



FLU IN THAILAND

Insights into Perception and Action on Vaccination

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FOREWORD

Over the last two decades, Thailand has seen many challenges related to influenza outbreaks. As an expert in infectious diseases I am proud of how far we have come as a nation – we are a patriotic people and the shared experience of the pandemic H1N1 2009 and human H5N1 outbreak have underscored the importance of influenza prevention.

Our nationwide flu vaccination programme, while extensive, has yet to become universal. While we strive towards a near future where most Thai citizen is protected against influenza, there remains much more to be done – as a case in point, from 1 January to 9 December a total of 390,773 influenza cases have been reported.

In addition, there are barriers that need to be addressed, especially where adult immunisation is concerned. These range from lack of recommendations from healthcare professionals and under-utilisation of existing healthcare service, to poor public knowledge and financial impediments.

Better understanding about the disease – its burden, impact and transmission – and the vaccine's safety and efficacy would go a long way towards its acceptance among healthcare professionals as well as the public.

We all know that infectious diseases know no boundaries and the best protection is prevention. The data gathered in this paper, which identifies weaknesses and misperceptions that need to be addressed, is an important step for us to identify concrete steps for improvement so that we can formulate more effective strategies to protect our citizens from influenza.

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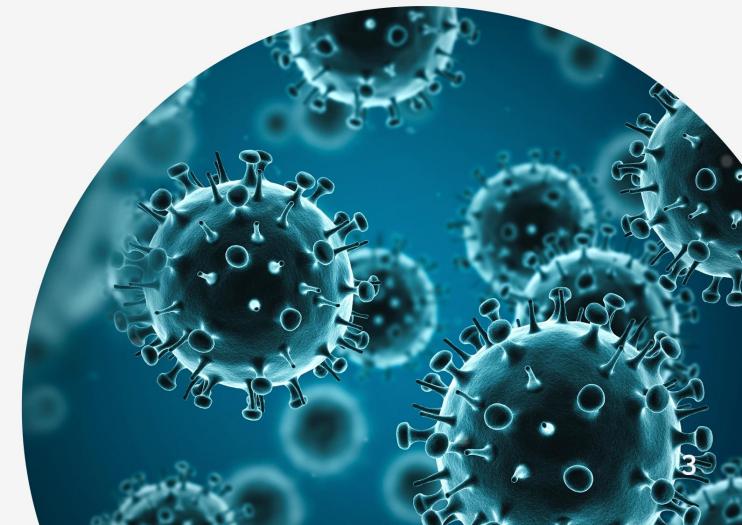
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Introduction & Objectives

According to the World Health Organization (WHO)

Estimated 1 billion cases influenza occur annually

3-5 Million

Severe cases

Resulting in hundreds of thousands of influenza-related respiratory deaths

International authorities such as the Centers for Disease Control (CDC) and WHO recommend the influenza vaccine for everyone 6 months of age and older as the most effective way of protecting against this potentially deadly disease.

Flu vaccination has been available since the 1940s yet, in many countries across the globe, misperceptions, poor understanding, insufficient access, and other challenges prevent many individuals from protecting themselves against a virus that is a global threat.

In developing nations, the impact of influenza is not fully known, but research estimates that 99% of deaths in children under 5 years of age with influenza-related lower respiratory tract infections occur in developing countries. The elderly, in particular, have the highest risk of flu-related mortality. From 2006 to 2011, approximately 83% of all deaths from influenza in Thailand occurred in the elderly.

To gain a deeper understanding of the prevailing attitudes, perceptions and burden surrounding influenza and influenza vaccinations in several South East Asian countries, including Thailand, Ipsos conducted a series of studies between February and May 2019.

This paper aims to:

Identify evidence of influenza impact and vaccination benefit in Thailand and several neighbouring countries;

Understand perception of influenza among local experts, practising doctors, and the general population;

Propose actionable recommendations to reduce the impact of influenza and improve vaccination rates especially among high-risk populations such as young children, pregnant women, elderly and patients with chronic diseases, e.g. diabetes or cardiovascular disease.

METHODOLOGY

Secondary Research

To enhance the relevance of the studies and provide guidance for each discussion and/or interview, secondary research on the perception of influenza in Thailand was conducted covering the following areas:

- **Burden of influenza**
- **Value of influenza vaccine**
- **High-risk groups for (influenza) vaccination in Thailand**
- **Attitude & habits, drivers & barriers to (influenza) vaccination**
- **Current influenza vaccination rates**
- **Current influenza vaccination policies**
- **Implications of not taking influenza vaccine on health & economy**
- **Strategies to increase influenza vaccination rates**

Sources included global and regional healthcare bodies, academic and commercial literature and news articles.



PRIMARY RESEARCH

Focus Group Discussions & In-Depth Interviews

Focus group discussions (FGD) organised in Bangkok gathered information from stakeholders, selected to represent at-risk groups. With a moderator guiding each 2-hour discussion, data was collected to reveal attitudes, perceptions and habits concerning influenza vaccinations which encompassed personal, financial and cultural factors.

FGDs were organised for consumers and healthcare professionals; while hour-long In-depth interviews (IDIs) were organised with three local experts:



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Infectious disease specialist; Division of Infectious Diseases, Chairman, Department of Medicine, Chulalongkorn University, Former President of the Infectious Diseases Association of Thailand



Associate Professor Chitsanu Pancharoen

Paediatrician with a sub-specialty in infectious diseases

For details on criteria for participation and focus areas, please refer to Appendix 1.

Interpretation of Research Results

As screener criteria was strictly applied to the participants, any respondent data and findings from this whitepaper should be interpreted as limited to the populations tested. Moreover, due to the limitations of qualitative research, any figures presented should be considered directional insights and may not be conclusive in nature.

The research conducted in this whitepaper was sponsored by Sanofi. The authors conducted the research for Sanofi in return for a consultancy fee and have no conflicts of interest to report.

RESULTS AND DISCUSSION

The Impact of Influenza



The Global Burden of Influenza

One hundred years ago, the 1918-1919 influenza pandemic took an estimated toll of up to 50 million deaths. While such a figure seems unimaginable today, with our arsenal of vaccines and anti-viral medicines, influenza continues to claim 290,000 - 650,000 lives annually. Those who are most at risk are children below 2 years; the elderly especially those above 65 years; and those with compromised immune systems, cardiovascular and/or respiratory diseases.

Any individual can get infected with the influenza virus; in severe cases, it may require hospitalisation, worsen existing conditions, and lead to life-threatening complications such as pneumonia and heart failure, particularly for high risk groups.

WHO HIGH RISK GROUPS & COMPLICATIONS



Pregnant women (2nd and 3rd trimester)

- Dehydration
- Miscarriage
- Preterm labour



Children younger than 2 years

21% risk of developing complications including bacterial pneumonia



Chronic disease (COPD, asthma, heart disease, stroke, renal failure, DM)

- Diabetics: **3X** likelihood of hospitalization and increased risk of diabetic ketoacidosis
- Heart Disease: **6X** likelihood of acute myocardial infarction
- Asthmatics: likely to have worse attacks and asthma conditions



Elderly (65+)

- Pneumonia
- Inflammation of heart/brain/muscles
- Bronchitis



Disabled persons with neurological diseases

- Pneumonia
- Difficulty breathing
- Extended hospital stay /longer time to recover
- High body temperature
- Relapse for multiple sclerosis patients



Thalassemia and immunocompromised patients (including symptomatic HIV)

- Heart/lung complication
- Higher chance of death
- Pneumonia



Obese (over 100kg) or BMI more than 35KG/sqm

- Flu remains contagious for longer (viral shedding)
- High risk for hospitalisation in H1N1 flu

The urgency of addressing influenza worldwide is best summed up by the World Health Organization (WHO), which has declared that an influenza pandemic is an inevitable and very real threat to global health.

Influenza outbreaks can be divided into epidemic/pandemic and seasonal. Epidemics/pandemics occurs when a new strain is introduced from another species. With no immunity against this new strain, it spreads rapidly within a community (epidemic) or across the globe (pandemic). Both are responsible for substantial morbidity, mortality, disability, and economic disruption.

Seasonal influenza can be just as devastating

The WHO estimates there are 1 billion cases of flu globally each year, resulting in 650,000 deaths. While flu seasons can vary in severity, during most seasons, people aged >65 years bear the greatest burden of severe flu disease. Approximately 90% of influenza-related deaths and 50-70% of influenza-related hospitalizations occur among people in this age group. Most deaths occur in vulnerable groups, such as children, those with chronic disease.

 **650,000**

~10 times the number of the people killed by Hiroshima bomb

Influenza, commonly thought to be a "cold weather disease," affects all countries regardless of climate type. This misperception is particularly damaging as – unlike temperate climates with distinct flu seasons – tropical countries experience irregular outbreaks year-round. Influenza affects 2-10% of the global population or up to 64 million people in South East Asia alone, ever year. Moreover, approximately 6-14% of the hospitalised pneumonia cases in South East Asia were caused by influenza.



6%

of all global cases or 64 million caught flu in South East Asia



3.8 – 8.9 million

result in pneumonia and hospitalization

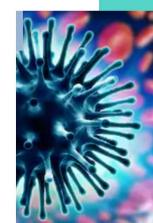
Thailand: At the Centre of the Storm

Thailand has experienced the impact of influenza first hand – between 2005 and 2008, influenza pneumonia caused estimated 1,288 deaths and 145,652 hospitalizations. But the turning point that highlighted the need to fight influenza was the H5N1 (avian flu) epidemic of 2004.



H5N1 (avian flu) outbreak of 2004

Avian flu is a type of influenza that is transmitted to humans via frequent contact with live or dead poultry. This outbreak of H5N1 infection among poultry and human had affected multiple layers of Thai society. Approximately 62 million birds, mostly chickens, were killed to halt the devastating impact of the virus on the poultry population and to mitigate its effect on the public. The Thai poultry industry was devastated and even so, the virus spread to humans. The WHO recorded 228 human infections and 181 deaths from avian influenza in Southeast Asia.

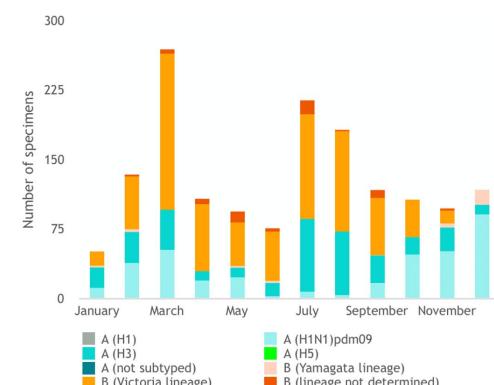


H1N1 (swine flu) outbreak of 2009

Only a few years later, H1N1 (swine flu) broke out in 2009. Swine flu is a highly transmissible strain of influenza resulting from a combination of viruses from pigs, birds, and humans. Between 2009 and 2010, more than 35,446 Thai people were confirmed with H1N1 (2009), resulting in 208 deaths. This number was likely to be underreported.

Beyond these pandemics, seasonal influenza H1N1 2009 continues to pose a serious health threat in Thailand. Data as recent as 2019 shows an average of 130 confirmed specimen of influenza per month, throughout the year, and although the total number of cases peaks during the winter and rainy seasons, they show no patterns in terms of strains.

Chart 1: Number of influenza specimens identified in Thailand in 2019



The Price of Flu

Treating influenza can be expensive for individuals, encompassing direct costs like medication and hospitalisation, as well as indirect costs such as transportation, loss of productive days or even death. The financial burden becomes heavier when multiple family members are infected.

Cost of Influenza For The Individual (THB)



373 THB

Direct medical cost per outpatient visit

7,000-9,000 THB

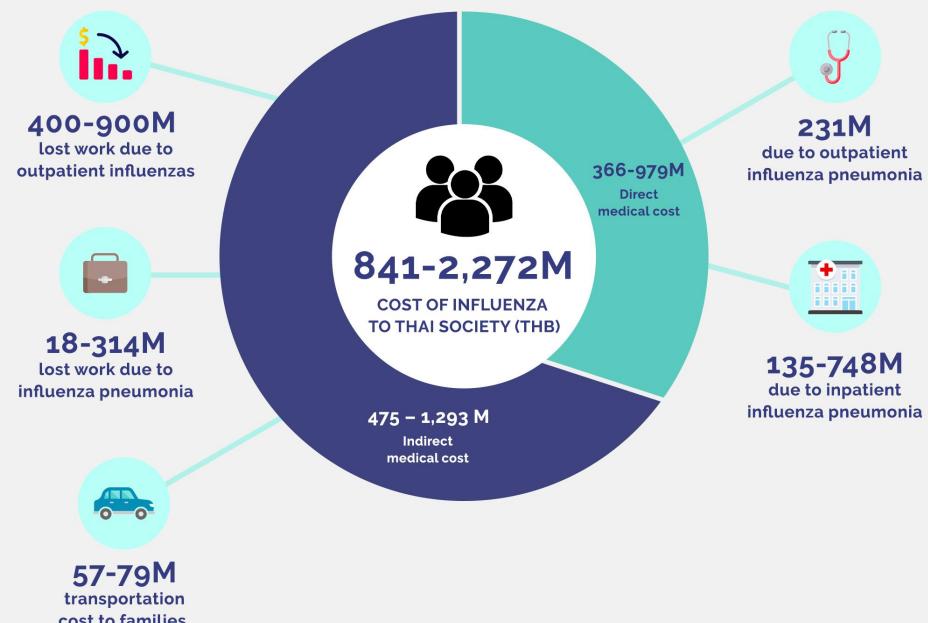
Direct medical cost per hospitalization
(<2 years old: 7,448; 2-5 years old: 7,122;
> 60 years: 8,923)

101 THB

Transportation cost per outpatient visit

The economic impact of influenza on society is substantial too, as evidenced by the 2004 and 2009 pandemics which cost Thailand billions in terms of medical cost, lost productivity, and logistical expenses such as transportation for families of hospitalised patients.

Cost of Influenza to Thai Society (THB)



Beyond the cost of large-scale outbreaks, seasonal influenza also presents a significant expense for Thailand, amounting to millions of baht annually.



The Plan for (Influenza) Prevention

The heavy toll the influenza epidemics exacted on Thailand provided motivation for a coordinated, national initiative on influenza prevention and pandemic preparedness.

Vaccination is the best way to prevent flu. Immunised individuals also face a lower risk of developing complications.

65-80% protection



30-50% protection



The Thai Experience

Thailand recognises the value of vaccinations. In 1977, the government established the Expanded Programme on Immunisation (EPI) with the aim of ensuring basic immunisations for children. Its mission has expanded to offer more citizens protection from vaccine-preventable diseases through the provision of safe, high-quality immunisations.

The influenza vaccine program was first administered in 2004, during the avian flu outbreak, to healthcare and poultry workers. The Thailand Ministry of Public Health (MOPH) utilized recommendations from WHO and US Centres for Disease Control (CDC) to create nationwide immunisation and surveillance programmes for influenza specifically focusing on seven high risk groups. These groups face higher rates of infection and risk of complications, resulting in higher morbidity and mortality.

Thailand's 7 high risk groups



Pregnant women
(4 months and
above)



Children aged 6
months to 2 years



Chronic medical
conditions (COPD,
asthma, heart
disease (CVD),
stroke, renal
failure, diabetes
mellitus (DM))



Elderly/senior
citizens over age
65



Disabled persons
with neurological
diseases



Thalassemia
patients and
immunocompromi
sed patients
(including
symptomatic HIV)



Obese (over
100kg) or BMI
more than 35
KG/sqm

The programme ensures that high risk groups, as well as healthcare professionals, have access to free vaccines. Information on where to obtain vaccinations is made available through a multitude of platforms, from communications from government agencies and hospital notice boards to mailers, broadcast channels and social platforms. Because of these efforts, the Thai population is relatively well-informed about the risk of influenza and importance of vaccination.

Multiple studies from Thailand show that vaccinating against flu is a cost-effective use of healthcare resources, as it successfully prevents infection among high risk groups. Cost effectiveness benefits were particularly high among the elderly, children under 5 years, school-aged children, and those with chronic medical conditions.

Vaccination against flu reduces disease impact

Children under 5 years old



56-64%

vaccine effectiveness for children between 6-23 months

Elderly



47-56%

Vaccine effectiveness

Chronic medical conditions (COPD, asthma, heart disease (CVD), stroke, renal failure, diabetes mellitus (DM))



76%

vaccine effectiveness for people with underlying diseases such as COPD

Over the years, the Thailand government has increased its budget for influenza vaccines, from purchasing approximately 2 million influenza vaccines in 2009 to 4 million in 2019. While this only covers 33% of Thailand's 13 million high risk groups, ongoing efforts are made to meet the demand.

For those who are not in the high-risk pool, or for high-risk individuals unable to receive the subsidised vaccine, additional supply is available at public and private facilities at a cost of THB 350-700 (US\$10.77-21.54). Yet, in public hospitals, many have to stand in long lines to receive the self-pay vaccine or cannot afford it at this cost, and may remain unvaccinated. Even with such progress, Thai health authorities continue to strive for better vaccination coverage.

Reports of the burden of the 2019 flu season

Jan – Dec 2019



390,773
cases



27
fatalities

Closing the Gap: Identifying Flu Vaccination Barriers

A review of Thailand's experience with flu and ongoing efforts by health authorities reveals several challenges that should be addressed.



Lack of knowledge

While general awareness about seasonal flu and the importance of vaccination is high, persistent misconceptions remain, leading to mistrust and scepticism surrounding the efficacy of the vaccine and the extent of protection it offers.

PREVAILING MISCONCEPTIONS ON FLU



Influenza is not a serious infection

"To many people flu is quite normal. It's just a form of cold. It's not too fearsome"
- Elderly patient



The vaccine is not effective, as vaccinated individuals may still experience flu or flu-like illnesses

"Vaccine is not 100% effective because a person who has received flu vaccine can still be infected by flu virus"
- Caregiver of elderly



Good health is sufficient to prevent infection hence influenza is not a threat

"I hardly catch a cold because I take good care of myself, so I think I don't need the vaccine."
- Cardiovascular disease patient



The flu virus is only passed on when exposed to big cities or large crowds

"I don't need the vaccine because I try to avoid breathing when in the crowd so I don't inhale virus."
- Elderly patient



Inconsistent engagement

Discussion with both patients and doctors revealed that some healthcare professionals regularly advocate for vaccination while others do not. Those who work with high-risk populations demonstrate more willingness to recommend the flu vaccine while others who do not regularly see high-risk groups are less likely to do so.



Limited supply

Though the number of vaccines purchased annually in the public sector for high-risk groups continues to rise, it is not sufficient to cover the entire high-risk population, which in turn grows annually. In 2016, 11% of Thai population (~7.5 million) were 65 years or older and by 2040, it is projected to increase to 25% of the population (17 million). The current supply of free vaccines covers less than a third of the entire high risk population and both doctors and consumers report that the supply of vaccines in public hospitals often runs out, as they are administered on a first come, first served basis.



Inconvenient access

Long queues at government hospitals and clinics are common as free vaccines are only available from June to September. The prolonged wait discourages many from receiving the vaccine.



High cost for self-paying individuals

For those who have to self-pay, the influenza vaccination costs approximately THB350 in a public hospital or THB700 in a private hospital (excluding medical charges). In a Bangkok-based study focused on older adults, 93% of respondents said they would like to receive the free flu vaccine but only 7% could afford the vaccine at its current price.



Spotlight on Flu in the Elderly

In Thailand, elderly often live with their adult children, family members, or employed caregivers. These caregivers play an important role in providing healthcare information; however, many revealed they lack confidence or initiative in ensuring the elderly in their care receive their annual vaccinations, citing a lack of knowledge on the topic.

This sometimes results in elderly missing their annual vaccinations which can have serious consequences because:



At their advanced age, their immune system is more susceptible to infection



Older persons are more likely to have an existing chronic condition such as diabetes or heart disease which makes them more vulnerable to complications resulting from flu



They can easily get infected by family members including their grandchildren and / or caregivers and may also infect their grandchildren as children below 2 years are also classified as high-risk and vulnerable to complications



“

A study in Japan found that when the vaccination programme for school children was cancelled, fatalities from pneumonia among the elderly was high. The rates of influenza in the elderly decreased shortly after mandating vaccination in children.

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Paediatric Infectious Diseases Specialist Consultant, Queen Sirikit National Institute of Child Health, Ministry of Public Health, and President of Influenza Foundation (Thailand)

Widening Thailand's Protection Against Influenza

To help improve vaccination rates among the Thai population, five key actions are recommended.



Strengthen community approach to increase awareness

Even with high awareness among the public, dissemination of information about seasonal flu is still needed. **A coordinated effort involving all stakeholders – national and local governments, healthcare professionals, clinical associations, vaccine manufacturers and consumers – will help elevate awareness and improve understanding on the importance of vaccinations, especially for high-risk groups**, and increase willingness to vaccinate.

All communications should aim to correct existing misconceptions and fully demonstrate the benefits of vaccination, especially its efficacy and cost-effectiveness, in a way that is tailored and relevant to the Thai population.



Empower healthcare professionals as advocates

In Thailand, doctors and other healthcare professionals are held in high regard and their advice carries weight. With such influence, doctors are in the ideal position to act as advocates for influenza vaccination. In FGDs, 9 out of 10 participants stated they would be more likely to get vaccinated if their doctor recommended it; however, only 50% of participants have discussed flu vaccination with their doctor before.

For greater impact, doctors across all specialisations could proactively ask if their patients have received their flu vaccination and address their patients' questions and concerns to improve awareness and acceptance among the public.

To increase vaccination coverage rates, the **Thai government could consider setting VCR targets for hospitals and clinics and rewarding those that are able to meet the goals**. Hospitals could also nominate an influenza vaccination champion to lead and promote efforts. These policies would encourage healthcare professionals to track influenza vaccine administration.

In addition, a comprehensive, official guideline for influenza vaccinations, issued to all healthcare professionals from MOPH, would be a valuable resource to ensure the vaccine is administered safely, routinely, and effectively.



Bridge the gap between supply and demand

Allocate budget to allow for a broader influenza vaccination programme with the primary purpose of increasing coverage for high-risk populations, and a secondary goal of subsidising vaccines for those currently not designated as high-risk. This would help reduce the financial burden and motivate more people to receive the influenza vaccine. Improving access for the entire population will help to reduce the rate of transmission even among unvaccinated individuals and diminish the risk of an epidemic.



Prepare for pandemics

Ongoing data collection helps accurately measure the burden of disease and vaccination coverage rates to identify strengths and weaknesses in the National Immunization Program (NIP), inform improvement plans, and reinforce pandemic preparedness programmes. At present, the first and only vaccination coverage rate (VCR) report among high risk groups was published in 2015, with data from 2010 to 2012.

More recent and comprehensive information is needed. As a next step, Thai authorities should strengthen data collection mechanisms to capture vaccination coverage rates robustly, frequently, and systematically. Such a programme would enable policymakers to evaluate the vaccination efforts and continue to protect the Thai population against this potentially deadly disease.



Reduce friction for those seeking vaccination

As the inconvenience of long queues is a deterrent, patients can take simple steps to help mitigate its impact, such as:

- ✓ Reach the hospitals and clinics early in the day with time to spare
- ✓ Make an appointment specifically for flu vaccination
- ✓ Ask their doctor for a referral
- ✓ Self-pay for the vaccine

Healthcare professionals can also take measures to facilitate the administration of the flu vaccine, such as:

- ✓ Set up specific hours for vaccination during the week when the supply of free vaccines will be available at the clinic / hospital
- ✓ Recommending and administering the flu vaccine during regular check-ups, especially for high-risk individuals during flu season or when the free vaccine is available
- ✓ Proactively identify and tag individuals in high risk group in the hospital or clinic's IT system
- ✓ Send patients reminders about flu season and the importance of getting vaccinated, especially those in high risk groups

Looking Forward: Prevent, Control, Prepare

These three words that appear on the WHO Global Influenza Strategy 2019-2030 make it very clear that a well-coordinated, sufficiently-funded and well-executed programme is necessary to mitigate the impact of the next flu pandemic, whenever and wherever it may strike.

The focus should be on prevention, and vaccination against influenza is the most effective way to prevent the spread of this disease. Government funded vaccination programmes have dramatically improved the outcomes of seasonal flu epidemics from a hundred years ago, when deaths would be counted in the millions.

For Thailand, the nation's experience with pandemics combined with the high level of awareness among its populace presents an encouraging scenario. Improving access to vaccines through increased funding and coordination could yield impactful and far-ranging results in improving the nation's vaccination coverage rate and allowing the population to reap the benefits of reduced mortality, cost-savings and a nation better equipped to prevent future influenza outbreaks.

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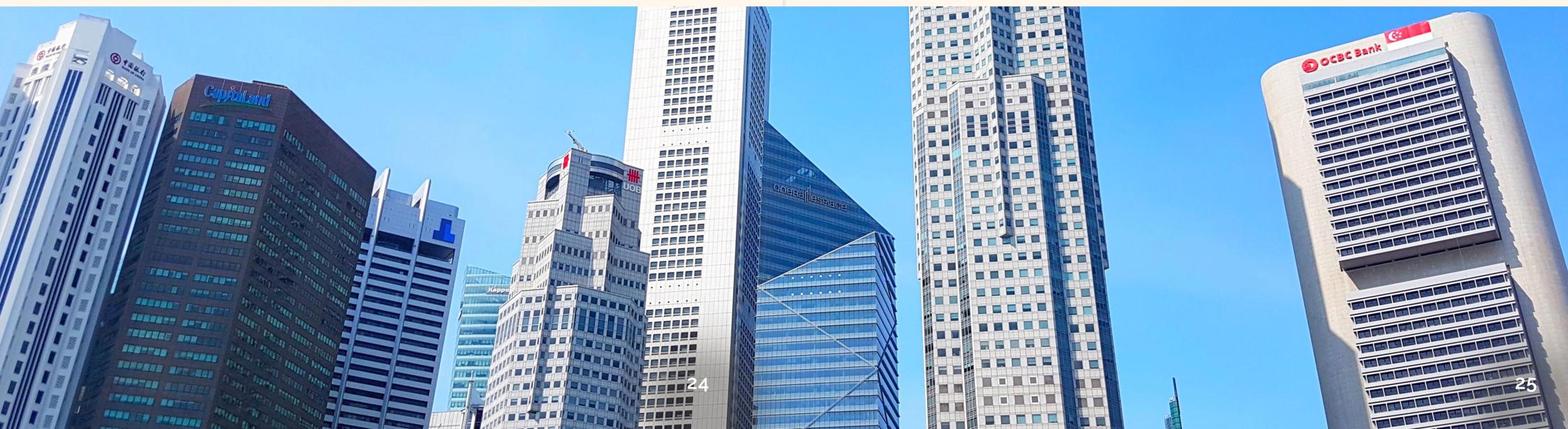
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**Ultimately, success comes down to a simple truth:
You act better when you are sure.**



APPENDIX

Appendix 1: Focus Group Discussions and In-Depth Interviews

Focus Group Discussion: Healthcare Professionals

Criteria	Focus Areas
<ul style="list-style-type: none"> • Thailand citizens • Specialists in relevant fields i.e. cardiology, geriatrics, endocrinology) • At least 10 years' experience • Seeing > 40 patients per month; more than 5 each comprising those with diabetes mellitus, cardiovascular disease and geriatric • Mixture of those who habitually recommend/have received flu vaccine and those who have not 	<ol style="list-style-type: none"> 1. Perception Toward Influenza & Flu Vaccination 2. Process for Getting/Recommending Influenza Vaccination 3. Drivers and Barriers for Flu Vaccination 4. Key Messages That Would Improve Uptake of Influenza Vaccination - Achieving Lower Rates of Influenza Infection 5. Maximise Flu Vaccination Acceptance: Receptivity toward various communication channel/ materials

Focus Group Discussion: Consumers (3 separate sessions comprising caregivers of diabetic, cardiovascular, and/or elderly patients; Elderly; and Diabetes & Cardiovascular Patients)

Criteria	Focus Areas
<ul style="list-style-type: none"> • Thailand citizens • Mixture of those who have/have not received flu vaccine • Those who have not received the flu vaccine must have been recommended to receive it before • Household income greater than THB75,000 • (For elderly) Above 65 years • (For DM and CVD patients) Which disease/ comorbidity diagnosed • (For caregiver) At least 1 family member suffering from CVD or DM 	<ol style="list-style-type: none"> 1. Perception Toward Influenza & Flu Vaccination 2. Process for Getting Influenza Vaccination 3. Key Messages That Would Improve Uptake of Influenza Vaccination - Achieving Lower Rates of Influenza Infection 4. Maximise Flu Vaccination Acceptance: Receptivity toward various communication channel/ materials

In-Depth Interviews with Key Opinion Leaders (3 sessions involving influential experts in national/local immunization guideline development)

Criteria	Focus Areas
<ul style="list-style-type: none"> • Specialists in infectious disease and paediatrics. 	<ol style="list-style-type: none"> 1. Burden of Influenza Disease 2. Influenza Vaccine Perceptions and Value 3. Influenza Vaccine Practice 4. Strategies to Improve Influenza Vaccination Uptake

In-Depth Interviews with Key Opinion Leaders

Criteria	Focus Areas
<ul style="list-style-type: none"> • Associate Professor Tawee Chotpitayasunondh, Paediatric Infectious Diseases Specialist Consultant, Queen Sirikit National Institute of Child Health, Ministry of Public Health, and President of Influenza Foundation (Thailand) • Professor Terapong Tantawichien, Division of Infectious Diseases, Chairman, Department of Medicine, Chulalongkorn University, Former President of the Infectious Diseases Association of Thailand • Associate Professor Chitsanu Pancharoen - Paediatrician with a sub-specialty in infectious diseases 	<ol style="list-style-type: none"> 1. Burden of Influenza Disease 2. Influenza Vaccine Perceptions and Value 3. Influenza Vaccine Practice 4. Strategies to Improve Influenza Vaccination Uptake

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