuken.

The GPO will continue to improve and sustain its capacity through comprehensive collaborative programs and mobilize additional support for the industrial-scale plant. It will also establish effective research and production management through in-house and external training with partners. The GPO started this project with no experience in influenza vaccine production or a technology partner. Within three years, it has developed the capacity to produce laboratory-scale seasonal inactivate influenza vaccine. This capacity includes staff knowledge, skills and institutional capacity to manage the development.

2) Structure/Organization

The collaboration format was that Kaketsuken provided technical assistance in the development of seasonal influenza vaccine production and the development of production at industrial level as well as the giving comments or suggestions on factory design and, at the level of factory model and the development of production. Also the management of eggs and important material including document management. The registration of a vaccine, with the assistance of Kaketsuken, created opportunities for GPO officers to get training at Kaketsuken. At

the same time Kaketsuken assigned a specialist to be located in the GPO for three years from the date of agreement.

G4 (personal communication, September 16, 2015)
G4 mentioned;

The structure of the organization, the committee of 3 each will be identified to be with a particular section and identify the focal point to follow and have contact between the 2 organization, GPO has 1 focal point and Kaketsuken have one focal point, also.

Committed senior management team.
G4 (personal communication, September 16, 2015)
G4 mentioned;

It was approved and supported from the organization's senior management both public and private policy in terms of G to G.

This cooperation is coordinated by the Prime Minister and the Minister of Public Health of the two countries due to the resolution of the special meeting of ASEAN + 3. The response to outbreaks and the ability to produce seasonal influenza vaccine in a normal situation is beneficial in the economic and social costs. This created the belief by Thailand to believe that it has the ability to produce influenza vaccines for the people of Thailand when needed. The government has approved the construction of a factory to produce vaccines against influenza / bird flu, at the industrial standard required by the WHO GMP with a budget of 1411.7 million baht, for five-years (B.E. 2550-2555) in the area of the GPO, Thap Kwang, Kang Khoi, Saraburi.

Strong policy support from the Ministry of Public Health and the National Health Security Office for routine seasonal influenza vaccination in targeted risk groups has also been critical. These collaborations, and the commitment of the Thai Government, have enabled the GPO to serve as a good example of

equitable benefit sharing of influenza virus programs. With the support of a bilateral partner to manufacture seasonal influenza vaccine, and its key international partners, the GPO expected to be able to produce vaccines at an industrial-scale.

> Sufficient resources: funds, staff, materials and time;
> G4 (personal communication, September 16, 2015)
> G4 mentioned

> From the assessment of resources, it was found that the budget is not a major factor because the budget is approved by the state, but the resources are not enough, and at a very early stage. Human resource shortfall is due to the lack of knowledge and experience in the production of vaccines against influenza type A infection.

From 2009 the Thai government approves a budget of 1,400 million baht (about 40 million dollars). GTO can construct a factory to produce influenza vaccine according to GMP standards of the World Health Organization at Kangkhoi, Saraburi to ensure the stability of health in the long term for outbreaks of influenza. In 2015 IFT got an additional budget of 59 million baht.

4.3.2.2 Process

1) Agreement on shared governance structure that defines partner roles and responsibilities e.g. set the ground rules; transparency/no ‘hidden agendas’ ; anticipate likely conflicts;

> G4 (personal communication, September 16, 2015)
> G4 mentioned;

> There was an agreement on roles and duties, such as the establishment of basic rules, but there were not many details, it was a rough guide to roles and responsibilities.

The implementation was assessed by a team of specialists from WHO who came to inspect GPO on regular basis; once in 1- 2 years. The

commitment of the working team and the continued support can initiate efficiencies in individuals, places and various support systems. The production of the vaccine in the country is itself basic assistance in preparing for the occurrence of an outbreak and achieves the objective of creating stability in the country in terms of public health.

2) Communication within partnership and all stakeholders;

G4 (personal communication, September 16, 2015)

G4 mentioned;

"Communication with English and Thai-Japanese interpreters shall be available for accurate communication".

And also mentioned;

"Respect for each other and for the differences in culture"

The project conducted site training at Kaketsuken Influenza Production Plant and by sending an expert team to train at the pilot scale and process validation at the industrial plant.

3) Plan for Evolution of PPPs;

No plan for the evolution of PPPs was found. Thus, GPO is aware that it will continue to improve and sustain its capacity through comprehensive collaborative programs and the need to mobilize additional support for the industrial-scale plant. It will also need to establish effective research and production management through in-house and external training with partners. Capacity building would include staff knowledge and skills, and institutional capacity to manage the development and production of influenza vaccine, and its extensive domestic and international networks, particularly among all essential laboratories within the country. Therefore there is a need to push the strategy for R&D incentives e.g. the support of a bilateral partner to manufacture vaccine and its key international partners is critical for the project. Meanwhile, strong policy support from the Ministry of Public Health and the National Health Security Office for routine seasonal influenza vaccination in targeted risk groups has also been identified as one strategy for product development PPPs.

G4 (personal communication, September 16, 2015)

G4 mentioned;

"This project implementation is conforming to the timeframe without further planning for proactive collaboration."

4.3.2.3 Output.

1) Partner alignment and mobilization;

A preliminary outcome was that the vaccine was produced for clinic research, phase 1 and phase 2 with the pilot plant located at Silpakorn University, Nakorn Prathom, the educational institute that rendered cooperation in production and clinical research study.

G4 (personal communication, September 16, 2015)

G4 mentioned;

> There was the coordination effort for capability development such as the arrangement for study trips to the manufacture plants and sending the manufacturers' specialists to be advisors and support people in research development. However, the cooperation required understanding and improvement of operational practices for common implementation. From this project implementation, it was found that knowledge was gained, especially on the development of vaccine, from the organizations that have experience in producing it at an industrial level. GPO should request that valuable knowledge and apply for further development.

G4 (personal communication, September 16, 2015)

G4 mentioned;

> The director of GPO went to discuss with Kaketsuken. There should not be any problems as it was the laboratory base production that Thailand has prepared everything including fresh chicken egg and other components. We believe that the influenza vaccine production will be better.

2) Mobilizing, Pooling and Co-coordinating the Allocation of Resources;

There are insufficient incentive mechanisms for the promotion of successful technology transfer for influenza vaccine manufacture. For example, a lack of a strong political will and commitment; lack of incentive to allocate resources

to build a successful project; unpredictable commercial environment; lack of a high level of trust at all levels of the workforce and management; a lack of skilled staff to carry out R&D and scaling up the process to industrial levels.

3) Co-ordination of Efforts and Capacity Building;

G4 (personal communication, September 16, 2015)

G4 mentioned;

> The assistance from Kaketsuken, not only opened the chance for Government Pharmaceutical Organization personnel to study and practice at Kaketsuken, Kaketsuken has also sent their highly experienced specialists to GPO to give the training and provide real practice on influenza vaccine quality control. However, due to incompletion of the vaccine production plant, Kaketsuken has stopped their technology knowledge transfer.

A key element of the technical assistance communication process was to start by appointing a joint oversight committee (2 oversight meetings/year); conduct on-site assistance; embed experts at GPO with 1 staff; scheduled regular on-site assistance (2 staff); conduct technical advice and discussions by email/telephone/teleconference; conduct technical visit/meeting at Kaketsuken; conduct technical training at Kaketsuken.

4) Participation;

The development of an influenza vaccine in Thailand would not have been possible without the technical and financial support of WHO and Kaketsuken. Additionally, there are other organizations from both private and public authorities who are involved in the project e.g. Biodiem and ViroClinics for seed virus identification/development and preclinical and clinical testing data; Mahidol University, Kasetsart University, the Thai Department of Medicine Sciences, and the US Center for Disease Control and Prevention for their support in nonclinical and clinical studies; National Vaccine Institute, the Thai FDA, the Department of Livestock Development for their assistance in knowing and acquiring production techniques.

4.3.2.4 Outcome;

G4 (personal communication, September 16, 2015)

G4 mentioned;

> The objective of this collaboration project has not been achieved because of the obstacle from the incompletion of the influenza vaccine plant according to the due date. However, the project is beneficial to the working team in gaining some basic knowledge for further development of vaccine production at an industrial level.

The project was not completed within the timeframe because of plant construction delays and that caused the delay for the installation of machines/testing system and the processes for production. This also impacted on the success of the technical assistance collaboration project aimed to transfer know-how of influenza vaccine production at industrial level and caused the registration delay of the production of influenza/bird flu vaccine for pre-clinic and clinic testing. The production of influenza vaccine cannot be done according to the original plan.

CHAPTER 5

CONCLUSIONS, CONTRIBUTION TO THEORY AND RECOMMENDATIONS

5.1 Conclusions

There are a many public health PPPs that have been established in the public health sector over the past few decades. However, little information is available on the necessary conditions leading to public health PPPs for pandemic influenza preparedness in Thailand. To address this need, this dissertation has explored whether these PPPs projects are effective in strengthening the national preparedness action for Thailand in the future. It examines the underlying philosophy of PPPs, their objectives and the rationales for PPPs partnering, as well as their implementation and the effective management of PPPs.

A mixed research method was conducted within the key organizations for the private and public sectors which are involved in the collaboration projects for pandemic influenza preparedness. The research offers general lessons of principle and process for forming collaborations and effectively managing PPP projects to strengthen national health security while the country is facing the challenge of influenza outbreaks. The main objective of this dissertation is to demonstrate the contribution to public health of PPP projects which address the national pandemic preparedness plan for Thailand. From the systematic reviews, the author reviewed the concept of health PPPs and determined what is meant by public health PPPs for pandemic influenza preparedness. The author then turned to the context from which these partnerships are emerging, focusing particularly on PPPs for pandemic influenza preparedness as conducted in Thailand. From the results of the documentary review, the dissertation draws on two public health PPP projects; namely the IFT and the Technical Assistance Agreement with Kaketsuken and GPO. These PPPs pool public and private resources to enable countries to be better prepared to recognize and

manage a possible influenza pandemic. Meanwhile, at national levels, PPPs challenge the traditional distinction between the public and private sector, and their perceived aims and responsibilities. When encountering a powerful partner (e.g. because of its exclusive access to key resources), the counterpart organization can implement different power-balancing operations to reduce its dependence. These strategies reduce dependence on powerful partners and offer new strategic options in terms of partnerships for the focal organization.

In this dissertation, it is emphasized that an effective public health PPP will be able to strengthen the readiness of the public health system in preventing or mitigating the risks of influenza outbreak and also underscore how organizations implement the partnership project effectively; theoretical and managerial implications have been drawn from this research. From a theoretical perspective, it aims to extend the classical view of resource dependence theory and power in alliances of interorganizational relationships theory. With these contributions, it is proposed that organizations can activate several parameters (e.g., shared goals, number and quality of substitutes) to reduce their dependence on powerful partners and escape from deterministic patterns in the alliances that they establish. From a managerial perspective, this dissertation encourages project managers to adopt a broader view of their environment when selecting new partners. If organizations remain within the traditional boundaries of the environment, their options may be limited, and their alliances might quickly become unprofitable. However, as organizations adopt a more global view, resource dependent organizations will have an increased likelihood of finding partners that fit well with their needs. In fact, the central idea of this contribution is that it is possible to escape from powerful partners by jettisoning this deterministic view of dependence on collaborations.

Based on these conclusions, it is believed that the additional study of public health PPPs in resource dependence and interorganizational relationships frameworks will be promising.

5.1.1 Objective of Public Health PPPs

As the study results revealed that there are 2 PPPs projects that are implemented to support the readiness of Thailand’s national pandemic influenza preparedness. The first project is the IFT and the second project is the technical

assistance collaboration of GPO- Kaketsuken in influenza vaccine production. The objectives of these PPPs are identified, according to the conceptual framework, as described in Chapter 2, to provide increased access and to contribute to public health goals. The collaboration of GPO-Kaketsuken has the ultimate goals of increasing access to influenza vaccine and contributing to public health goals for the self-reliance of influenza vaccine manufacture. Meanwhile, IFT also aims to contribute to public health goals through improving advocacy and education on influenza, which help to drive healthcare providers and the general public awareness of the disease threat and benefit of prevention.

For the IFT, the study revealed that there is a critical need to increase and enhance mental and health workforce behavioral education and training because health education is the opportunity for learning involving some form of communication designed to improve health literacy, including improving knowledge, and developing life skills which are conducive to individual and community health. Well-trained public health professionals are critical in addressing the changing context of health challenges, including complex and persistent health problems, increasing health inequities, new and emerging diseases, the necessity for greater collaboration within a cross-sectorial approach and incorporation of social models and determinants of health.

Research findings are aligned with conceptual framework and the literature review which has shown that there are several types of PPPs in public health that have emerged since the early 2000s (Buse & Walt, 2000a). Public health PPPs are conducted under the context of pandemic influenza preparedness and required to address major public health needs in light of a country readiness for the emergence and/or reemergence of influenza. Pandemic influenza preparedness requires collaboration between public and private sectors. Businesses, particularly transnational corporations, have unparalleled resources to help governments collect and disseminate information and address community-wide socioeconomic losses. The critical importance in pandemic influenza preparedness is the need for inter-sectorial collaboration involving all key stakeholders including partners outside of the health sector.

Governments everywhere are facing rising costs due to a variety of factors, including economic growth (which increases demand for treatment), changing

demographics and epidemiological trends (aging populations and more chronic diseases), and advances in medical technology (leading to more expensive health technologies). In the health care context, governments are also struggling to meet public health demands, in particular the control of pandemic infectious outbreaks within their limited budget capability and simply lack the resources to provide healthcare to their entire populations. As a result, governments may choose to look to the private sector and explore PPP options. PPPs are a valuable tool in delivering healthcare. One of the positive effects has been how PPPs have bridged the former divide between the association of the private sector with the rich and the linkage of the public sector with the poor. One can, under PPPs, obtain excellence in healthcare despite being poor. The PPP scholars encourage all the PPP partners to ensure that the PPP improves equity, access and efficiency in healthcare for patients and entire populations.

A number of PPPs are legally independent, not for- profit organizations, for example, Medicine for Malaria Ventures (MMV), Global Alliance for Vaccines and Immunization (GAVI), and Drugs for Neglected Diseases Initiative (DNDi) (DePinho, Norman, & Jadad, 2011). Some are hosted within other organizations, either in the public sector (e.g. national and inter-governmental institutions), or in the commercial sector (e.g. pharmaceutical, private medicine, or non-health related for-profit companies), or in the non-profit sector (e.g. NGO, educational and research institutes) (Kickbusch, 2003). Lastly, a small group of PPPs for health services and public health have been active in the form of social-marketing activities, vouchers, pre-packaging, contracting-out, franchising, and training between the public and private for-profit health providers (Patouillard, Goodman, Hanson, & Mills, 2007). Caution should be exercised when interpreting these as PPPs because they might not fulfill the definition of PPPs as discussed previously.

5.1.2 Reasons for Partnering in Public Health PPPs.

According to Buse and Walt, the motives of public authorities to form partnerships with the private sector are access to a private resource of management expertise, advance technologies, physical assets and financial resources (Buse & Walt, 2000b). Whereas, the interest of the private sector to participate in partnerships

is to gain financial benefits; access to policy makers, access to information/institutions and increase their corporate reputation (Buse & Walt, 2000a).

The study results revealed that advance technology for influenza vaccine production on a manufacturing scale and financial resources for IFT educational activities conducted were the key resources that public authorities intended to access through partnership projects. Where as, the private sectors expected to gain corporate reputation for partnering in both the IFT project and with collaboration in the GPO-Kaketsuken project. Moreover, for IFT also expected to gain financial benefits, access to policy makers and access to information/institutions.

Resource dependence and inter-organizational relationships theory now recognize that it is necessary to be involved in a multiple stakeholders, engagement phenomenon (World Health Organization, 2004). This recognition has been accompanied with a reassessment of the roles, strengths and limitations of the public sector (government), the private sector (pharmaceutical enterprises) and civil society in responding to health problems (Widdus, 2001). Proponents of PPPs for public health argue that this form of collaboration has become compelling in an environment of complex health problems (Widdus, 2001), tremendous community needs, limited resources and extreme competition for limited resources (Reich, 2002); an environment in which neither side can on its own achieve its specific goals.

From a theoretical perspective, we aim to extend the classical view of resource dependence and power in alliances of interorganizational relationships by giving the principal (weak) organization the opportunity to proactively shift its environmental boundaries and a partnership approach increases the number of options available to it. In fact, the principal organization can redesign its environment to access new resources. As more compatible external options become accessible, the principal (weak) organization reduces its dependence on the strong partner and can enter into more profitable partnerships. With this approach, we propose that an organization can implement several parameters (e.g., shared goals and the number and quality of resources) to reduce their dependence on powerful partners and escape deterministic patterns in the alliances that they establish. In addition, it was observed that an organization could implement processes to increase the quality offered by these new resources. The introduction of these new “variables” into the assessment of resource dependence allows us to analyze alliance bargaining issues in greater detail.

According to Widdus, partnerships seem to be most justifiable when traditional ways of working independently have a limited impact on a problem domain; the specific desired goals can be agreed by the collaborating players; relevant complementary expertise is interchanged between both sectors; the long-term interests of each sector are fulfilled (i.e. there are benefits to all players involved), and the contributions of expertise and resources are reasonably balanced (Widdus, 2001). In the case of PPPs, for product development the need to foster such an arrangement is motivated by the fact that those PPPs might, by offering an alternative model for investment, be able to overcome the unattractive commercial return on the investments of companies in low and middle-income countries (Widdus, 2001). On the other hand, PPPs for strengthening health services might fill gaps that have been left by the health system because, on its own, a lack of resources, competing priorities and management issues render it incapable of providing public goods in an effective and efficient way (Nishtar, 2004). In addition to this, scholars have found that one of the most significant motivators in PPPs for health service delivery was gaining access to those hard-to-reach populations (Peters & Phillips, 2004; Rummery, 2009). Gaining access to a global coalition, and understanding members' unique talents, resources and perspectives, were pivotal to initiating PPPs for disease awareness (Siegel & Venkat Narayan, 2008).

The findings also suggest that organizations seek collaborations to strengthen their capacity to meet performance goals, and increased exposure to and appreciation by other groups in the community (Buse & Waxman, 2001; Lasker, Weiss, & Miller, 2001; Van Huijstee, Francken, & Leroy, 2007). Furthermore, in sustainable public health PPPs, organizations are motivated to engage in partnerships to understand the views of others, stimulate creativity and generate a wider range of solutions (Van Huijstee et al., 2007). Key contextual shifts in public health are cited as reasons for the emergence of PPPs: a ideological shift which has created a facilitating environment for business and a recognition that the public health agenda is too large for a single sector or organization to address on its own, a realization that the market alone cannot provide solutions, and a growing interest within the private sector to enhance its involvement in social issues.

The concept of “partnership” has become possible through a change in attitude on the part of both public and private sectors. Commercial suppliers for the pharmaceutical industry, who were earlier perceived to be more interested in profits than in public welfare, are now being viewed as useful partners in public service. Government officials, who were often perceived to be authoritarian and needlessly obstructive, are now being regarded as capable and responsive partners. Although motivations may differ between the two sectors, PPPs allow the sectors to work together toward common objectives. Generally PPPs in the public health sector have three objectives: to promote those behaviors that reduce the incidence of diseases; to facilitate equitable access to vaccines and treatments; and to improve health service delivery.

In the private sector, for the pharmaceutical company profits are critical, but they are far from the only consideration in deciding where to invest resources. If potential profitability is a prerequisite to investment in an activity, other concerns can and do intervene in making choices. At any given time, a company’s senior managers are considering several potentially profitable products. Sometimes choice is determined by subjective factors and personal preferences. Private entities are also motivated by the desire for respect in the community and to contribute to improving the quality of life-investing in products and alliances to meet public health objectives appeals to these broader sensibilities. Collaborations are being set up between public and private sectors as a result of pressure to ensure quality in public services at a time when public and private resources are shrinking. In principle, partnerships pool resources, capitalizing on the skills and knowledge of each sector. The public sector can benefit by reducing the budget burden, the private sector by increasing profits and they can both benefit from improving the standard of health. On a national level, they challenge the traditional view that the aims and responsibilities of the public and private sector are discrete and opposed.

Control of emerging infections can be advanced by several types of PPPs, such as to develop drugs and vaccines, or to advance policy development. The role of philanthropic investment in partnerships that support the readiness against emerging infectious diseases are also an important consideration. Strong investments in public health agencies, both in facilities and programs, will enable public/private

partnerships to achieve their full potential. IFT and the collaboration of GPO-Kaketsuken are PPPs designed to support the government to meet public health goals.

Since it was established in 2004, IFT is uniquely qualified to initiate thought and action, experiment with new and untested financial support, dissent from prevailing attitudes, and act flexibly. IFT is an example of an operation or special interest foundation for training and educational PPPs. It's a philanthropic organization which is able to move quickly to fill a gap, function as neutral conveners, model successful approaches, develop information for public health policy and to support national pandemic influenza preparedness for healthcare providers' training and educational modules. These philanthropic organizations can be the catalysts for developing partnerships among public and private sectors as well. The collaboration of GPO-Kaketsuken is another example of philanthropic capacity. In this case it is a PPP for product development which is more sophisticated than a training and education PPP. It also needs to obtain an ecosystem to support it for achievement.

The following findings can be derived from these PPPs in light of the philanthropic capacity:

1) Philanthropic support is modest in comparison to the pharmaceutical industry and government support for PPPs.

2) The pharmaceutical industry is an essential partner but needs good governance and an effective strategy to participate in PPPs for pandemic influenza that will affect a large number of people.

3) Government agencies need long-term, increased investments to advance knowledge to develop vaccines and drugs, and to control emerging infectious diseases.

4) Owing to the complexity and global nature of the issues of influenza pandemic, partnerships are more important today than ever before.

5.1.3 Effectiveness of Public Health PPPs

PPP is now the keyword in public and private collaborations. However, as partnerships have become more common, there are several factors which have become increasingly important in keeping effective PPPs initiatives. The general features of effective PPPs are transparency, accountability, a governance structure,

and a well-defined leadership. Other factors for effectiveness are a clear understanding of objectives and how they influence the outcome and overall strategy of the PPP. As the main focus of public health partnerships is to meet public health goals, the rational and benefits need to be carefully studied to evaluate their impact on national health security.

To do this, the mixed method research on IFT was studied and is referred to throughout this review in relation to the effectiveness of IFT and the principles of resource dependence and interorganizational relationships theory. The effectiveness strategy and measuring impact were evaluated to identify the outcome of IFT on national health security. The study revealed, IFT is a unique, non-profit organization which has been selected and well recognized by the committee on the national strategy to support health educational activities on influenza for healthcare professionals and raise public awareness on influenza prevention and control.

More over IFT has demonstrated great potential, to create a demand for vaccines. The efforts to stimulate demand are coupled with action to help encourage ministers of public health to provide seasonal influenza vaccines to high-risk populations. Meanwhile, IFT also played a key role in providing education to healthcare providers and raising awareness which has resulted in an increased awareness level for pandemic influenza preparedness.

The “effectiveness” of PPPs in the health sector is described by the following four elements: input; process; output and outcome of PPPs project.

5.1.3.1 Input of the PPPs

A successful PPP requires the appropriate allocation of resources, risk sharing and rewards between the public sector and the private sector (World Bank 2011). Building partnerships takes time and requires trust (UNDP, 2009). Input of the PPPs project should compose of clearly specified, realistic, and shared goals. Public health PPPs are subject to particular public scrutiny. The input from IFT has shown that public and private organizations can share resources and work together to support disease prevention programs if they have a perceived mutual benefit and there is a win-win situation.

This finding is in line with a Wheeler and Berkley study , they suggest that “public sector partners may need to invest more time and effort in explaining their strategies and commit more resources to communications than their private sector counterparts” (Wheeler & Berkley, 2001).

A governance structure that fits the needs of the partnership is necessary to ensure that the public health objectives and the objectives of all the partners are being met, and that there is transparency in communications. Based on a review of public health partnerships, good governance was identified (Buse & Walt, 2000b).

5.1.3.2 Process of the PPPs.

The process of IFT composes of clearly defined and agreed roles and responsibilities to ensure the active “maintenance” of the partnership (i.e., resolution of conflict, regular meetings). This finding is supported by Ruchat and Dal’s review of the Global Polio Eradication Initiative. They suggest that “creating a joint communication strategy is difficult but necessary” (Ruchat & Dal, 2000).

A transparent system of governance is also required to be set up as a separate legal entity. Resources are needed to ensure the participation of key stakeholders who might otherwise lack the ability to participate.

5.1.3.3 Out put of the PPPs.

The output of IFT composes of distinct benefits for all partners, the perception of transparency in the public eye and equal participation. The public sector can easily underestimate the time and effort required and over estimate the chances of success of a partnership (Webber & Kremer, 2001).

5.1.3.4 Outcome of PPPs.

Finally, to determine the effectiveness of a PPP’s outcome, the project should compose of honoring agreed obligations. Meanwhile, the PPP also needs to examine the effect of the initiative on the most vulnerable groups and design a strategy to ensure that this target group is effectively reached. IFT is the representative of PPPs in the provision of training and education for healthcare providers. It is well recognized that it has substantial potential for raising influenza disease awareness and improving knowledge among the public and healthcare providers. The quantitative results revealed that healthcare providers who attend educational training conducted by IFT show increased interest to work according to

the guideline of pandemic influenza preparedness recommendations for healthcare providers roles and responsibilities. This will strengthen Thailand's public health system to be ready for influenza outbreak management.

5.2 Contribution to Theory

This dissertation also makes theoretical contributions to the field of public health PPPs**.** It is probably one of the few empirical examinations of PPPs for pandemic influenza preparedness from the perspective of resource dependence theory and inter-organizational relationships theory. The resource dependence theory and inter-organizational relationships theory apply mostly to the business and public administration literature (Whetten, 1982). The theoretical approach helped explain why the public and the private sectors seek PPP partnerships, and the important conditions influencing the consideration for effective PPP development. This dissertation emphasized resource dependence theory to provide the basis for understanding the motivations and expected benefits to enter into public health PPPs for pandemic influenza preparedness. The findings supported the position of an importance of a resource scarcity to facilitate the dialogue for public health PPPs development. In this dissertation public value for national health security is not achieved by single actors individually but results from the combined interactions of key players.

Interdependence appears as both a cause and a consequence of collaboration and co-ordination among public and private organizations (Hillman, Whiters, & Collins, 2009). Interdependence lies at the core of resource dependence theory (Pfeffer & Salancik, 1978; Hillman, Whiters, & Collins, 2009) whose tenets explain why organizations interact with their environments to reduce uncertainty and to control the resources they need to succeed. Although interdependence is commonly mentioned in the public administration arena, its empirical assessment and operations are tackled from different theoretical backgrounds and encompasses multiple explanations. Studies in the field of public health will benefit from these theoretical underpinnings.

Moreover, this dissertation also contributes to enhance our knowledge of the collaborative spectrum of PPPs by providing empirical illustrations of the importance and utilization of inter-organizational relationships theory. Whilst theorizing on the PPPs phenomena, this dissertation provides a valuable framework upon inter-organizational relationships that can build on a better understanding of how to manage effective public health PPPs for pandemic influenza preparedness. Inter-organizational relationships are rooted in the overarching organizational theories influenced by the fields of management, economics, sociology and psychology. Inter-organizational relations through network arrangements are commonplace in many policy areas (Vigoda, 2002; Hudson, Hardy, Henwood, & Wistow, 1999; Agranoff & McGuire, 2003). Inter-organizational relationships occur when organizations face complex problems or societal problems that are large enough and multi-dimensional in scope that one single organization cannot, alone, cope with them (Trist, 1983). Under the overarching banner of inter-organizational relationships theory the author employed, for the purpose of this dissertation, theories that could provide insight to explain the formation and effective management of partnerships between the public and the private sectors for pandemic influenza preparedness. This research has also explored the dynamics, development and results performance of inter-organizational relationships. Inter-organizational relationships cause the rise of many difference structures and can take the form of alliances, networks, and partnerships amongst others. It is worthwhile to examine public health PPPs using inter-organizational relationships to explore the potential contributions of the theories to study PPPs in public health. Ring and Van De Ven (1994) examined the dynamics of inter-organizational relationships from the perspectives of the co-operative processes. These processes are important for the management of partnership development and crucial for project performance, because to manage an inter-organizational relationship each partner must know more than the initial conditions. The way that they negotiate, execute and modify the relationship will influence the vision the partners have of the efficiency of the relationship, contributing to its continuity or terminating positively, negatively or neutrally. One practical implication is the need to adopt contractual practices to better permit the benefits of rational aspects, both functional and personal. This aspect is of particular importance for pandemic

influenza preparedness due to the advent of a new infectious disease outbreak. While participation in inter-organizational relationships can lead to learning that increases the productivity of member firms, there is evidence to suggest that they may also help organizations adapt to changes in the environment. Environmental changes lead organizations to face the challenge of adapting their core practice or risk decline and failure. The inter-organizational relationship can provide the researcher with one method with which to study organization adaptation.

5.3 Recommendations

This paper sets out the key components of public health PPPs on essential elements for pandemic influenza preparedness. National pandemic preparedness plans are central to mitigating the public health consequences and social and economic disruption of a pandemic.

It is therefore critical that any determinants of effective PPPs for public health reflect the ability to mitigate the impact of a pandemic influenza outbreak in the future. In the mean time governments should be encouraged to update, or develop, comprehensive preparedness plans. Pharmaceutical companies that are participating in the PPP projects, IFT and the collaboration of GPO-Kaketsuken, are committed to playing a part in supporting pandemic preparedness.

The increasing number of PPPs in health is reinforcing the objective to build a considerable base of multi-sector experiences to draw upon for future projects (Axelsson & Axelsson, 2006). The main contributions from private sector to the public, which support the greatest need, are technological and financial support.

The main contribution from the public sector, which support the greatest need for the private sector, are finance and access to policy makers. PPPs have been well recognized as a valuable tool in delivering health care. One of the positive outcomes has been how PPPs have bridged the former divide between collaborations between the private and public sectors. Healthcare organizations continue to grow in complexity; the challenges of investigating them continue to increase. A global PPP has also been defined in similar terms but which “transcends national boundaries to achieve a shared health creating goal on the basis of a mutually agreed division of

labor" (Buse & Walt, 2000a). Meanwhile, the difficulty of regulating internal power dynamics, especially when the motivations between the public and private sector are at odds, has led to suggestions that PPPs should only involve the private sector when they are producers of health or profit from "better health". Although this is not to say that it is only the private sector who may hold most power in these relationships, it does suggest that not all partnerships are necessarily desirable especially when issues of equity and ethics are involved (Hancock, 1998).

A number of mechanisms to promote access to medicines have been suggested, including tax credits and fast tracking of product registration (push mechanisms) or advance purchase funds and enhanced intellectual property rights (pull mechanisms) (Mrazek & Mossialos, 2003). These mechanisms are currently the focus of many discussions surrounding vaccine development. Especially with regard to the benefits of the demand pull mechanism of advance market commitments, whereby governments and others contribute to a pot of money that will then be used to guarantee the purchase of drugs and/or vaccines once they have been produced.

Public health-based PPPs are often seen as creating a focus on short term gains, vertical programming and single diseases to the neglect of overall public health systems and the possible abdication of responsibly by states for their entire population's health (Buse & Waxman, 2001). The empirical data from a systemic review on the development and management stages of product development PPPs, using qualitative content analysis, shows that the development stage of product development PPPs requires a careful initiation and planning process, including discussions on values and shared goals, agreement on mutual interests & equality of power relations, exchange of expertise & resources, stakeholder engagement, and assessment of the local health capacity. The management stage of product development PPPs entails transparency, extensive communication and participatory decision-making among partner organizations (De Pinho et al., 2011).

Finally, this dissertation developed the theory-driven, empirically based framework that explains effective PPPs for pandemic influenza preparedness. Perhaps, this is the most important contribution of this thesis to the literature. Theory-driven studies on PPPs in the public health sector have led to the understanding and explanation of the underlying dynamics of PPPs establishment. Current finding on

PPPs for public health, in particular for pandemic influenza preparedness, integrate critical elements into a cohesive framework that helps explain the vales of PPPs. The theoretical framework of this thesis may fill these gaps. This dissertation also makes theoretical contributions to the field of public health PPPs. It is probably one of the first empirical examinations of PPPs for pandemic influenza preparedness from the perspective of resource dependence theory and inter-organizational relationships theory. The methodological appraisal, using resource dependence theory and inter-organizational relationships theory, applies mostly to the private and public administration literature. This theoretical approach helped explain why and how the public and the private sectors seek PPPs, focusing on the importance of conditions influencing consideration for PPPs establishment. The theories also provided the basis for understanding the motivations and expected benefits of entering into PPPs. In addition, the results helped position the importance of a convener to facilitate dialogue for PPPs development. Future studies in the field of public health may benefit from these theoretical underpinnings. As PPPs continue to proliferate in the public health administration landscape, the author expects the empirical research will continue to expand, offering further insights into managing inter-organizational relationships and exploring the PPPs value in long term. In this context, the recommendation for future research can be identified for further investigation of the relationship aspect and taking in to consideration the deeper development of the partnership management for product development PPPs for influenza vaccine productions considering the philosophical differences between partners.

BIBLIOGRAPHY

Adams, C. L., & Goldsmith, P. (1999). Conditions for successful strategic alliances in the food industry. *International Food and Agribusiness Management Review, 2*(2), 221-248.

Aginam, O. (2007). *From westphalianism to global governance: The G8, internationallLaw, and global health governance through public-private partnerships (PPPs).* Conference Papers-International Studies Association, 1-12. Ottawa, Chicaco, 28 Febuary-2 March.

Agranoff, R., & McGuire, M. (1999) .Managing in network settings. *Policy Studies Review, 16*(1), 18-41.

Agranoff, R., & McGuire, M. (2003). *Collaborative public management: New strategies for local governments.* Washington, DC: Georgetown University Press.

Aldis, W. (2008). Health security as a public health concept: a critical analysis. *Health Policy and Planning, 23,* 369-375.

Alliance Management International Ltd. (1999). *Creating strong alliances.* Retrieved from www.amiltd.com/NewCreating

Altman, D. (2003). AIDS and security. *International Relations, 17,* 417-427.

The American Heritage® Dictionary of the English Language (2009). Houghton: Mifflin Company.

Anderson, S. (2012). Public, private, neither, both? Publicness theory and the analysis of healthcare organisations. *Social Science & Medicine, 74*(3), 312-322.

Anslinger, P., & Jenk, J. (2003). *Strategy and business architecture: Creating successful alliances.* Retrieved from https://www.accenture.com/ t20150527T211342__ w__/ jp-ja/_ acnmedia/Accenture/Conversion-Assets/ DotCom/Documents/ Local/ja-jp/PDF_1/Accenture-SBA-Who-Alliances.pdf

Anthony, J., M., & Rosalie, E. W. (2008). Climate change and infectious diseases-14. In K. H. Mayer & H. F. Pizer (Eds.), *The social ecology of infectious diseases* (pp. 378-407). London: Academic.

Axelsson, R., & Axelsson, S. B. (2006). Integration and collaboration in public health: A conceptual framework. *International Journal of Health Planning and Management, 21*(1), 75-88. doi: http://dx.doi.org/10.1002/hpm.826

Badmead, C., & Cowley, S. (2005). A concept analysis of partnership with clients. *Community Practitioner: The Journal of the Community Practitioners' & Health Visitors' Association, 78*(6), 203-208.

Bagchi S. (2007). WHO regulations to prevent the spread of diseases. *Canadian Medical Association Journal, 177*, 447-448.

Barley, Z., Phillips, C., & Jenness, M. (1998). *Decoding program logic models.* Workshop Presented at the Annual Meeting of the American Evaluation Association, Chicago, IL, November.

Barlow, J., Roehrich, J. K., & Wright, S. (2013). Europe sees mixed results from public-private partnerships for building and managing health care facilities and services. *Health Affair, 32*(1),146-154.

Barnett-Page, E., & Thomas, J. (2009). Methods for the synthesis of qualitative research: a critical review. *BMC Medical Research Methodology*, *9*(1), 59.

Barr, D. A. (2007). A research protocol to evaluate the effectiveness of public-private partnerships as a meansto improve health and welfare systems worldwide. *American Journal of Public Health, 97*(1), 9-25.

Barringer, B. R., & Harrison, J. S. (2000). Walking a tightrope: Creating value through interorganizational relationships. *Journal of Management, 26*(3), 367-403.

Beauchamp, P. G. III, & Perdue, W. D. (1926). *Sociological theory-explanation, paradigm and ideology* (pp. 297-303). Palo Alto, Calif: Mayfield.

Bennett, E., Grohamann, P., & Gentry, B. (1999). *Public-private partnerships for urban environment: Options and Issues.* Retrieved from http://www.ucl.ac. uk/dpu-projects/drivers_urb_change/urb_infrastructure/ pdf_public_private_ services/UNDP_PPPUE_Joint%20Venture_1.pdf.

Bjorg, P., Susan H., B., & André-Jacques, N. (2008). 16: International organizational response to infectious disease epidemics. In K. H. Mayer & H. F. Pizer (Eds.), *The social ecology of infectious diseases* (pp. 426-448). London: Academic.

Blanchard, K., Zigarmi, P., & Zigarmi, D. (1985). *Leadership and the one minute manager: Increasing effectiveness through situational leadership*. New York, NY: William Morrow and Company.

Bockarie, M. et al (2002). *Review of the Multi-lateral Initiative on Malaria.* Retrieved from https://dpcpsi.nih.gov/sites/default/files/opep/document/Final_Report_(02-115-FIC)%202002.pdf

Brewer, N. T., & Rimer, B. K. (2008). Perspectives on theories of health behavior that focus on individuals. In K. Glanz, B. K. Rimer, & V. Viswanath (Eds.), *Health behavior and health education: Theory, research and practice* (4th ed). San Francisco, CA: Jossey-Bass.

Barnett-Page, E., & Thomas, J. (2009). Methods for the synthesis of qualitative research: A critical review. *BMC Medical Research Methodology, 9*(1), 59.

Barr, D. A. (2007). A research protocol to evaluate the effectiveness of public-private partnerships as a means to improve health and welfare systems worldwide. *American Journal of Public Health, 97*(1), 9-25.

Barringer, B. R, & Harrison, J. S. (2000). Walking a tightrope: Creating value through interorganizational relationships. *Journal of Management, 26*(3), 367-403.

Beauchamp, P.G. III, & Perdue, W. D. (1926*). Sociological theory-explanation, paradigm and ideology* (pp. 297-303). Palo Alto, Calif: Mayfield.

Bennett, E., Grohmann, P., & Gentry, B. (1999). *Public-private partnerships for urban environment: Options and issues.* New York, United Nations Development Programme and Yale University.

Bjorg, P., Susan H., B., & André-Jacques, N. (2008). 16: International organizational response to infectious disease epidemics. In K. H. Mayer and H. F. Pizer (Eds.), *The social ecology of infectious diseases* (pp. 426-448). Amsterdam: Elsevier.

Blanchard, K., Zigarmi, P., & Zigarmi, D. (1985). *Leadership and the one minute manager: Increasing effectiveness through situational leadership*. New York, NY: William Morrow and Company.

Bockarie, M. et al. (2002). *Review of the multi-lateral initiative on Malaria,* Besthesda: National Institutes of Health.

Brewer, N. T., & Rimer, B. K. (2008). Perspectives on theories of health behavior that focus on individuals. In K. Glanz, B. K. Rimer, & V. Viswanath (Eds.), *Health behavior and health education: Theory, research and practice* (4th ed.). San Francisco, CA: Jossey-Bass.

Brown, I. (2001). The pig as an intermediate host for influenza A viruses between birds and humans. *International Congress Series, 1219*, 173-188.

Brown, T., & Potoski, M. (2002). Transaction costs and institutional explanation for government service production decisions. *Journal of Public Administration Research and Theory, 13*(4), 441

Bruce A., W., Duane J., G., & H.F., P. (2008). Urbanization and the social ecology of emerging infectious diseases. In K. H. Mayer and H. F. Pizer (Eds.), *The social ecology of infectious diseases* (pp.113-137). Amsterdam: Elsevier.

Burke, G. (2001). 'Financing lifelong learning, a review of needs and options', *Journal of Educational Planning and Administration, 15*(3), 301-331.

Burns, A. (1992). Mother-headed families: An international perspective case of Australia. *Social Policy: Society for research in Child Development, 6*, 1-22.

Buse, K. (2004a). *Global health partnerships: Mapping a shifting terrain*. Retrieved from http://www2.ohchr.org/english/issues/development/docs/WHO_4.pdf

Buse, K. (2004b). Governing public-private infectious disease partnerships. *Brown Journal of World Affairs, 10*(2), 225-240

Buse, K., & Walt, G. (2000a). Global public-private partnerships: Part I A new development in health? *Bulletin of the World Health Organization, 78*(4), 549-561.

Buse, K., & Walt, G. (2000b). Global public-private partnerships : Part II What are the health issues for global governance? *Bulletin of the World Health Organization, 78*(5), 699-709.

Buse, K., & Waxman, A. (2001). Public-private health partnerships: A strategy for WHO. *Bulletin of the World Health Organization, 79*(8), 748-754

Bustreo, F., Harding, A., & Axelsson, H. (2003). Can developing countries achieve adequat improvements in child health outcomes without engaging with the private sector? *Bulletin of the World Health Organization, 81*(12), 886-894.

Campos, W., & Jalaludin, Bin B. (2002). Predictors of influenza vaccination amongst Australian nurses. *The Australian Journal of Advanced nursing : A Quarterly Publication of the Royal Australian Nursing Federation, 20*(2), 19-21.

The Canadian Council for Public-Private Partnerships. (2011). *Definitions of PPP.* Retrieved from http://www.pppcouncil.ca/resources/ about-ppp/definitions. html

Carnwell, R., & Buchanan, J. (2005). *The concepts of partnership and collaboration in effective practice in health and social care: A partnership approach.* New York: McGraw-Hill.

Carpenter, C. J. (2010). A meta-analysis of the effectiveness of health belief model variables in predicting behavior. *Health Communication, 25*(8), 661-669. doi:10.1080/10410236.2010.521906.

Carver, L. (2011). Building capital. *Life & Pension Risk, 7*(1), 19-21.

Chan, M., Støre, J. G., & Kouchner, B. (2008). Foreign policy and global public health: working together towards common goals. *Bulletin of the World Health Organization, 86*(7), 498.

Chee, G. et al. (2004). *Evaluation of GAVI immunization services support funding.* Retrieved from file:///C:/Users/Administrator/Downloads/GAVI%20Alliance %20evaluation%20of%20ISS.pdf

Chen, H. (2005). *Practical program evaluation: Assessing and improving planning, implementation and effectiveness.* Thousand Oaks, CA: Sage.

Choi, Y. K. et al. (2005). Studies of H5N1 influenza virus infection of pigs by using viruses isolated in Vietnam and Thailand in 2004. *Journal of Virology, 79*, 10821-108255.

Cities Development Initiative for Asia (CDIA). (2010). *CDIA PPP guide for municipalities.* Retrieved from https://www2.giz.de/urbanet/focus/docdetail-ccc.asp?number=8010

Claas, Eric C. J., Kawaoka, Y., de Jong, J. C., Masurel, N, & Webster, R. G. (1994). Infection of children with avian-human reassortant influenza virus from pigs in Europe. *Science Direct, 204*(1), 453-457.

Coe, A. B., Gatewood, S. B. S., Moczygemba, L. R., Goode, J. V. K. R., & Beckner, J. O. (2012). The use of the health belief model to assess predictors of intent to receive the novel (2009) H1N1 influenza vaccine. *Innovations in Pharmacy, 3*(2), 1-11.

Coker, R., & Mounier-Jack, S. (2006). Pandemic influenza preparedness in the Asia-Pacific region. *Lancet, 368*(9538), 886-889. doi:10.1016/S0140-6736(06)69209.

Cole, J. (2012). Antimicrobial resistance, infection control and planning for pandemics: The importance of knowledge transfer in healthcare resilience and emergency planning. *Journal Of Business Continuity & Emergency Planning, 6*(2), 122-135.

Creswell, J. (1998). *Qualitative inquiry and research design: Choosing among five traditions.* London: Sage.

Daniels, D., Sale G., & Ward, N., (2001). *Review of the global polio eradication initiative and DFID's involvement.* London: IHSD.

Das, T. K., & Teng, B. S. (2000). A resource-based theory of strategic alliances. *Journal of Management February, 26*(1), 31-61.

David, R. J., & Han, S. K. (2004). A systematic assessment of the empirical support for transaction cost economics. *Strategic Management Journal,* 25(1), 39-48.

Davies, R. (2008). *The logical framework: A list of useful documents.* Retrieved from http://mande.co.uk/2008/lists/the-logical-framework-a-list-of-useful-documents

Davies, S. (2008). Securitizing infectious disease. *International Affairs, 84*, 295-313.

Davis, G. F., & Cobb, J. A. (2010). Resource dependence theory: Past and future. *Research in the Sociology of Organizations, 28*, 21-42.

De Pinho Campos, K., Norman, Cameron D., & Jadad, Alejandro R. (2011). Product development public-private partnerships for public health: A systematic review using qualitative data. *Social Science & Medicine, 73*(7), 986-994. doi: 10.1016/j.socscimed.2011.06.059

Department of Health and Human Services (HHS). (1990). *Historical overview of pandemics and pandemic threats since 1990.* Retrieved from http://www.pandemicflu.gov/general/historicaloverview.html

Drees, J. M., & Heugens, P. P. M. A. R. (2013). Synthesizing and extending resource dependence theory: A meta-analysis. *Journal of Management, 39,* 1666-1698.

Dwyer, J. (1996). Applying program logic model in program planning and evaluation. *Public Public Health and Epidemiology Report Ontario,7*(2), 38-46.

Dyer, J. H., Nobeoka, K. G. R., Nohria, N., & Zaheer, A. (2000). Creating and managing a high-performance knowledge-sharing network: The Toyota case. *Strategic Management Journal, 21,* 345-367.

Easton, A. (2009). Public-private partnerships and public health practice in the 21st century: Looking back at the experience of the steps program. *Preventing Chronic Disease, 6*(2), A38.

EC. (2011). *Stakeholder consultation on health security in the European Union.* Retrieved from http://ec.europa.eu/health/preparedness_response/docs/healthsecurity20110304.pdf.

Ejeta, L.T., Ardalan, A., & Paton, D. (2015). *Application of behavioral theories to disaster and emergency health preparedness: A systematic review.* Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/26203400

El Ansari, W., & Phillips, C. (2001). Interprofessional collaboration: a stakeholder approach to evaluation of voluntary participation in community partnerships, *Journal of Interprofessional Care, 15*(4), 351-68.

Elbe, S. (2010). Haggling over viruses: the downside risks of securitizing infectious disease. *Health Policy and Planning, 25*(6), 476-485.

Elmuti, D., & Kathawala, Y. (2001). An overview of strategic alliances. *Management Decision, 39*(3), 205-218.

Enemark, C. (2007). *Disease and security: Natural plagues and biological weapons in East Asia*. London: Routledge.

Enemark, C. (2010). The role of the biological weapons convention in disease surveillance and response. *Health Policy and Planning, 25*(6), 486-494.

Engberg, L. A. (2002). Book review: Public-private partnerships-theory and practice in international perspective. *Public Administration, 80(*3), 601-604.

Evans, R. G., & Stoddart, G. L. (1990). Producing health, consuming health care. *Social Science and Medicine, 31*(12), 1347-1363.

Feachem, R., Medlin. C., Daniels, D., Dunlop, D., Mshinda, H., & Petko, J. (2002). *Achieving impact: roll back malaria in the next phase.* Final report of the external evaluation of Roll Back Malaria. Geneva: WHO.

Fidler, D. P. (2003). Public health and national security in the global age: infectious diseases, bioterrorism, and realpolitik. *The George Washington International Law Review, 35*, 787-856

Fidler, D. P. (2004). Germs, governance, and global public health in the wake of SARS. *Journal of Clinical Investigation, 113*, 799-804

Fidler, D. P., & Draeger, N. (2006). Health and foreign policy. *Bulletin of theWorld Health Organization, 84*(9), 687.

Fitzpatrick, J. (2002). A conversation with Leonard Bickman. *American Journal of Evaluation, 23*(3), 69-80.

Floyd, D. L., Prentice-Dunn, S., & Rogers, R. W. (2000). A meta-analysis of research on protection motivation theory. *Journal Applied Social Psychology, 30*(2), 407-429.

Galant, R., Walsh, C. M., & Carroll, S. B. (2002). Hox repression of a target gene: extradenticle-independent, additive action through multiple monomer binding sites. *Development, 129*(13), 3115-3126

Gale, J. (2008). *Flu pandemic may cost world economy up to $3 trillion. Bloomberg.* Retrieved from http://www.bloomberg.com/apps/news? pid¼20601202 &sid¼ashm CPWATNwU&refer¼ healthcare,

Gao, W., Solaff, A. C., & Gambotto, A. (2006). Protection of mice and poultry from lethal H5N1 avian influenza through adenovirus-based immunization. *Journal Virology, 80*(4), 1959-1964.

Garrett, L. (1995). *The coming plague: Newly emerging diseases in a world out of balance.* New York: Penguin Books.

Glanz, K., Lewis, F. M., & Rimer, B. K. (2008). *Health behavior and health education: theory, research, and practice* (4th ed.). San Francisco, CA: Jossey-Bass.

Glanz, K., & Rimer, B. K. (1995). *Theory at a glance: A guide for health promotion practice.* Bethesda, Md.: U.S. Dept. of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute.

Glasbergen, P., Birmann, F., & Mol, A. P. J. (2007). *Partnerships, governance and sustainable development.* Northampton, MA: Edward Elgar.

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today, 24*(2), 104-112.

Gresham, L., Ramlawi, A., Briski, J., Richardson, M., & Taylor, T. (2009). Trust across borders: responding to 2009 H1N1 influenza in the Middle East. *Biosecurity And Bioterrorism: Biodefense Strategy, Practice, And Science, 7*(4), 399.

Gresham, S. L., Pray, L. A., Wibulpolpraser. S., & Trayner, B. (2011). Public-private partnerships in trust-based public health social networking: Connecting organizations for regional disease surveillance (CORDS). *Journal of Commercial Biotechnology, 17,* 241-247.

Guan, Y., Shortridge, K. F., & Krauss, S. (1996). Emergence of avian H1N1 influenza viruses in pigs in China. *Journal of Virology, 70*, 8041-8046.

Gulati, R. & Sytch, M. (2007). Dependence asymmetry and joint dependence in interorganizational relationships: Effects of embeddedness on a manufacturer's performance in procurement relationships. *Administrative Science Quarterly, 52*(1), 32-69.

Gunnar, K. (2002). Regional co-development and security: A comprehensive approach. *Ocean And Coastal Management, 45*(11-12), 761-776.

Guo, B. (2006). Charity for profit? Exploring factors associated with the commercialization of human service nonprofits. *Nonprofit and Voluntary Sector Quarterly, 35*(1), 123-138.

Hancock, T. (1998). Caveat partner: Reflections on partnerships with the private sector. *Health Promotion International, 13*, 193-195.

Harrison, J. A., Mullen, P. D., & Green, L. W. (1992). A meta-analysis of studies of the health belief model with adults. *Health Education Research, 7*, 107-116.

Hawkes C. (2008). *Working paper on public-private partnerships for health.* Retrieved from http://ec.europa.eu/health/ph_determinants/life_style/ nutrition/documents/ev20081028_wp_en.pdf

Heather, J. L., & Edgar, K. M. (2008). 10: Vaccines and immunization. In K. H. Mayer, & H. F. Pizer (Eds.), *The social Ecology of infectious diseases,* (pp. 275-299). Amisterdam: Elsevier.

Herington, J. (2010). Securitization of infectious diseases in Vietnam: the cases of HIV and avian influenza. *Health Policy and Planning, 25*(6), 467-475.

Hillman, A. J., Withers, M. C., & Collins, B. J. (2009). Resource dependence theory: A review. *Journal of Management, 35,* 1404-1427.

Hodge, G., & Greve, C. (2005). *The challenge of public-private partnerships. learning from international experience.* Cheltenham, UK: Edward Elgar.

Hogerzeil, H. V., Samons, M., & Casano, J .V. (2006). Is access to essential medicines as part of the fulfilment of the right to health enforceable through the courts? *Lancet, 6*(368), 305-311.

Holliday, A. (2002). *Doing and writing qualitative research: Approaching qualitative research.* London: Sage.

Hosmer, D. W., & Lemeshow, S. (1989). Applied logistic regression. New York: John Wiley & Sons.

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative analysis. *Qualitative Health Research, 15*(9), 1277-1288.

Hudson, B., Hardy, B., Henwood, M., & Wistow, G. (1999). In pursuit of inter-agency collaboration in the public sector: What is the contribution of theory and research? *Public Management, 1*(2), 235-260.

IFC. (2010). *IFS support to health public-private partnerships.* Retrieved from https://assets.documentcloud.org/documents/2699134/IFC-Support-to-Health-PPPs.pdf

Israel, G. D. (2001). *Using logic models for program development.* Retrieved from http://edis.ifas.ufl.edu/wc041

Janz, N. K., & Becker, M. H. (1984). The health belief model a decade later. *Health Education Quarterly, 11*(1), 1-47.

John G., B. (2008). *13: Infectious diseases associated with natural disasters.* In K. H. Mayer, & H. F. Pizer (Eds.), *The social Ecology of infectious diseases* (pp. 351-377). Amisterdam: Elsevier.

Jonathan, C., & Joseph, J. A. (2008). 15: Governance, human rights and infectious disease: theoretical, empirical and practical perspectives. In K. H. Mayer, & H. F. Pizer (Eds.), *The social Ecology of infectious diseases* (pp. 408-425). Amisterdam: Elsevier.

Kaan, C., & Liese, A. (2011). Public private partnerships in global food governance: Business engagement and legitimacy in the global fight against hunger and malnutrition. *Agriculture And Human Values, 28*(3), 385-399. doi:http://dx.doi.org/10.1007/s10460-009-9255.

Kamradt-Scott, A. (2012). Changing perceptions of pandemic influenza and public health responses. *American Journal Of Public Health, 102*(1), 90-98. doi:10.2105/AJPH.2011.300330.

Kayman, H., & Ablorh-Odjidja, A. (2006). Revisiting public health preparedness: Incorporating social justice principles into pandemic preparedness planning for Influenza. *Public Health Management Practice, 12*(4), 373-380.

Kent Buse & Amalia Waxman. (2001). Public-private health partnerships: a strategy for WHO. *Bulletin of the World Health Organization, 79*(8), 748-754.

Kettler, H., & Marjanovic, S. (2004). Engaging biotechnology companies in the development of innovative solutions for diseases of poverty, *Nature, 3*, 171-176.

Kettler, H., White, K., & Jordan, S. (2003). Valuing Industry contributions to public-private partnerships for health product development. In *Initiative on public-private partnerships for health, global forum for health research.* Geneva: The Initiative on Public-Private Partnerships for Health.

Kickbusch, I. (2003).The Contribution of the World Health Organization to a New Public Health and Health Promotion. *American Journal of Public Health, 93*(3), 383-388.

Kickbusch, I. (2011). Global health diplomacy: How foreign policy can influence health. *BMJ, 342*(d3), 154

Kickbusch, I., & Lister, G. (2006) .European perspective on global health: a policy glossary, Brussels: European Foundation Centre. 2006.

Kimura, A., Nguyen, C., Higa, J., Hurwitz, E., & Vugia, D. (2007). The effectiveness of vaccine day and educational interventions on influenza vaccine coverage among health care workers at long term care facilities. *American Journal of Public Health, 97*(4), 684-690.

Kirigia, J., & Kirigia, D. (2011). The essence of governance in health development. *International Archives Of Medicine, 4,* 11.

Klein, E. (1987). The diffusion of consciousness in the United States and Western Europe. In M. F. Katzenstein & C. M. Mueller (Eds.), *The women's moments of the United States and Western Europe,* Philadelphia: Temple University Press.

Knight, L. (2002). Network Learning: Exploring Learning by Interorganizational networks. *Human Relations, 55*(4), 427-454.

Koblentz, G. D. (2012). From biodefense to biosecurity: the Obama administration's strategy for countering biological threats. *International Affairs, 88*(1), 131-148. doi:10.1111/j.1468-2346.2012.01061.x.

Kotalik, J. (2005). Preparing for an influenza pandemic: ethical issues. *Bioethics, 19,* 422-431. Doi10.1111/j.1467-8519.2005.00453.x.

Kotelnikov, V. (2004). *Building partnerships.* Retrieved from www.1000ventures.com/business_guide/ partnerships_main.html

Koza, M., & Lewin, A. (2000). Managing partnerships and strategic alliances: Rraising the odds of success, *European Management Journal, 18*(2), 146-151.

Kraatz, Matthew S. (1998). Learning by association? Interorganizational networks and adaptation to environmental change. *Academy of Management Journal 41*(6), 621-643.

Krasner, S. D. (1983). Structural causes and regime consequences: regimes as intervening variables. In S. D. Krasner (Ed.), *International regimes.* Ithaca, NY: Cornell University Press.

Langenbrunner, J. C., & Somanathan, A. (2011). *Financing health care in East Asia and the Pacific: Best practices and remaining challenges.* Washington, DC: The World Bank.

Lasker, R. D., Weiss, E. S., & Miller, R. (2001). Partnership synergy: A practical framework for studying and strengthening the collaborative advantage. *Milbank Quarterly, 79*(2), 179-205.

Lee, K., Buse, K., & Fustukian, S. (2002). *Health policy in the globalizing world.* Oxford: Oxford University Press.

Lob-Levzt, J. (2001). A donor perspective A role for public-private partnerships in controlling neglected diseases?, *Bulletin of the World Health Organization, 79*(8) 771-777.

Locke, E. A. & Latham, G. P. (1990). *A theory of goal setting and task performance.* Englewood Cliffs, NJ: Prentice Hall.

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation. *American Psychologist, 57*, 705-717.

Locke, E. A., & Latham, G. P. (2006). New directions in goal-setting theory. *Current Directions in Psychological Science, 15*(5), 265-268.

Looijmans-van den Akker, I., Delden, J. J. M. van, Verheij, T. J., Essen, G. A. van, Sande, M. A. van der, Hulscher, M. E. J. L., Hak, E. (2009). Which determinants should be targeted to increase influenza vaccination uptake among health care workers in nursing homes. *Vaccine,27*, 4724-4730.

Lorange, P., Roos, J., & Smith, P. (1992). Building successful strategic. *Alliances, Long Range Planning, 8*(4), 10-17.

Mackey, T. K., & Liang, B. A. (2012). Threats from emerging and re-emerging neglected tropical diseases (NTDs). *Infection Ecology & Epidemiology, 21*, 7.

Mahamoud, A., & Levin, M. (2007). Vaccines at the turn of the 21st century: A new era for immunization in public health. *International Journal of Infectious Diseases, 11*, s1-s2.

Manuel, D. G., Henry, B., Hockin, J., & Naus, M. (2002). Health behavior associated with influenza vaccination among healthcare workers in long-term-care facilities. *Infact Control Hospital Epidemiol, 23*(10), 609-614.

Martin, M. H., & Halachmi, A. (2012). Public-private partnerships in global health: Addressing issues of public accountability, risk management and governance.(Report). *Public Administration Quarterly, (2),*189.

Masterson, A. (2002), Cross-boundary working: a macro-political analysis of the impact on professional roles. Journal of Clinical Nursing, 11, 331-339. doi: 10.1046/j.1365-2702.2002.00604.

Mays, G. P., & Scutchfield, D. (2010). *Improving public health system performance through multiorganizational partnerships.* Retrieved from http://www.cdc.gov/pcd/issues/2010/nov/10_0088.htm.

McCawley, P. F. (1997). *The logic model for planning and evaluation.* Retrieved from http://www.uiweb.uidaho.edu/extension/LogicModel.pdf

McCawley, P. F. (2001). *The logic model for program planning and evaluation.* Moscow: University of Idaho Extension:

McCawley, P. F. (2002). The logic model for program planning and evaluation. University of Idaho Extension: Moscow.Pp.1-5.

McEwen, M., & Farren, E. (2005). Actions and beliefs related to hepatitis B and influenza immunization among registered nurses in Texas. *Public Health Nurse,22*(3), 230-239.

McKenzie, J. F., Neiger, B. L., & Thackeray, R. (2009). Planning, implementing and evaluating health promotion programs (5th ed.). San Francisco: Pearson Benjamin Cummings.

McKinsey & Company. (2002). *Developing successful global health alliances, for the Bill and Melinda Gates Foundation.* Washington, DC: McKinsey & Company.

McLaughlin, J. A., & Jordan, G. B. (1999). Logic models: A tool for telling your program's performance story. *Evaluation and Program Planning, 22*(1), 65-72.

McMath, B.F., & Prentice-Dunn, S. (2005). Protection motivation theory and skin cancer risk: the role of individual differences in responses to persuasive appeals. *Journal of Applied Social Psychology, 35,* 621-643. Doi 10.1111/j.1559-1816.2005.tb02138.x.

McMurray, R. (2006). From partition to partnership: managing collaboration within a curative framework for NHS care. *International Journal of Public Sector Management, 19*(3), 238-249.

Millar, A., Simeone, R. S., & Carnevale, J. T. (2001). Logic models: a systems tool for performance management. *Evaluation and Program Planning, 24*, 73-81.

Mitchell, S. M., & Shortell, S. M. (2000). The governance and management of effective community health partnerships: A typology for research, policy, and practice. *Milbank Quarterly, 78*, 241-289.

Moran, M., Guzman, J., Ropars, A. L., & Illmar, A. (2010). The role of Product Development Partnerships in research and development for neglected diseases. *International Health, 2*(2), 114-122.

Morowatisharifabad, M. A., Karimi, M., & Jannati, M. (2014). *Utility of the health belief model to assess predictors of rabies preventive measures.* Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4113995/

Mrazek, M. F., & Mossialos, E. (2003). Stimulating pharmaceutical research and development for neglected diseases. *Health Policy, 64*, 75-88.

Murray, C. J., Lopez, A. D., & Chin, B. (2006). Estimation of potential global pandemic influenza mortality on the basis of vital registry data from the 1918-20 pandemic: a quantitative analysis. *The Lancet, 368*(9554), 2211-2218.

Newbert, S. L. (2007) Empirical research on the resource-based view of the firm: An assessment and suggestions for future research. *Strategic Management Journal, 28*(2), 121-146.

Nishtar, S. (2004). Public-private 'partnerships' in health: A global call to action. *Health Research Policy and Systems, 2*(1), 5.

Northcraft, G. B., Neale, M. A., & Earyley, P. C. (1994). Joint effects of assigned goals and training on negotiator performance. *Human Performance, 7*, 257-272.

Oliver, C. (1990). Determinants of Interorganizational Relationship: Integration and Future Directions. *Academy of Management Review, 15*, 241-265.

O'Neil, H. F., & Drillings, M. (Eds.). (1994). *Motivation: Theory and research.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Parkhe, A. (1998). Building trust in international alliances. *Journal of World Business, 33*, 417-437.

Patouillard, E; Goodman, C. A., Hanson, K. G., & Mills, A. J. (2007). Can working with the private for-profit sector improve utilization of quality health services by the poor? A systematic review of the literature. *International Journal Equity Health, 6*(17), 17.

Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage.

Peckham, S., & Exworthy, M. (2003). *Primary care: Policy, organization and management.* Basingstoke: Palgrave Macmillan.

Peters, B. G. (1998). With a little help from our friends: Public-private partnerships as institutions and instruments. In J. Pierre (Ed.), *Partnerships in urban governance : European and American experience* (pp. 11-33). New York: St. Martin's Press.

Peters, D. H., & Phillips, T. (2004). Mectizan donation program: Evaluation of a public-private partnership. *Tropical Medicine and International Health, 9*(4), A4-A15.

Perehudoff, S., Laing, R. O., & Hogerzeil, H. V. (2010). Access to essential medicines in national constitutions. Bulletin of the World Health Organization;88:800.

Pfeffer, J., & Salancik, G. (1978). *The external control of organizations: A resource dependence perspective* (pp. 39-61). New York: Harper & Row.

Pierce, G., Aron, P., Joshua P., R., & Kenneth, B. (2008). 17: Principles of building the global health workforce. In K. H. Mayer & H.F. Pizer (Eds.), *The social ecology of infectious diseases* (pp. 449-463). Boston: Academic.

Pirages, D., Runci P. (2000). Ecological interdependence and the spread of infectious disease. In M. Cusimano (ed.). *Beyond sovereignty: Issues for a global agenda* (pp. 176-193). New York: St Martins Press.

Price-Smith., T. (2002). *The health of Nations.* Cambridge, MA: MIT Press.

PwC Health Research Institute. (2010). *Build and beyond: The(r)evolution of healthcare PPPs.* Retrieved from http://www.pwc.com/us/ppphealth

Prematunge, C., Corace, K., McCarthy, A., Nair, R. C., Pugsley, R., & Garber, G. (2012). Factors influencing pandemic influenza vaccination of health care workers a systematic review. *Vaccine, 30*(32), 4733-43.

Putthasri, W., Lertiendumrong, J., Chompook, P., Tangcharoensathien ,V., & Coker, R. (2009). Capacity of Thailand to contain an emerging influenza pandemic. *Emerging Infectious Diseases, 15*(3), 423-432.

Quigley, R., & Hayes, B. (2006). Determinants of influenza vaccination uptake among hospital health care workers. *Irish Medical Journal. 99*(7), 200-203

Qureshi, A. M., Hughes, N. J., Murphy, E., & Primrose, W. R. (2004). *Factors influencing uptake of influenza vaccination among hospital-based health care workers.* Occupational Medicine, *54*(3),197-201.

Raab, J., & Milward, B. (2003). Dark networks as problems. *Journal of Public Administration Research and Theory, 13*(4), 413-439.

Raftopoulos, V. (2008). Attitudes of nurses in Greece towards influenza vaccination. *Nurse Standard, 23*(4), 35-42.

Reich, M. R. (2000). Public-private partnerships for public health. *Nature Medicin, 6,* 617-620.

Reich, M. R. (2002). *Public-private partnerships for public health.* Cambridge: Harvard University Press.

Ridley, R. G. (2001). Putting the partnership into public-private partnerships. *Bulletin of the W*orld Health Organization, *79*(8), 694

Ring, P. S., & Van de Ven A. H. (1994). Development processes of cooperative interorganizational relationships. *Academy of Management Review, 19*(1), 90-118

Roberts, M. J., Breitenstein, A. G., & Roberts, C. S. (2000). *The ethics of public-private partnerships.* Paper presented at the Workshop on Public-Private Partnerships in Public Health, Dedham, 7-8, April.

Robinson, M., & Cottrell, D. (2005). Health professionals in multi-disciplinary and multi-agency teams: Changing professional practice. *Journal of Interprofessional Care, 19*(6), 547-560.

Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change. *Journal of Psychology, 91*, 93-114.

Ronald, W. (2008). 11: Infectious diseases in the context of war, civil strife and social dislocation. In K. H. Mayer, & H. F. Pizer (Eds.), *The social ecology of infectious diseases* (pp.300-315). London: Academic.

Rosenstock, I. M. (1974) The Health Belief Model and preventive health behavior. Health Educ Monogr; 2:354-386

Rosenstock, I. M., Strecher, V. J., & Becker, M. H. (1988). Social learning theory and the health belief model. *Health Education & Behavior, 15* (2), 175-183. doi:10.1177/109019818801500203.

Roussos, S. T., & Fawcett, S. B. (2000). A review of collaborative partnerships as a strategy for improving community health. *Annual Review of Public Health, 21*(1), 369-402.

Rubin, II., & Rao, C. (2009). An enforceable international compact for infectious diseases: Strategies to operationalize new initiatives to strengthen global health security. *Current Science, 96*(5), 658-663.

Ruchat, R., & Dal, B. (2000*). Global polio eradication initiative: An example of cross-sectoral partnership in the health sector*. New York: United Nation Staff College.

Rummery, K. (2009). Healthy partnerships, healthy citizens? an international review of partnerships in health and social care and patient/user outcomes. *Social Science and Medicine, 69*(12), 1797-1804.

Rushton, S. (2010). AIDS and international security in the United Nations System. *Health Policy and Planning, 25*(6), 495-504.

Sandler, T., & Hartley, K. (2001). Economics of alliances: The lessons for collective action. *Journal Of Economic Literature, 39*(3), 869.

Schaferhoff, M., Campe, S., & Kaan, C. (2009). Transnational public-private partnerships in international relations: Making sense of concepts, research frameworks, and results. *International Studies Review, 11*(3), 451-474. doi:10.1111/j.1468-2486.2009.00869.x

Schermerhorn, J. R. (1975). Determinants of interorganizational cooperation. *The Academy of Management Journal, 18*(4), 846-856.

Scott, W. R. (2003). *Organizations: Rational, natural, and open systems.* Upper Saddle River, NJ: Prentice Hall.

Secker, J., & Hill, K. (2001). Broadening the partnerships: experiences of working across community agencies. *Journal of Interprofessional Care, 15*(4), 341-350.

Shaoul, J., Stafford, A., & Stapleton, P. (2012). Accountability and corporate governance of public private partnerships. *Critical Perspectives on Accounting, 23*(3), 213-229.

Sharif, S. P., & Yeoh, K. K. (2014). Independent directors' resource provision capability in publicly-listed companies in Malaysia. *Corporate Ownership and Control, 11*(3), 113-121.

Siegel, K., & Venkat Narayan, K. M. (2008). The unite for diabetes campaign: Overcoming constraints to find a global policy solution. *Global Health, 4*(3), 3.

Singh, V. K. (2012). *Emphasize capacity building, inputs and processes to achieve greater impact of MDGs.* Retrieved from https://www.die-gdi.de/fileadmin/_migrated/content_uploads/The_Millennium_Goals_and_Beyond6.pdf

Skolnik, R. (2003). Independent evaluation of the international AIDS Vaccine Initiative. Retrieved from www.iavi.org

Skolnik, R., Agueh, F., Justice, J., & Lechat, M. (2003). *Independent evaluation of the global alliance for the elimination of Leprosy.* Washing, DC: Center for Gobal Health.

Smedley, B. D., Stith, A. Y., & Nelson, A. R. (2003). *Unequal treatment: Confronting racial and ethnic disparities in health care* (pp.160-179). Washington, DC: The Institute of Medicine, The National Academies Press.

Smedley, J., Palmer, C., Baird, J., & Barker, M. (2002). A survey of the delivery and uptake of influenza vaccine among health care workers. *Occupational Medicine, 52,* 271-276.

Smith, R. D., Keogh-Brown, M. R., Barnett, T., & Tait, J. (2009). The economy-wide impact of pandemic influenza on the UK: A computable general equilibrium modeling experiment. *British Medical Journal, 339,* b4751.

Steiner, M., Vermeulen, L., Mullaby, J., & Hayney, M. (2002). Factors influencing decisions regarding influenza vaccination and treatment: a survey of healthcare workers. *Infection Control and Hospital Epidemiology, 23*(10), 625-627.

Stephenson, I., Roper, J. P., & Nicholson, K. G. (2002). Healthcare workers and their attitudes to influenza vaccination. *Communication Discourse Public Health, 5*(3), 247-252.

Taubenberger, J. K., & Morens, D.M. (2006). 1918 influenza: the mother of all pandemics. *Emerging Infectious Diseases, 12*(1), 15-22.

Taylor-Powell, E., & Henert, E. (2008). *Developing a logic model: Teaching and training guide.* Retrieved from http://www.uwex.edu/ces/pdande/evaluation/pdf/lmguidecomplete.pdf

Thomas, D. R., Winsted, B., & Koontz, C. (1993). Improving neglected influenza vaccination among healthcare workers in long-term care. *Journal American Geriatrics Society, 41*(9):928-930.

Tishuk, B. S. (2007). Participating in a regional public-private emergency partnership-why do it and how do you make it work? *Journal of Business Continuity & Emergency Planning, 1*(4), 389-401.

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management, 14*(3), 207-222.

Trist, E. L. (1983). Referent organizations and the development of interorganizational domains. *Human Relations, 36,* 247-268.

Trivalle, C., Okenge, E., Hamon, B., Taillandier. J., & Falissard, B. (2006). Factors that influence influenza vaccination among healthcare workers in a French geriatric hospital. *Infec Control Hospital Epidemiol, 27*(11), 1278-1280.

Tubbs, M. E., & Steven, S. E. (1991). The role of intentions in work motivation: Implications for goal setting theory and research. *Academy of Management Review, 16,* 180-199.

Tumpey, T. M., Suarez, D. L., Perkins, L. E. L. (2002). Characterization of a highly pathogenic H5N1 avian influenza: A virus isolated from duck meat. *Journal of Virology, 76,* 6344-6355.

UNDP. (2009). *Legal empowerment of the poor.* Presentation during the Regional Dialogue on Legal Empowerment of the Poor 3-5 March, Bangkok, Thailand.

Ungchusak, K., Sawanpanyalert, P., Hanchoworakul, W., Sawanpanyalert, N., Maloney, S. A., Brown, R. C., Birmingham, M. E., & Chusuttiwat, S. (2012). *Lessons learned from influenza A(H1N1) pdm09 pandemic response in* Thailand. *Emerging Infectious Diseases, 18*(7),1058.

United Nations. (2005). *Press release: Press conference by UN system senior coordinator for Avian, human influenza*. Retrieved from http://www.un.org/News/briefings/docs/2005/050929_Nabarro.doc.htm,

United Nations International Strategy for Disaster Reduction (UNISDR). (2011). *The Hyogo framework for action 2005-2015*. Retrieved from http://www.preventionweb.net/files/18197_midterm.pdf. Accessed May 2015

United States Department of Health and Human Services. (2009). National health security strategy of the United States of America. Retrieved from http://www.phe.gov/Preparedness/planning/authority/nhss/strategy/Documents/nhss-final.pdf

Vallat, B. (2004). *Emerging and re-emerging zoonosis.* Retrieved from http://www.oie.int/for-the-media/editorials/detail/article/emerging-and-re-emerging-zoonoses/

Van Huijstee, M. M., Francken, M., & Leroy, P. (2007). Partnerships for sustainable development: a review of current literature. *Environmental Sciences, 4*(2), 75-89.

Vigoda, E. (2002). From responsiveness to collaboration: Governance, citizens, and the next generation of public administration. *Public Administration Review, 62*, 515-528.

Waldman, R., & Rauch, M. E. (2002). *Final report of the external evaluation of roll back Malaria roll back Malaria in complex emergencies: External evaluation report.* London: Liverpool School of Tropical Medicine.

Warren, R. L. (1967). The interorganizational field as a focus for investigation. *Administrative Science Quarterly, 12*(3), 396-419.

Webber, D., & Kremer, M. (2001). Perspectives on stimulating industrial research and development for neglected infectious diseases. *Bulletin of the World Health Organisation, 78*(8), 735-741.

World Economic Forum. (2003). *Successful public-private partnerships.* Retrieved from http://www.weforum.org.

Weil, D. E. (2000). Advancing tuberculosis control within reforming health systems. *International Journal Tuberculosis Lung Dis*eases, *4*, 597-605.

Weiss, C. H. (1995). *Evaluation* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

Weiss, R. (1994). *Learning from strangers: The art and method of qualitative interview studies.* New York: The Free Press.

WHA. (2001). *Global health security-epidemic alert and response.* Retrieved from http://apps.who.int/gb/archive/pdf_files/WHA54/ea549.pdf

Wheeler, C., & Berkley, S. (2001). Initial lessons from public-private partnerships in drug and vaccine development. Bulletin of the World Health Organization, 79(8), 728-734.

Whetten, D. (1982). Issues in conducting research. In D. L. Rogers & D. A. Whetten (Eds.), *Interorganizational coordination : theory, research, and implementation.* Ames: Iowa State University Press.

Whetten, D. (1989). What constitutes a theoretical contribution*? Academy of Management Review, 14*(4), 490- 495.

Whitman, J. (2000). *The politics of emerging and resurgent infectious diseases.* New York: St Martin's Press.

WHO. (2001). *Thematic evaluations in 2001: Eradication of poliomyelitis.* Retrieved from http://www.who.int/governance/eb/committees/ E_EBPDC8.3.pdf

WHO. (2002). Polio eradication initiativeevaluation report. *Journal of Pediatrics and Child Health, 51*(8), 838.

WHO. (2004). World is ill-prepared for ''inevitable''flu pandemic. *Bulletin of the World Health Organization, 82*(4), 317318.

WHO. (2005a). *Asia Pacific strategy for emerging diseases.* Geneva: World Health Organization, 2005.

WHO. (2005b). *Avian influenza and human pandemic influenza.* Retrieved from http://www.who.int/influenza/vaccines/virus/h5n1virus05February/en/

WHO. (2007). *Everybody's Business-strengthening health systems to improve health outcomes.* Geneva, Switzerland: WHO http://apps.who.int/iris/bitstream/10665/68985/1/WHO_CDS_2005.29.pdf

WHO. (2009). Influenza (Seasonal): fact sheet number 211 Retrieved from http:// www.who.int/mediacentre/factsheets/fs211/en/

Wholey, J. S., Hatry, H. P., & Newcomer, K. E. (Eds.). (1994). *Handbook of practical program evaluation.* San Francisco: Jossey-Bass.

Widdus, R. (2001). Public-private partnerships for health: Their main targets, their diversity, and their future directions. *Bulletin of the World Health Organization, 78*(8), 713-720.

Widdus, R. (2003). Public-private partnerships for health require thoughtful evaluation. *Bulletin of the World Health Organization, 81*(4), 235.

Widdus, R. (2005). Public-private partnerships: an overview. *Transactions of the Royal Society of Tropical Medicine & Hygiene, 99*(Supplement 1), S1-8.

Wildridge, V., Childs, S., Cawthra, L, & Madge, B. (2004). How to create successful partnerships-a review of the literature. *Health Information and Libraries Library, 21*(s1), 3-19.

Wishnick, E. (2010). Dilemmas of securitization and health risk management in the People's Republic of China: the cases of SARS and avian influenza. *Health Policy and Planning, 25*(6), 454-466.

W. K. Kellogg Foundation. (2001). *Logic model development guide: Using logic models to bring together planning, evaluation, & action.* Battle Creek, MI: W.K. Kellogg Foundation.

Wood, D. J., & Gray, B. (1991). Toward a Comprehensive Theory of Collaboration. *The Journal of Applied Behavioral Science, 27*(2), 139-162.

World Bank. (2006). *Global development finance: The development potential of surging capital flows.* Washington, DC: World Bank.

World Bank. (2011). *The private sector in public-private partnerships in emerging markets.* Washington, DC: The World Bank.

Yin, R. K. (2012). *Applications of case study research* (3rd ed.). Washington, DC: Sage.

APPENDICES

APPPENDIX A

INTERVIEW GUIDE

Dissertation Topic: "Public-Private Partnerships: Strengthen Thailand's Health Security in Confronting Emerging Infectious Diseases

Research Questions	**Question & Transcription**
Type of PPP	Question: What types of public-private interaction for health which implement under Thailand's National Strategic Plan for Pandemic Preparedness? With respect to 5 types of PPPs for public health as follows:- 1) Research and development PPPs 2) Improvement of access to health products PPPs 3) Public advocacy and increasing awareness PPPs 4) Regulation and quality assurance PPPs 5) Training and education PPPs
1. The objective of health PPPs	Question: What are the objectives of PPPs for public health contributing to health security of Thailand?? With respect to 5 types of PPPs for public health as follows:- 1) Increase financial advantage 2) Improve efficiency within existing assets 3) Increase access and improve equity 4) Contribute to meeting the health goals
2. Rational of PPPs	Question: Why did you participate in the PPPs project?

Research Questions	**Question & Transcription**	
3. Effective PPPs	3. What are the determinants of effective PPPs for public health which implement under Thailand's National Strategic Plan for Pandemic Preparedness? By considering the factors involved in the logic model, as follows:-	
	3.1 Inputs	
	3.1.1 Goal and scope	A. Strong rationale
		B. Evidence base consultation for process involves appropriate and influential stakeholders
		C. Realistic assessment of tools and strategies available, and resource gaps
	3.1.2 Structure/organization	A. Understanding of conception, planning, and implementation
		B. Appreciation of risk management and its impact on project
		C. Committed senior management team
		D. Sufficient resources: funds, staff, materials and time
	3.2 Process	A. Agreement on shared governance structure that define partner roles and responsibilities eg. set the ground rules; transparency/ no 'hidden agendas' ; anticipate likely conflicts

Research Questions	Question & Transcription	Research Questions
		B. Trust
		C. Respect cultural differences
		D. Communication within partnership and all stakeholders
		E. Plan for evolution of PPPs
	3.3 Outputs	A. Partner alignment and mobilization
		B. Raised profile and political commitment
		C. Mobilizing, pooling and co-coordinating the allocation of resource
		D. Co-ordination of efforts and capacity building
		E. Participation
	3.4 Outcome	A. .Implementation of capacity building strategies/technical assistance/resources
		B. Strategy for health system strengthening activities developed and integrated into country plans
		C. Access plan for product development (taking user profiles and market into account)
		D. Accountable and transparent partnership

Research Questions	Question & Transcription	Research Questions
		E. Norm setting agendas and standard protocols
		F. Method for demonstrating added value efficiency

APPENDIX B

QUESTIONAIRE

Behavior of taking recommended health action for pandemic influenza preparedness for medical and public health personnel who attended the conference to prepare for clinical management on "Diagnosis and Treatment of Emerging/re-emerging Infectious Diseases in Thailand"

Annotation

1) This survey is intended to be used as part of the dissertation submitted in partial fulfilment of the requirements for the degree of doctor of public administration by collecting data from the medical and public health personnel who attended the conference to prepare for clinical management on "Diagnosis and Treatment of Emerging/re-emerging Infectious Diseases in Thailand"

2) The data from this survey will be kept in confidential. All respondents do not have to write the name or address into the questionnaires. The respondents were asked to meet with peace of mind and reality as possible**.** The relevant authorities will be informed in overall data without affecting the respondents in any way. The information provided from respondents will be useful and valuable in the study to encourage behavior for preparedness, prevention and control of influenza to healthcare professionals and the general public**.**

3) The questionnaire consists of five sections as follows:-

Section no. 1: Respondents' personal information. It consists of 5 questions.

Section no. 2: Respondents' perceptions pertaining to influenza. It consists of 15 questions

Section no.3: Respondents' experience with influenza. It consists of 10 questions.

Section no.4: Cues to actions of social supports on educational and training provided by Influenza Foundation of Thailand, which would activate the readiness and stimulate overt behavior. It consists of 6 questions

Section no.5: Respondents' likelihood behavior of taking recommended health action for pandemic influenza preparedness. It consists of 10 questions

Thank you for your cooperation in answering the questionnaire in this research.

Miss Pinsuda Luangpaiboon
Doctor of public administration student
National Institute of Development Administration (NIDA)

Section no.1: Respondents' personal information. It consists of 5 questions.

Explanation Please mark ✓ in ❒

1. Gender For researcher

❒ Male ❒ Female ☐ 01

2. Age……years old ☐ 02

3. Nature of patient care ☐ 03

❒ Direct contact to patient

❒ Support function

4. Professional designation

❒ physician who works in OPD or IPD ☐ 04

❒ nurse who works in OPD or IPD

❒ any specialty of healthcare workers who work in OPD/IPD

❒ medical/nurse student who works in OPD/IPD

❒ field epidemiology staff

❒ staff and volunteers who destroy poultry carcasses, or any other animals with suspected bird flu infection

❒ laboratory diagnosis of influenza virus staff

❒ any others , please specify ……..

Section no.2: Respondents' perceptions pertaining to influenza.
It consists of 15 questions.

Explanation

Please mark ✓ in ❒ that most suit with your perception.

The scale ranging from 1 (*strongly disagree*) to 5(*strongly agree*) refer to the text most matched with your perception.

	Perception level					
Perception of susceptibility to influenza	**Strongly agree**	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**	**For researcher**
1.Global epidemic of influenza strain has been occurred.						Pc.R1
2 The spread of the two types of influenza type A and B in Thailand.						Pc.R2
3. Staff working in the wards and outpatient buildings are at risk of influenza infection.						Pc.R3
4. The prognosis for the year BE. 2559 showed a significant high number of of influenza patients in February, and will rise again in late November.						Pc.R4
5. The reported outbreak of avian influenza in Vietnam, Italy and France in BE. 2558.						Pc.R5

	Perception level					
Perceived severity of influenza	**Strongly agree**	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**	**For researcher**
6. Symptoms of influenza are mild for people with no underlying diseases.						Pc.s6
7. Influenza is a disease that has caused serious complications, especially those who have a chronic disease such as asthma, heart disease and so on.						Pc.s7
8. In Thailand, the number of patients with influenza are under report. Because most patients are sick less often and do not receive treatment. For patients with severe, often fatal.						Pc.S8
9. In Thailand, the number of deaths caused by influenza are under report. Because some of fatal caused by influenza have been diagnosed as other diseases such as pneumonia.						Pc.s9
10. The re-assortment between seasonal influenza and bird flu. Influenza can cause mutations that can cause serious diseases like bird flu.						Pc.S10

	Perception level					
Perceived benefits of pandemic influenza preparedness	**Strongly agree**	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**	**For researcher**
11. Vaccination against seasonal influenza for health personnel. and workers who serves to destroy poultry can help reduce the chance of crossing strains of seasonal influenza and avian influenza.						Pc.B11
12. Vaccination against seasonal influenza can prevent influenza infection and also prevent the spread of disease, reduce severity and reduce mortality.						Pc.B12
13. Building knowledge of the medical personnel and public health officers is a measure to prevent and control influenza.						Pc.B13
14. Developing the capacity of medical personnel and public health officers in the prevention, investigation / surveillance., diagnosis and treatment correctly, can reduce the number of cases and deaths from influenza						Pc.B14
15. Public relations to educate the public about the risks and prevention of influenza will help people to take care and protect themselves appropriately. It also help to raise awareness level and reduce panic when the outbreak of influenza occurred.						Pc.B15

Section no.3: Respondents' experience on influenza. It consists of 10 questions. Please mark ✓ to ❒ that most suits with your experience on influenza.

Experience on Influenza	Yes	No	For researcher
1. You had been suffered from influenza.			Ex.1
2. Your family member has experience with influenza.			Ex.2
3. You have an experience in providing treatment for influenza patients.			Ex.3
4. You have an experience in providing treatment for avian influenza patients.			Ex.4
5. You are in a high-risk group for vaccination campaign.			Ex.5
6. You got influenza vaccine jab in 2015.			Ex.6
7. You were suffered from influenza vaccine reaction.			Ex.7
8. You have experience in tabletop exercise for pandemic preparedness.			Ex.8
9. Experience in diagnosis and treatment for influenza pandemic.			Ex.9
10. Experience in diagnosis and treatment for other emerging/re-emerging diseases.			Ex.10

Section no.4: Cues to actions of social supports on educational and training provided by Influenza Foundation of Thailand, which would activate that readiness and stimulate overt behavior. It consists of 6 questions

Description: The following questions ask about social supports on educational and training

Please mark ✓ to ☐ that most suits with your opinions. The scale ranging from 1 (*strongly disagree*) to 5(*strongly agree*) refer to the text most matched with your opinion.

	Level of support from IFT					
Educational and training provided by Influenza Foundation of Thailand	**Strongly agree**	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**	**For researcher**
1. Training program meets the needs for influenza knowledge						So.1
2. Provides update situation and impact on influenza						So.2
3. Provides information about influenza prevention						So3
4. Provides information about influenza diagnosis						So.4
5. Provides a clinical management guideline for influenza treatment						So.5
6. Provides a guideline for influenza infection control and prevention						So.6

Section no.5: Respondents' likelihood behavior of taking recommended health action for pandemic influenza preparedness. It consists of 10 questions

Description: The following questions ask about behavior of taking recommended health action for pandemic influenza preparedness.

Please mark ✓ to ☐ that most suits with your behavior. The scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) 1 refer to the text most matched with your behavior.

	Level of behavior					
Likelihood behavior of taking recommended health action for pandemic influenza preparedness	**Strongly agree**	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**	**For researcher**
1. I cooperate with the seasonal flu vaccine campaign for healthcare providers.						Bh.1
2. I got vaccination against influenza in 2016.						Bh.2
3. I cooperate with the seasonal flu vaccine campaign implementation for people in the general public who are at risk to influenza.						Bh.3
4. I cooperate with the recommendations on the diagnosis guideline for pandemic influenza preparedness.						Bh.34
5. I cooperate with the recommendations on the clinical management guideline for pandemic influenza preparedness						Bh.5
6. I cooperate with the recommendations on disease surveillance guidelines for pandemic influenza preparedness						Bh.6

	Level of behavior					
Likelihood behavior of taking recommended health action for pandemic influenza preparedness	**Strongly agree**	**Agree**	**Neither agree or disagree**	**Disagree**	**Strongly disagree**	**For researcher**
7. I cooperate with the recommendations of the infectious control guideline for pandemic influenza preparedness						Bh.7
8. I cooperate with support training and education activities for healthcare providers for pandemic influenza preparedness						Bh.8
9. I cooperate with the healthcare network in supporting disease management for pandemic influenza preparedness and emerging/re-emerging disease outbreak						Bh.9
10. I cooperate in educating the public about influenza in a language easily understood and to manage the panic of the general public.						Bh.10

APPENDIX C

SUMMARY OF EDUCATIONAL MATERIAL DEVELOPED BY IFT

Table C.1 Number of Educational Materials for Healthcare Provider Produced by IFT

Year	Educational materials releases	The number of documents (pieces)
2004	The 1st conference proceedings and data publication in Medical Journal	3,000
2005	The 2nd conference proceedings	4,000
	The 3rd conference proceedings	4,000
2006	The 4th conference proceedings	4,000
	Provide support of conference proceedings to Department of Diseases Control, Ministry of Public Health	100
	The 5th -6th conference proceedings	4,000
	Provide support of conference proceedings to Faculty of Medical Technology, Huechiew Chalearnprakiet University	100
2007	The 4th conference proceedings	4,000
	Booklet "Seasonal Influenza & Avian Influenza"	500
	The 1st conference proceeding: Workshop for Thai clinicians on the Diagnosis, Treatment and Prevention of Human Seasonal Influenza.	4,000
	The 2nd Conference proceeding : Workshops for Thai clinicians on the Diagnosis, Treatment and Prevention of Human Seasonal Influenza.	4,000
	The 3rd Conference proceeding : workshops for Thai clinicians on the Diagnosis,Treatment and Prevention of Seasonal Influenza.	4,000

Year	Educational materials releases	The number of documents (pieces)
2008	The conference proceeding of seminar on "Diagnosis, Treatment, and Prevention seasonal influenza 2008	4,000
2009	The conference proceeding of seminar on "Diagnosis of H1N1"	4,000
	Total	**39,700**

Table C.2 List of Printing Educational Material to Create Diseases Awareness Developed by IFT

Year	Printing educational materials	The number of documents (pieces)
2005	Made pamphets containing Information about "Bird Flu"	5,000
2006	Made a poster on "How to prevent bird flu?:	3,000
2006	Made a poster on "Seasonal Influenza : Prevention & outbreak control"	3,000
2006	Provided pamphlets about "Bird Flu" to Nakornpathom Hospital	1,000
2007	Reprinting a poster on "How to prevent bird flu " and Seasonal Influenza : Prevention & outbreak control"	6,000
2007	Provided posters on "How to prevent bird flu " and Seasonal Influenza : Prevention & outbreak control" to the Bureau of Influenza, Department of Diseases Control	5,200
2007	Provided posters on "How to prevent bird flu " and Seasonal Influenza : Prevention & outbreak control" to Electricity Generating Authority of Thailand, the Provincial Electricity Authority.	200
2007	Provided posters on "How to prevent bird flu " and Seasonal Influenza : Prevention & outbreak control" to Mirror Foundation, Kiatnakin Bank, the company Astrazeneca (Thailand) Ltd	200
2008	Provided posters on "How to prevent bird flu " and Seasonal Influenza : Prevention & outbreak control" to Bisco (THAILAND) Ltd. for healthcare exhibition event	400
	Total	**24,000**

APPENDIX D

TRANSCRIPTION

Transcription for G1

1. Type of PPP

Question: What types of public-private interaction for health which implement under Thailand's National Strategic Plan for Pandemic Preparedness?

With respect to 5 types of PPPs for public health as follows:-

1) Research and development PPPs
2) Improvement of access to health products PPPs
3) Public advocacy and increasing awareness PPPs
4) Regulation and quality assurance PPPs
5) Training and education PPPs

Answer:

In the government's view, physicians and medical staff have a lack of deep understanding and knowledge in handing influenza disease management. The public-private partnership in the fields of training and educating are crucial. IFT is an organization with the expertise and is well recognized by the Ministry of Health and relevant agencies. IFT has been proving that it can carry out activities to educate medical and public health officials for a long time, its programs have been ongoing for a period of 12 years.

2. The objective of health PPPs

Question: What are the objectives of PPPs for public health contributing to health security of Thailand??

With respect to 5 types of PPPs for public health as follows:-

1) Increase financial advantage
2) Improve efficiency within existing assets

3) Increase access and improve equity
4) Contribute to meeting the health goals

Answer:

By raising the awareness of diseases and the importance of vaccination in general public. When the government introduced the influenza vaccination national campaign, people easily understood and were ready to get vaccinated. Compare that to the situation in the past, when the knowledge on the importance and benefits of vaccination were limited within the general public. Only a small number of people were willing to get the vaccination. Now, there are more people getting vaccinated. This is demonstrated by National Health Security Office creating an influenza vaccination database which revealed higher numbers of vaccine distribution and coverage"

3. Rational of PPPs

Question: Why did you participate in the PPPs project?

Answer:

As a virologist, I knew that it was very serious. The number of people who died because of influenza is higher than the people who died in the First World War. So, the goal of IFT is committed to combat influenza. Meanwhile, IFT also works in coalition with the Ministry of Public Health in handling influenza outbreaks. In the IFT establishing stage, we didn't have enough money. We got donations for two hundred thousand baht for the registration of the foundation from private entities. According to the regulation, IFT is required to specify an official address. I decided to use my own home as the IFT office. It's free and no need to pay any rent. Eventually the IFT registered in 2004. It took two weeks for official approval to be granted from the government. The IFT committee has been working since then. We realized that the doctors and healthcare providers lacked knowledge on influenza. This is a crucial finding and IFT aimed to complete this mission by holding nationwide training courses. The IFT training course must reach officials at operational levels, especially in the provinces where the outbreak may occur and where the healthcare providers may face the disease outbreak situation. For this reason, IFT started training courses at Nong Khai and Udonthani provinces. We trained healthcare providers how to

manage and how to report the results to central government properly especially in the situation when a patient has symptoms of the flu in the village or a chicken has got avian influenza.

4. Effective PPPs

Question: What are the determinants of effective PPPs for public health which implement under Thailand's National Strategic Plan for Pandemic Preparedness?
By considering the factors involved in the logic model, as follows:-

4.1 Inputs

4.1.1 Goal and scope

A. Strong rationale

Answer:

The objectives for establishing the foundation are for implementing the clearly identifiable collaboration project and to have a well-defined scope of works; to be the coordination and distribution center of influenza related information; for the distribution of knowledge, arranging training and giving advice about influenza to medical officers and the public; to cooperate with other public and private organizations in warning and preventing influenza and to operate or cooperate with other charity organizations for the public advantage.

B. Evidence base consultation for process involves appropriate and influential stakeholders

Answer:

The process for considering selection of a stakeholder from a private entity is, they should be an influenza vaccine manufacturer, be without conflict between the public authority and private entity and both shall value collaboration.

C. Realistic assessment of tools and strategies available, and resource gaps

Answer:

The Foundation has estimated revenues and expenses in the activities. Through the balance sheet which has submitted a statement to the district offices in each calendar year. We have conducted an adequate budget. And in all the years we

have given financial support to an event from the private sector and international organizations such as USCDC.

4.1.2 Structure/organization

A. Understanding of conception, planning, and implementation

Answer:

The foundation has invited potential foundation committees by considering their experience and their interest, as well as the establishment of an advisory committee.

B. Appreciation of risk management and its impact on project

Answer:

We did not have a formal risk assessment, but we have to assess whether the resources are sufficient or not.

C. Committed senior management team

Answer:

Supported by public organizations at management level. Management of the Ministry of Public Health, The Department of Disease Control And Department of Medicine In the event.

D. Sufficient resources: funds, staff, materials and time

Answer:

The resources from private entities were in the forms of a support fund and human resources where specialists in various fields were invited as speakers in arranged conferences: basic specialists were invited to give knowledge on basic knowledge

4.2 Process

A. Agreement on shared governance structure that define partner roles and responsibilities eg. set the ground rules; transparency/ no ‘hidden agendas’ ; anticipate likely conflicts

Answer:

IFT defined responsibilities for all committees at the annual meeting of the foundation. A progress of the tasks were reported in the next coming meeting.

B. Trust

Answer:

We have earned the trust of both external and internal. We have held that high trust “was an example of a trust is that senior executives in government to consult on issues related to influenza Foundation.

C. Respect cultural differences

Answer:

Nothing more Sincerity and straight-to-earth reciprocal transparency between the public and private sectors

D. Communication within partnership and all stakeholders

Answer:

Most of the communication was informal but there were not any communication problems both in formal forms and informal forms.

E. Plan for evolution of PPPs

Answer:

No E. Plan for evolution of PPPs

4.3 Outputs

A. Partner alignment and mobilization

Answer:

IFT held committee meetings at least twice a year. The 1st meeting of the year was for discussion and to agree on what activity, with whom, where and how to arrange the activity. Public organizations and private entities gave comments and advice to enable IFT with the successful implementation

B. Raised profile and political commitment

Answer:

IFT was supported by the management of both public organizations and private entities and has expanded its role to include other emerging diseases. This raises the project to cover other diseases that may cause a pandemic.

C. Mobilizing, pooling and co-coordinating the allocation of resource

Answer:

Resource allocation according to activities planned.

D. Co-ordination of efforts and capacity building

Answer:

N/A

E. Participation

Answer:

Communication and meetings with the relevant parties on a regular basis

4.4 Outcome

Strategy for health system strengthening activities developed and integrated into country plans.

Answer:

The Foundation has realized its role as part of the strategic plan and has cooperated by putting a large effort to strengthen the health system based on its expertise.

Transcription for G2

1. Type of PPP

Question:

Question: What types of public-private interaction for health which implement under Thailand's National Strategic Plan for Pandemic Preparedness?

With respect to 5 types of PPPs for public health as follows:-

1) Research and development PPPs
2) Improvement of access to health products PPPs
3) Public advocacy and increasing awareness PPPs
4) Regulation and quality assurance PPPs
5) Training and education PPPs

Answer:

IFT is a training and education PPPs

2. The objective of health PPPs

Question: What are the objectives of PPPs for public health contributing to health security of Thailand??

With respect to 5 types of PPPs for public health as follows:-

1) Increase financial advantage
2) Improve efficiency within existing assets
3) Increase access and improve equity
4) Contribute to meeting the health goals

Answer:

IFT is a PPPs to improve the strength of health care professionals and preparedness for national security by working coalitions with key stakeholders from all sectors. This collaboration will prevent and mitigate losses from the influenza and other emerging infectious diseases that may occur in the future.

3. Rational of PPPs

Question: Why did you participate in the PPPs project?

Answer:

The reason for the public organizations to establish collaboration between public authorities and private entities was where fulfillment of the other side's shortfalls would be possible, for example, the limitation of the public authorities in obtaining budgets for organizing required activities, while private entities have their own policies for funding the public or foundations. Then, they would be able to cooperatively arrange meetings for medical and public health officers with the fund supported by the foundation for preparing the speakers. And public authorities of the Department of Disease Control or Department of Medicine would allocate their budget for the meeting and travelling arrangement. That would increase the number of meetings and the arrangement in various provinces. At the same time private entities could invite physicians and medical officers from private hospitals or private organizations to attend the meetings. That would increase the diversity of the participants who were involved in the preparation for an outbreak of influenza.

4. Effective PPPs

Question: What are the determinants of effective PPPs for public health which implement under Thailand's National Strategic Plan for Pandemic Preparedness? By considering the factors involved in the logic model, as follows:-

4.1 Inputs

4.1.1 Goal and scope

A. Strong rationale

Answer:

The foundation aims to promote knowledge of influenza with power support from both the public and private sectors.

B. Evidence base consultation for process involves appropriate and influential stakeholders

Answer:

IFT members include both public and private. For public partner, it's included scholars from medical schools and management level from national authorities. For private partner, we have a representative from the private company as one person per company.

C. Realistic assessment of tools and strategies available, and resource gaps

Answer:

The Foundation has estimated revenues and expenses in the activities. The balance sheet has submitted to the district offices in each calendar year.

4.1.2 Structure/organization

A. Understanding of conception, planning, and implementation

Answer:

The annual membership meeting was held to determines the plan each year. This plan must be adjusted in accordance with outbreaks occurring annually.

B. Appreciation of risk management and its impact on project

Answer:

The Foundation is also no risk that anything will be assessed.

C. Committed senior management team

Answer:

The contributions made by public organization administrators such as the Department of Disease Control, the Department of Medicine Services and private entities. For the private entities, if the management did not agree to give support, the collaboration project would not happen

D. Sufficient resources: funds, staff, materials and time

Answer:

The foundation has sufficient funds to carry out activities.

4.2 Process

A. Agreement on shared governance structure that define partner roles and responsibilities eg. set the ground rules; transparency/ no ‘hidden agendas’ ; anticipate likely conflicts

Answer:

The collaborative responsibility between public organizations and private entities has been identified as follows: the public organizations determined topics, speakers and related issues for the meetings of each activity year while the private entities may give related comments. Activity planning should be included in the agenda of every meeting where the private entities take the responsibility of inviting the speakers and the participants.

B. Trust

Answer:

Our committees can work together by supporting each other's resources at their disposal. The Foundation's activities can be carried out very well.

C. Respect cultural differences

Answer:

We commented openly and respect between public and private

D. Communication within partnership and all stakeholders

Answer:

Using the foundation annual meeting as a means of communication, well established meeting agenda and minutes.

E. Plan for evolution of PPPs

Answer:

Expanding the knowledge from seasonal and avian influenza to other emerging/re-emerging infectious diseases outbreaks. This is consistent with the need to prepare the public health system.

4.3 Outputs

A. Partner alignment and mobilization

Answer:

The coordination of activities and the activities associated benefits to all parties, both public and private.

B. Raised profile and political commitment.

Answer:

The work of the foundation, with the purpose of educating the public health authorities in the upcountry provinces. The foundation has been recognized and strong support from policymakers.

C. Mobilizing, pooling and co-coordinating the allocation of resource

Answer:

The Foundation's activities received supports by public and private partners in both monetary and non-monetary resources.

D. Co-ordination of efforts and capacity building

Answer:

The Department of Disease Control has taken the foundation’s suggestion as a part of preparation for influenza outbreak.

E. Participation

Answer:

Department of Diseases Control has adopted IFT’s recommendations as part of national pandemic preparedness plan.

4.4 Outcome

Strategy for health system strengthening activities developed and integrated into country plans

Answer:

The Foundation has been recognized for its role in preparing a strategic plan to address the various emerging diseases. We educated the public and healthcare professionals across the country continuously for more than 12 years. Nowadays, our roles had been expanded to support any other emerging/re-emerging infectious diseases such as the Ebola.

Transcription for G3

1. Type of PPP

Question:

Question: What types of public-private interaction for health which implement under Thailand's National Strategic Plan for Pandemic Preparedness?

With respect to 5 types of PPPs for public health as follows:-

1) Research and development PPPs
2) Improvement of access to health products PPPs
3) Public advocacy and increasing awareness PPPs
4) Regulation and quality assurance PPPs
5) Training and education PPPs

Answer:

The corporation between public and private organization on training and education

2. The objective of health PPPs

Question: What are the objectives of PPPs for public health contributing to health security of Thailand??

With respect to 5 types of PPPs for public health as follows:-

1) Increase financial advantage
2) Improve efficiency within existing assets
3) Increase access and improve equity
4) Contribute to meeting the health goals

Answer:

Foundation is PPPs That aim to achieve the objective of health care through the provision of knowledge to understand and abide by all health authorities correctly and the general public

3. Rational of PPPs

Question: Why did you participate in the PPPs project?

Answer:

IFT want to obtain supports for all activities of both public and private.

4. Effective PPPs

Question: What are the determinants of effective PPPs for public health which implement under Thailand's National Strategic Plan for Pandemic Preparedness?

By considering the factors involved in the logic model, as follows:-

4.1 Inputs

4.1.1 Goal and scope

A. Strong rationale

Answer:

A key reason to focus on training to educate doctors, nurses and officials from both the public and private sectors. But often the public sector over the coming than the private sector

B. Evidence base consultation for process involves appropriate and influential stakeholders

Answer:

A careful assessment of conflict of interest by the two parties

C. Realistic assessment of tools and strategies available, and resource gaps

Answer:

In terms of capital resources and tools supported to the foundation are included the cost of the fix cost incurred eg. office equipment and salary. Apart from that expenses incurred for activity conducted are paid by the Department of Disease Control and/or Department of Medical Services. In addition, there may be some costs that the government does not pay. The foundation's aim is to be paid, it will be a win

win situation for Disease Control and the Department of Medical Services at work in terms of activities to educate health professionals.

4.1.2 Structure/organization

A. Understanding of conception, planning, and implementation

Answer:

Public and private sector worked together in planning for the future activities.

B. Appreciation of risk management and its impact on project

sufficient or not.

Answer:

No assessment and no risk management plan. But both parties work together in planning and conducting activities which relevant to their expertise.

C. Committed senior management team

Answer:

Obtained very good supported from committee. If no support the project would not be able to deliver a good output with very well accepted from key stakeholders.

D. Sufficient resources: funds, staff, materials and time

Answer:

Each year there are adequate resources funded by the private sector and the public sector to support speakers for training activities

4.2 Process

A. Agreement on shared governance structure that define partner roles and responsibilities eg. set the ground rules; transparency/ no 'hidden agendas' ; anticipate likely conflicts

Answer:

The collaborative responsibility between public organizations and private entities has been identified as follows: the public organizations determined topics, speakers and related issues for the meetings of each activity year while the private entities may give related comments. Activity planning should be included in the

agenda of every meeting where the private entities take the responsibility of inviting the speakers and the participants."

B. Trust

Answer:

There are no issues of trust between public –public and public-private.

C. Respect cultural differences

Answer:

Respect each other

D. Communication within partnership and all stakeholders

Answer:

The foundation conducted annual meeting at least 1 meeting in December for every year. In addition, some ad –hock meetings were conducted which up to the situation that occurred. Meanwhile, there are several informal meetings between both public and private the partners.

E. Plan for evolution of PPPs

Answer:

Evolution happens to extend the framework of educational activities for influenza to respond to other outbreaks diseases. As well as other emerging infectious diseases such as Ebola and reemerging diseases like diphtheria.

4.3 Outputs

A. Partner alignment and mobilization

Answer:

We defined roles and responsibilities of partners such as the ground rules for both partners; the way to work together under the principles of transparency / no 'hidden agenda'; and forecasts tend to cause conflict between the government and the private sector. Even if - the private sector, the four companies will be competitors in the market, but all aimed at creating awareness makes market size grew, the company would have a market share that very much depends on the policies and strategies of each company.

B. Raised profile and political commitment

Answer:

We obtained a strong supported from the management. Our activities are very well organized and held throughout the country.

C. Mobilizing, pooling and co-coordinating the allocation of resource

Answer:

Activity base is applied for resource allocation criteria.

D. Co-ordination of efforts and capacity building

Answer:

N/A

E. Participation

Answer:

Everyone is still engaged. But may be reduced when the outbreak passes

4.4 Outcome

Strategy for health system strengthening activities developed and integrated into country plans

Answer:

The Foundation is recognized and trusted for providing government support about academic knowledge to health officials and the media, when a new disease outbreak occurred. This extends from the flu to other diseases as a public health problem in the country

Transcription: G4

1. Type of PPP

Question: What types of public-private interaction for health which implement under Thailand's National Strategic Plan for Pandemic Preparedness?

With respect to 5 types of PPPs for public health as follows:-

1) Research and development PPPs
2) Improvement of access to health products PPPs
3) Public advocacy and increasing awareness PPPs
4) Regulation and quality assurance PPPs
5) Training and education PPPs

Answer:

The collaboration of GPO-Kaketsuken is a research and development PPPs for seasonal influenza vaccine development. The cooperation between the pharmaceutical company Kaketsuken which forms the cooperation with GPO, to support the development of inactivated seasonal influenza vaccines at industrial scale.

2. The objective of health PPPs

Question: What are the objectives of PPPs for public health contributing to health security of Thailand?

With respect to 5 types of PPPs for public health as follows:-

1) Increase financial advantage
2) Improve efficiency within existing assets
3) Increase access and improve equity
4) Contribute to meeting the health goals

Answer:

The benefits of cooperation between the public and private sector when looking at the impact on the health security of the country , this collaboration that will improve the accessibility and increased equality in health services in general because the influenza vaccine is a vaccine imported from abroad in the form of finished vaccine. So if we can produce the vaccine locally, we will be able to control costs and better prices and will be accessible to more people. The benefits of the project will help achieve the objective of health care, more access to vaccines.

3. Rational of PPPs

Question: Why did you participate in the PPPs project?

Answer

GPO has been assigned by the Ministry of Public Health, to take responsibility for the production of influenza vaccines in preventing influenza. Vaccine production requires manufacturer technology.The reasoning of the public authorities was that the Government Pharmaceutical Organization (GPO) was assigned by the Ministry of Public Health to produce vaccines for the preparation of disease prevention and as GPO did not have the technology for the production of influenza vaccine at an

industrial level, finding the technology was required. At the primary stage, it was proposed by the World Health Organization (WHO) in 2007 that if any country has an interest in producing vaccine for influenza prevention, then a proposal should be prepared to obtain funding from WHO for vaccine production technology development. At that time, GPO cooperated with the Ministry of Public Health to prepare the proposal to obtain funding support from the WHO. The fund was granted and WHO sent specialists to provide advice on influenza vaccine production. In 2008, vaccine production on a laboratory scale was developed with satisfactory results at the primary state. Later in 2009, when the proposal was prepared for obtaining second year funding, there was an outbreak of H1N1 2009, GPO, therefore, changed its preparation from producing vaccine for purchase to be the vaccine of a kind that is possible to be produced in greater volumes within short period of time. For this in 2009, GPO got assistance from the Japanese government in ASEAN+3 Conferences by introducing Kaketsuken Company which GPO expected to get assistance from in producing the vaccine at industrial level. The required assistance was technical assistance in the development of production processing, testing process, validation and performing a pilot scale. At present, the cooperation is stepping up to the clinical testing phase, I/2 of inactivated influenza vaccine which will then conduct human trials in July 2015.

G4 presentation at an Academic Meeting

> We cannot work and build up GPO capacity alone. We must involve and build up capacity of partners like TFDA, NCL, Bureau of Epidemiology, the Department of Livestock Development, and universities. The capacity building has to be comprehensive, involving institutional and individual capacity building as well as networking. That is the main reason for the formulation of a capacity building program. International support is essential for our future success.

4. Effective PPPs

Question: What are the determinants of effective PPPs for public health which implement under Thailand's National Strategic Plan for Pandemic Preparedness?

By considering the factors involved in the logic model, as follows:-

4.1 Inputs

4.1.1 Goal and scope

A. Strong rationale

Answer

The objectives and framework were determined clearly as technical assistance with the reason that we want to produce vaccines and require effective knowledge in developing the vaccine at the industrial level and allowing Thailand to produce the vaccine by itself."

"The clear reason for implementing the collaboration project is the technical assistance that pharmaceutical units have targeted for a manufacturing plant of flu/avian vaccines with the quality at industrial standards and in accordance with GMP standards of the World Health Organization and can produce the vaccine according to the target. The case of seasonal pandemic and the huge pandemic of influenza/avian flu in 2009 caused collaboration between the Government Pharmaceutical Organization and Kaketsuken, the major vaccine manufacturer in Japan with the coordination of the Prime Minister and the Minister of Public Health of the two countries due to the resolution of the special meeting of Health Ministers - ASEAN + 3"

B. Evidence base consultation for process involves appropriate and influential stakeholders

Answer

The stakeholders exist at international and government level due to the collaboration at policy level between government to government that was acknowledged and cooperated in planning by the Thailand Ministry of Public Health.

C. Realistic assessment of tools and strategies available, and resource gaps

Answer

The assessment of tools, the strategy available and resources that were deficient were based on a realistic situation. From the assessment, it was found that there were deficiencies in the following; 1) Manpower = deficiency of human resources with capability in a live sperm type influenza vaccine production technique 2) Finance = There is no significant problems with the budget 3) Management = Management process was limited by regulations and instruction 4) Technology and basic knowledge about the production was lacking. It is, therefore, very important to get cooperation from Kaketsuken.

4.1.2 Structure/organization

A. Understanding of conception, planning, and implementation

Answer

The structure of the organization, the committee of 3 each will be identified to be with a particular section and identify the focal point to follow and have contact between the 2 organization, GPO has 1 focal point and Kaketsuken have one focal point, also.

B. Appreciation of risk management and its impact on project sufficient or not.

Answer

มีการประเมินและบริหารความเสี่ยงรวมถึงผลกระทบต่อโครงการ มีการประเมินโดยทีมงานของแต่ละฝ่ายจะนำประเด็นที่มีความเสี่ยงมาพูดคุยในฝ่ายของตนเมื่อได้ระบุความเสี่ยงมาแล้วก็จะนำไปบริหารจัดการความเสี่ยง

C. Committed senior management team

Answer

It was approved and supported from the organization's senior management both public and private policy in terms of G to G."

D. Sufficient resources: funds, staff, materials and time

Answer

From the assessment of resources, it was found that the budget is not a major factor because the budget is approved by the state, but the resources are not enough, and at a very early stage. Human resource shortfall is due to the lack of knowledge and experience in the production of vaccines against influenza type A infection.

4.2 Process

A. Agreement on shared governance structure that define partner roles and responsibilities eg. set the ground rules; transparency/ no 'hidden agendas' ; anticipate likely conflicts

Answer

There was an agreement on roles and duties, such as the establishment of basic rules, but there were not many details, it was a rough guide to roles and responsibilities.

B. Trust

Answer

Trust building between Kaketsuken and GPO. Kaketsuken invited GPO to visit it's plant in Kumamoto.

C. Respect cultural differences

Answer

We respect for each other and for the differences in culture

D. Communication within partnership and all stakeholders

Answer

Communication with English and Thai-Japanese interpreters shall be available for accurate communication.

E. Plan for evolution of PPPs

Answer

This project focuses on the implementation according to the agreed framework. No proactive to develop the evolution of their cooperation .

4.3 Outputs

A. Partner alignment and mobilization

Answer

Productivity happens is there is a vaccine available for use in research, clinical trial phase I and phase II, with a pilot plant at Silpakorn University, Nakhon Pathom. The institutions that cooperate in the production and clinical research.

B. Raised profile and political commitment

N/A

C. Mobilizing, pooling and co-coordinating the allocation of resource

N/A

D. Co-ordination of efforts and capacity building

Answer

The co-ordination to develop GPO staffs capability eg. manufacturing plan visit at Kaketsuken plant, Kumamoto. Kaketsuken specialists, consultant and joint researcher, were assigned to work in-coordination with GPO staff for product development in the early phase of R&D. It was found that the participants in the project work relies on the basis of mutual understanding and modify practices to work together. The project also found that it can help to GPO staff to learn from pharmaceutical industry about vaccine development at manufacture scale.

E. Participation

Answer

This project implementation is conforming to the timeframe without further planning for proactive collaboration.

4.4 Outcome

Strategy for health system strengthening activities developed and integrated into country plans

Answer

There was the coordination effort for capability development such as the arrangement for study trips to the manufacture plants and sending the manufacturers' specialists to be advisors and support people in research development. However, the cooperation required understanding and improvement of operational practices for common implementation. From this project implementation, it was found that knowledge was gained, especially on the development of vaccine, from the organizations that have experience in producing it at an industrial level. GPO should request that valuable knowledge and apply for further development. The objective of this collaboration project has not been achieved because of the obstacle from the incompletion of the influenza vaccine plant according to the due date. However, the project is beneficial to the working team in gaining some basic knowledge for further development of vaccine production at an industrial level."

Transcription for P1

1. Type of PPP

Question: What types of public-private interaction for health which implement under Thailand's National Strategic Plan for Pandemic Preparedness?

With respect to 5 types of PPPs for public health as follows:-

1) Research and development PPPs
2) Improvement of access to health products PPPs
3) Public advocacy and increasing awareness PPPs
4) Regulation and quality assurance PPPs
5) Training and education PPPs

Answer:

PPPs (ความร่วมมือภาครัฐและเอกชนในการด้านการฝึกอบรมและให้ความรู้)

2. The objective of health PPPs

Question: What are the objectives of PPPs for public health contributing to health security of Thailand??

With respect to 5 types of PPPs for public health as follows:-

1) Increase financial advantage
2) Improve efficiency within existing assets
3) Increase access and improve equity
4) Contribute to meeting the health goals

Answer:

From my view IFT Contribute to meeting the health goals by increasing access and improve equity.

3. Rational of PPPs

Question: Why did you participate in the PPPs project?

Answer

An outbreak of influenza, its impact and consequences and potential to occur are high, however, it hasn't yet happened. But historical occurrences inspire future concerns. We expect it will happen in the future, but don't know when. If it does

happen in the future, there will be a severe impact and possibly chaos. It is still uncertain how medical officers can prepare themselves for the situation. What will be the business impact? Business sectors are concerned that if a massive outbreak occurs, how do they prepare for it? As in their view the public authorities lack the knowledge, so they want to educate those people as well as the public to be aware of the extent of the chaos and how to prevent it. This will lessen the impact when an outbreak occurs. In general public authorities have more resources while private entities are more flexible. Public authorities, therefore, may be seen to be better in preparing for an outbreak of influenza. Whereas, international organizations, such as, USCDC and Kenan have the opinion that public authorities have the potential to invite specialist speakers from abroad and the ability to organize international conferences related to the national preparedness for influenza outbreak. Hence, the foundation can grant support for the payment beyond the budget obtained from public authorities. This is a two-way assistance.

The reason private entities started from Sanofi Pasture Company was an interest in executing activities to provide knowledge about influenza, they then gained cooperation from many companies, e.g. Roche, Biogenetec and GSK. All 4 companies have indicated that if this was done by private entities alone, acknowledgement by social and academic sectors may be not achievable. They, therefore, invited influenza specialist, Professor Prasert Thongcharoen, M.D. to be the president. The president, later, invited related academic professors and specialists from other public authorities to join in establishing the foundation and was able to initiate understanding and awareness about influenza. Since then, the foundation has been acknowledged by the Ministry of Public Health and has received full support from Director-General level management in arranging related activities.

4. Effective PPPs

Question: What are the determinants of effective PPPs for public health which implement under Thailand's National Strategic Plan for Pandemic Preparedness?

By considering the factors involved in the logic model, as follows:-

4.1 Inputs

4.1.1 Goal and scope

A. Strong rationale

Answer

The reason of the need to educate and create a partnership between the private sector are clearly specified in the meeting minutes of IFT committee.

B. Evidence base consultation for process involves appropriate and influential stakeholders

Answer

The selection of the committees or the advisors was based on their experiences, knowledge and capability. The list shall be proposed to the foundation founding committee for approval prior to appointment as a committee member or advisor.

C. Realistic assessment of tools and strategies available, and resource gaps

Answer

The resources regarding financial and human resources have been assessed in the foundation committee meeting and the balance sheet was also proposed in the annual general meeting for approval. So the consideration and planning of financial resources available have been made to ensure financial sufficiency throughout the short term and long-term operation. Human resources, job obligation and staffing as well as job responsibility were assessed to ensure conformity with the foundation's commitment.

4.1.2 Structure/organization

A. Understanding of conception, planning, and implementation

Answer

The foundation clearly understands about conception, planning and implementation, for example, the selection of competent personnel to work for the foundation, such as for finance. The company gives support/sends the representative to get involved with the Department of Disease Control. Dr. Rungruang K. was sent as a representative to coordinate with a related organization and invited Dr. Chitsanu P. to handle the foundation's activities according to their capabilities, while Prof. Prasert is a magnet or a coordination center who will drive the foundation forward

B. Appreciation of risk management and its impact on project sufficient or not.

Answer

For private entities, there were support for finances, activity organization and public relations to private entity medical personnel and for public organizations; there were support from policy identifiers such as the Director General, the Deputy Director General on financial and personal support.

C. Committed senior management team

Answer N/A

D. Sufficient resources: funds, staff, materials and time

Answer N/A

4.2 Process

A. Agreement on shared governance structure that define partner roles and responsibilities eg. set the ground rules; transparency/ no ‘hidden agendas’ ; anticipate likely conflicts

Answer

There is a scope of the duty of disclosure and transparency there is a scope of the duty of disclosure and transparency.

B. Trust

Answer

No any conflict between organizations.

C. Respect cultural differences

Answer

There is no conflict between the government and private sectors.

D. Communication within partnership and all stakeholders

Answer

There was adequate and consistent communication between public organizations and private entities.

E. Plan for evolution of PPPs

Answer

Both formal and informal communication have been well organized.

4.3 Outputs

A. Partner alignment and mobilization

Answer

Private entities realize the importance of IFT identification for annual activities and provided comments to enhance the annual objectives achievement. The situations were different for each year and in each location, planning of the activity in advance identified appropriate resource allocation. For example, if it is known that IFT will arrange academic training for medical and public health officers in which province, then it is possible to prepare in advance the invitations for physicians from private hospitals or related organization to attend the meeting. This is the most efficient and beneficial use of available resources for a particular activity.

B. Raised profile and political commitment

Answer

IFT was supported by the management of both public organizations and private entities and has expanded its role to include other emerging diseases. This raises the project to cover other diseases that may cause a pandemic."

C. Mobilizing, pooling and co-coordinating the allocation of resource

Answer

The company provides supports to IFT as specified in the agreement.

D. Co-ordination of efforts and capacity building

Answer

Knowledge sharing among partners included government with government; government with private:; and private with private.

E. Participation

Answer

All parities participated to the project as per their assignments.

4.4 Outcome

Strategy for health system strengthening activities developed and integrated into country plans

Answer

There were indications that demonstrated the value added to the project. The Foundation has been involved in the expansion of the project to cover emerging

diseases, such as Ebola by adding the topic into the training arranged for medical and public health personnel throughout the country.

Transcription for P2

1. Type of PPP

Question: What types of public-private interaction for health which implement under Thailand's National Strategic Plan for Pandemic Preparedness?

With respect to 5 types of PPPs for public health as follows:-

1) Research and development PPPs
2) Improvement of access to health products PPPs
3) Public advocacy and increasing awareness PPPs
4) Regulation and quality assurance PPPs
5) Training and education PPPs

Answer

We hope that if healthcare providers have appropriate knowledge and the general public obtains appropriate information from the media, they will understand the importance of influenza vaccination which will help to prevent influenza infection. The raising of awareness levels and better knowledge about influenza will give them to access to medicinal products. In particular, access to influenza vaccines.

2. The objective of health PPPs

Question: What are the objectives of PPPs for public health contributing to health security of Thailand??

With respect to 5 types of PPPs for public health as follows:-

1) Increase financial advantage
2) Improve efficiency within existing assets
3) Increase access and improve equity
4) Contribute to meeting the health goals

Answer:

IFT create the benefits on an increased access and improve equity which support national to meet public health goals.

3. Rational of PPPs

Question: Why did you participate in the PPPs project?

Answer

The private entities were also relatively obligated for business reasons. The collaboration between public authorities and private entities in IFT was aimed at providing knowledge to related people, including the public for better awareness of influenza. If private entities performed this by themselves the acknowledgement from the public may not be satisfactory. Academic associations have also been invited to get involved. Professor Prasert Thongcharoen, M.D., and academic professors from the Ministry of Public Health and related organizations were invited to join in giving knowledge to related people to increase awareness about influenza. That will bring a business advantage as the influenza vaccine market will expand and increase in value.

4. Effective PPPs

Question: What are the determinants of effective PPPs for public health which implement under Thailand's National Strategic Plan for Pandemic Preparedness?

By considering the factors involved in the logic model, as follows:-

4.1 Inputs

4.1.1 Goal and scope

A. Strong rationale

Answer

At present, physicians, medical officers and the public lack the knowledge and still misunderstand influenza. Occurrences of influenza in Thailand have increased every year. The establishment of the foundation related to influenza prevention is a way to trigger awareness on influenza among physicians, medical officers and the public and to conduct campaigns about influenza prevention, to reduce the outbreak and economic loss, and consequently, result in a significant benefit to the country and society overall.

B. Evidence base consultation for process involves appropriate and influential stakeholders

Answer

The Sanofi Pasture, Roche, Biogenetec and GSK have discussed together the importance and necessity for giving knowledge and promoting awareness to the public based on academic information associated with influenza, they, then, have been granted a fund of 500,000 baht each to establish the foundation in August 2004. An additional support fund has been provided until now. In addition, the foundation has gained support for arranging academic meetings from the Department of Disease Control. Particular stakeholders among private entities and the four companies may gain more benefit than others from different market shares.

C. Realistic assessment of tools and strategies available, and resource gaps

Answer

Resources and tools in terms of support cost can be seen from the foundation's expenses, such as fixed costs for office materials and only 1 staff's wages. The expenses for the activities were the responsibly of the Department of Disease Control and the Department of Medicine Services. In addition, there were some expenses that were not payable by public authorities, so the foundation would pay for them. It was a win-win situation as the Department of Disease Control and the Department of Medicine Services would be able to achieve the objective for organizing the activities for providing knowledge to public health officers while the foundation has got the chance to contribute the information. The Department of Disease Control was responsible for the operation while the foundation was responsible for the information.

4.1.2 Structure/organization

A. Understanding of conception, planning, and implementation

Answer

The exchange of opinions and the reasons for the action.

B. Appreciation of risk management and its impact on project sufficient or not.

Answer

No assessment of the risks in a systematic way. But the operation is expected to take risks may arise if the lack of support from the private sector.

C. Committed senior management team

Answer

Executives provided support in the preparation of the budget and staff to work for the foundation.

D. Sufficient resources: funds, staff, materials and time

Answer

As a small organization, the resources used are listed in the balance sheet and statement of operations with good financial liquidity.

4.2 Process

A. Agreement on shared governance structure that define partner roles and responsibilities eg. set the ground rules; transparency/ no 'hidden agendas' ; anticipate likely conflicts

Answer

The partner's roles and responsibilities were identified as basic rules e.g. transparency commitment/without "hidden agenda" and anticipation of possible conflict between public organizations and private entities through a middle party, the IFT committee. Every party shall accept and follow the meeting resolutions even though the 4 private entities were market competitors but all of them had the goal for creating awareness to expand market size. It was up to the individual company to get more or less market share.

B. Trust

Answer

We worked together for about 10 years, know each other's very well. We are comfort to through ideas and issue, and asked for support from each other's.

C. Respect cultural differences

Answer

We recognize the difference between public and private that the principles and objectives of the different responsibilities. We would have to agree to carry out

activities in line with regulations. At the same time, we respect the elders of the people.

D. Communication within partnership and all stakeholders

Answer

Communication is both a formal board meeting and casual communication, like informal dialogue between our meetings.

E. Plan for evolution of PPPs

Answer

No Plan for evolution of PPPs.

4.3 Outputs

A. Partner alignment and mobilization

Answer

We invited external experts, both local and foreign lecturers, to support IFT activities.

B. Raised profile and political commitment

Answer

We obtained good support from government policy makers.

C. Mobilizing, pooling and co-coordinating the allocation of resource

Answer

Allocated as needed to each activity

D. Co-ordination of efforts and capacity building

Answer

There is a link with international organizations network APACI which works in a similar manner with IFT.

E. Participation

Answer

Everyone is still involved and it will be decrease when the outbreak is over. Recently, we got a very good support by all parties involved eg. USCDC funding for our conferences.

4.4 Outcome

Strategy for health system strengthening activities developed and integrated into country plans

Answer

Overall, IFT is a model of collaboration between public and private sectors in providing knowledge about influenza which is very effective and beneficial for the country. Collaboration in the national strategic plan has been divided into 2 categories as follows.

Transcription for P3

1. Type of PPP

Question: What types of public-private interaction for health which implement under Thailand's National Strategic Plan for Pandemic Preparedness?

With respect to 5 types of PPPs for public health as follows:-

1) Research and development PPPs
2) Improvement of access to health products PPPs
3) Public advocacy and increasing awareness PPPs
4) Regulation and quality assurance PPPs
5) Training and education PPPs

Answer:

IFT is a PPPs for training

2. The objective of health PPPs

Question: What are the objectives of PPPs for public health contributing to health security of Thailand??

With respect to 5 types of PPPs for public health as follows:-

1) Increase financial advantage
2) Improve efficiency within existing assets
3) Increase access and improve equity
4) Contribute to meeting the health goals

Answer

To promote access to knowledge & clinical practice guideline. These will bring to the excellence in practice and good health for all Thai eventually.

3. Rational of PPPs

Question: Why did you participate in the PPPs project?

Answer

The company is one of the vaccine manufacturers. We need to create disease awareness about influenza through the organization with high credibility. It will help to establish the company's brand image and drive company business on influenza vaccine portfolio.

4. Effective PPPs

Question: What are the determinants of effective PPPs for public health which implement under Thailand's National Strategic Plan for Pandemic Preparedness?

By considering the factors involved in the logic model, as follows:-

4.1 Inputs

4.1.1 Goal and scope

A. Strong rationale

Answer

The first was approached by pharmaceutical companies with a demand for a new hands-on knowledge about influenza to medical society and general public. The project is beneficial to both companies in terms of CSR and influenza preparedness at national level

B. Evidence base consultation for process involves appropriate and influential stakeholders

Answer

The Company is required to contribute money to help IFT activities implement, support staff and provide guest speakers.

C. Realistic assessment of tools and strategies available, and resource gaps

Answer

An assessment of the need for man and money at appropriate level.

4.1.2 Structure/organization

A. Understanding of conception, planning, and implementation

Answer

The Committee is composed of public and private. They are responsible for their own roles and responsibilities.

B. Appreciation of risk management and its impact on project sufficient or not.

Answer

Considered the benefits that arise over the risks might be. If there is a risk that can be managed.

C. Committed senior management team

Answer

Approved budget and allowed to join the Board of Committee.

D. Sufficient resources: funds, staff, materials and time

Answer

Sufficient resources for activities conducted.

4.2 Process

A. Agreement on shared governance structure that define partner roles and responsibilities eg. set the ground rules; transparency/ no ‘hidden agendas’ ; anticipate likely conflicts

Answer

Assigned duties in accordance with the responsibility and expertise.

B. Trust

Answer

No evidence for the conflicts that occur. Although the four pharmaceutical companies are competitors, but everyone is aware of the validity of the roles and functions

C. Respect cultural differences

Answer

We respect each another.

D. Communication within partnership and all stakeholders

Answer

An annual meeting has been conducted. Some lateral meetings wer conducted according to diseases our break conditions.

E. Plan for evolution of PPPs

Answer

It planned to adjust the framework of a broader disease from the influenza which depended on our expertise. We extend to provide our support to emerging infectious diseases which relevant to the current outbreak phenomenon.

4.3 Outputs

A. Partner alignment and mobilization

Answer

Regular conduct communication activities to provide update issues to all partners including sending an email of every single minute to all partners.

B. Raised profile and political commitment

Answer

We obtained very good support management level from both the public and private sectors. It can be seen that the private sector would support according to the approval by management. Meanwhile, for the public sector, government agencies take responsible for the cost of conferences according to the authority approval procedure.

C. Mobilizing, pooling and co-coordinating the allocation of resource

Answer

The estimated annual cost overruns on the planned activities.

D. Co-ordination of efforts and capacity building

Answer

We invited external speakers to give lecturer on the special issue which most suit with situation and create high acceptable value for IFT on knowledge contributor for influenza management arena.

E. Participation

Answer

In every meeting, members from both public and private sector are participate actively. The relationship between the public and private is very good and transparency.

4.4 Outcome

Strategy for health system strengthening activities developed and integrated into country plans

Answer

In overall, IFT is a good model of cooperation between public and private sectors in providing knowledge about the disease. This collaboration is a very effective and beneficial for the country. We encourage to other public and private sectors to apply the principle of our collaboration to the other projects on public health.

BIOGRAPHY

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ACADEMIC BACKGROUND	Bachelor's Degree in Nursing Science, The Thai Red Cross College of Nursing, 1989.
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