



Outbreak, Surveillance and Investigation Reports

Field Epidemiology Training Program, Bureau of Epidemiology
Department of Disease Control, Ministry of Public Health, Thailand
Tel: +6625901734-5, Fax: +6625918581, Email: osireditor@osirjournal.net, <http://www.osirjournal.net>

Excerpt from the Crucial Instructive Talks, 2017:

In Remembrance of His Majesty King Bhumibol Adulyadej (1927-2016), His Public Health Contributions and Sustainable Development

Piyasakol Sakolsatayadorn

Ministry of Public Health, Thailand

This article is excerpted from the keynote speech of High Excellency Clinical Professor Emeritus Dr. Piyasakol Sakolsatayadorn, Minister of Public Health, Thailand, in the 9th Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET) Global Scientific Conference which was held on 7-11 Aug 2017 in Chiang Mai, Thailand.

Throughout years and years of His Majesty the King's work with and for the people, His Majesty convinced that self-reliance and sustainable development was the only way for the country to achieve stability, even through the unbelievable economic growth in the early 1990s.

Historical photographs today often show the monarch making his way over rough terrain by car, boat and even on foot to visit his people, gain a first-hand experience about their woes and find a way to help them, even to the remote corners of the Kingdom.

We are Thais and prompt to follow the guidance of the late great King who dedicated his life for his people. His public health contributions and sustainable development on health was particularly beneficial to well-being of the country. Today, it is confirmed that the sustainable development gradually formulated with his remedies would improve the people's well-being and livelihood.

Four main parts of this speech include sustainable development, the thought leader, the King contributions to public health and disease control, and the following of the late King Bhumibol's footsteps.

Sustainable development is an organized principle. It is defined as the development that meets the needs of present, without compromising the ability of future generation to meet their needs. There are three main elements, including economic growth, social inclusion and environment protection. The three main elements have to be interconnected, and all are crucial for the well-being of individuals and societies.

In 2015, the world leaders expressed their solidarity for global sustainability and enshrined in the Sustainable Development Goals (SDGs) as key development milestones. It is comprised of 17 goals and 69 targets, which all nations should attain by the year 2030. The next 15 years will be crucial to global development and human security.

In this regard, Thailand as a global citizen embodiment, our King Bhumibol "Sufficiency Economy" philosophy guided us toward the sustainability. The concept of self-sufficiency had been touched upon in His Majesty's speeches for the past 20 years, but it was only after the great economic meltdown in 1997 that the concept was properly formulated and promoted.

In His Majesty the King's birthday address given on 4 Dec 1974, he said: "I ask all of you to aim for moderation and peace, and work to achieve this goal. We do not have to be extremely prosperous ... If we can maintain this moderation, then we can be excellent".

The 1997 economic crisis gave Thailand the first-hand experience of how fragile unsustainable growth was. The economic pain prompted a nationwide question for balanced development. Since then, the Sufficiency Economy Philosophy has become Thailand's development compass.

Moderation is the guiding spirit of the country. When the globe is over consumption and greed-driven development, moderation is the principle. When globalization brought economic uncertainties and risks, we have to be prudence and built-in self-

immunity. And when things get tough, we will strive on.

The Philosophy of Sufficiency Economy and its Three Pillars

Moderation is sufficiency at a level of not doing something too little or too much at the expense of oneself or others, for example, producing and consuming at a moderate level.

Reasonableness is the decision concerning the level of sufficiency must be made rationally with consideration of the factors involved and careful anticipation of the outcomes that may be expected from such action.

Risk management is the preparation to cope with the likely impact and changes in various aspects by considering the probability of future situations.

To secure the country well-being, the King discovered that many counties and remote areas had faced the problem of drought. Over 82% of Thai agricultural land relied on rainfall. Thai farmers were not able to grow crops for lack of water. The research was started since 1955 and the first attempt was made in July 1969 at Kha Yai National Park. In 2009, Jordan received permission from Thailand to use the technique.

Vetiger grass is a domestic grass that easily grow, needs less water and survives longer. The International Union of Soil Science announced in 2002 that 5 December is recognized as the World Soil Day. Doi Kham is a business under the Royal Project Foundation. The Doi Kham Food Products Company buys organic farm products at fair prices from the hill tribe people in northern Thailand. The project helps prevent the hill tribes from being exploited, and restores highland ecology and the farmers' quality of life. It was also recognized worldwide for success in eradication of opium cultivation through crop substitution programs.

Although only few people observed His Majesty's royal duties in health and disease control, his contributions to the public health were enormous. At the age of 24, he spent his money to build a building name Mahidol Vongsanusorn for the Bacillus Calmette–Guérin (BCG) production (Figure 1). He spent his own money, raised fund by radio advertisement, organized piano performance for purchasing "Iron Lung" (Figure 2), hydrotherapy equipment, and built two wards for polio treatment: one in Pramongkut and another one in Siriraj Hospital.



Figure 1. The "Mahidol Vongsanusorn" built for Bacillus Calmette–Guérin (BCG) vaccine production in 1951



Figure 2. His Majesty King Bhumibol Adulyadej donated "Iron Lung" for polio treatment in 1955

In 1958, there were cholera outbreaks in 35 provinces. The need of normal saline was unmet due to the limited saline bottles and autoclave for sterilization. The King again did raise fund for cholera control by performing saxophone, according to the request. The donation amount came up to 883,738.82 Baht. The royal medical unit was established as an accompany service for his visit to the remote area.

Following in the footsteps of His Royal Highness, Prince Mahidol of Songkla, the King's father, noted, "True success is not in the learning, but in its application to the benefit of mankind" (Figure 3).

The King Bhumibol and his enlightened approach teach Thais, especially personnel in health sector. An excerpt from His Majesty the King's speech in several occasions, learning to build up and enhance the core values for personnel in the Ministry of Public Health was implemented as "MOPH".

When everyone sees the logo of health care, the shadow of coin or money is behind. So Sufficient economy for health care and value-based health care does not only considered the financial profits, but also its cost has to be considered.

The philosophy of the late King, sufficient economy does not mean that do less without development. It can make profit. However, non-profitable organization is not to make the income benefit for partners, but for sustainable development.

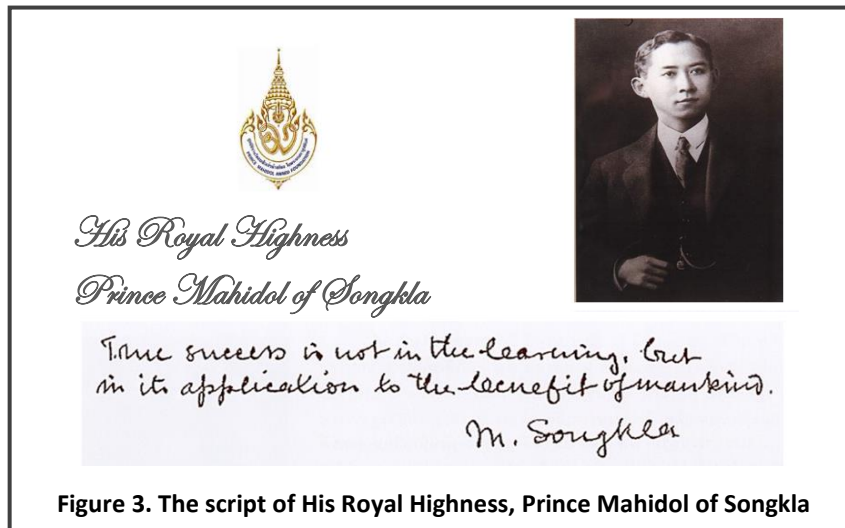


Figure 3. The script of His Royal Highness, Prince Mahidol of Songkla

In change of Thai health care system by universal coverage on health care, lots of families were saved from bankruptcy. After the medical care support by the government was initiated, the proportion of family expenditure costs for health was presented in reverse direction.

To target stability, prosperity and sustainability among Thais, Thailand 4.0 has been branded and implemented for value-based economy. In the same direction, Thai health system is focused on value-based health care through the brands of health care 4.0 and the MOPH 4.0.

Currently, three main growth engines of health care 4.0, including inclusive, productive and green growth engines, are implemented nationally and locally. Thus, following in the footsteps of the Great King, together we can be stronger, smarter and make our Thai society, our country and the world better.

Suggested Citation

Sakolsatayadorn P. Excerption from the crucial instructive talks, 2017: in remembrance of His Majesty King Bhumibol Adulyadej (1927-2016), his public health contributions and sustainable development. OSIR. 2017 Dec;10(4):22-24.

A Chronological Outbreak of Influenza in Thailand, 1918-2010

Prasert Thongcharoen

Siriraj Hospital, Mahidol University, Thailand

Department of Disease Control, Ministry of Public Health, Thailand

This article is excerpted from the panel talk of Emeritus Prof. Dr. Prasert Thongcharoen in the 9th Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET) Global Scientific Conference which was held on 7-11 Aug 2017 in Chiang Mai, Thailand.

The term of influenza is derived from the Latin *influentia*, to word meaning “influence” which the disease could be implied from the influence of the stars. Influenza had been officially recorded since 1918 of Spanish flu as a pandemic in Europe and spread to Asia and Africa. Spanish flu was a global epidemic and infected a large proportion of the world population, including Thailand. The five important influenza outbreaks were related to Thailand as in table 1.

However, the putative pandemic in Thailand before 1918 is difficult to obtain its record. The first report was written by Prof. Dr. Samran Wongspa, an ophthalmologist at Siriraj Hospital. He described influenza outbreak during the reign of King Rama VI

(1910-1925) in a local journal named *Siriraj Hospital Gazette*¹. The outbreak of influenza in Thailand was brought by troops after the World War I (WWI) as Thailand sent the Royal Thai Army Forces to join the Allied Forces in France and returned later when the WWI ended. The troops arrived back with the influenza virus, which was spreading over the frontline. In October 1918, influenza was therefore being spreading from the harbor city in the southern of Thailand. By November 1918, the infection had been spread throughout the whole country and it was afterwards subsided in March 1919.

The impact of Spanish flu in Thailand during 1918-1919, as that time the population was estimated at 8,478,566, had affected to 2,317,633 individuals

infected by influenza virus (36.6% the infected rate), with 80,263 deaths (1.0% mortality rate) and the affected rate/fatality rate was 3.6%. The number of infected individuals was found in 17 administrative regions called as Monthol of Siam in 1918 as shown in table 2 and could not characterized the viral subtypes. Currently, new technologies have allowed several researchers to characterize the 1918 influenza virus that was found to be influenza A subtype H1N1 and assumed the recorded outbreaks in Thailand during 1918-1919 was the same subtype due to it caused from the returned troops from France after the WWI.

The second influenza outbreak was emerged in 1957-1958 and it called Asian flu which started in the southern part of mainland China or in Vladivostok, the Union of Soviet Socialist Republic. There was an evidence of outbreak from China that then spread to Japan, Taiwan, the Philippines and other countries in

Asia Pacific. Asian flu impacted approximately 10-15% of the world population, with the mortality rate estimated at 0.3%. The first officially documented was reported when the virus spread to Singapore in early 1957. The first viral isolation was obtained from a sample in Singapore that could characterize and designated as A/Singapore/1/57 (H2N2).

Asian flu in Thailand came in after the outbreak in Singapore. It originated in the southern part of country during the late of April to the beginning of May 1957 and disseminated to the whole country. The infected population was 1,081,677 (4.8%) of the total population at 22,811,701, with the highest infected rate in Kalasin Province while Suphanburi Province was the lowest infected rate. The viral characterization was isolated and identified by Dr. Samarn Vardhanabhuti² who found that it was the same strain of virus in the Singapore outbreak³.

Table 1: The global influenza outbreak

Year	Common name	Considered area of emergence	Subtype	Estimated case fatality rate	Estimated deaths worldwide	Estimated people infected
1918-1919	Spanish flu	Unclear	H1N1	2-3%	50-100 million	500 million
1957-1958	Asian Flu	Southern China	H2N2	<0.2%	1-4 million	ND
1968-1969	Hong Kong Flu	Southern China	H3N2	<0.2%	1-4 million	ND
2003-now	Avian Flu	Southern China	H5N1	52%	452	856
2009-2010	Pandemic 2009	Mexico	H1N1	0.03%	18,500	10-200 million

Table 2. Spanish flu cases in 17 Monthols of Siam, 1918

Regions (Monthol)	Total number of people	Percent of infected patient	Percent of death
Phayap	805,787	18.3	1.5
MahaRachsdon	546,944	16.4	1.1
Nakhon Chai Si	343,963	37.3	0.3
Ratchaburi	465,080	24.3	0.5
Nakhon Si Thammarat	525,394	23.9	0.8
Nakhon Ratchasima	590,612	25.7	1.0
Nakhon Sawan	359,978	28.6	0.7
Prachinburi	401,972	42.3	0.5
Phitsanulok	395,723	16.8	0.5
Pattani	302,870	37.5	1.2
Surat Thani	185,106	34.9	1.1
Ayutthaya	681,533	37.8	0.5
Chanthaburi	149,377	23.9	0.7
Phuket	244,919	19.3	0.8

The third outbreak was Hong Kong flu in 1968-1969⁴ and was caused from influenza A virus subtype H3N2. Hong Kong flu was firstly notified from six medical students who had been admitted to the medical service of Siriraj Hospital with a provisional diagnosis of influenza-like illnesses on 26 Aug 1968. In Bangkok, the prevalence rate was estimated 47 per 100,000 populations, with Bangkok population at that time approximately 150,000. All age groups developed mild symptoms, without any serious complications and no deaths related to influenza. Later, the infection spread further in the whole country.

The fourth outbreak was avian flu on 11 May 1997² when there was a report of avian influenza virus transmitted to human by direct contact with infected poultry for the first time in Hong Kong SAR. Avian influenza virus A (H5N1) was isolated from clinical specimens and mainly caused an epidemic among poultry. Later, World Health Organization (WHO) reported the probable human-to-human H5N1 transmission in Vietnam on 2 Feb 2004. In Thailand, there was an outbreak report of fowl in November 2003 in Nong Bua and Nakhon Sawan Provinces. The Thai government confirmed the outbreaks of avian influenza with two human cases in children on 23 Jan 2004. The avian flu from the first reported case in January 2004 to December 2006 resulted 25 confirmed cases of avian influenza A (H5N1), with 17 deaths and complete recovery in eight cases. As the epidemic in poultry and wild birds was strengthened through the surveillance program, the last report was in January 2008. Thailand had been free of avian influenza virus in animals since January 2008.

The last pandemic influenza of H1N1 or Pandemic 2009 was detected in Thailand on 12 May 2009. Two cases were the exchanged students returned from Mexico where influenza A (H1N1) first emerged. They were quarantined and treated at Bamrasnaradura Infectious Diseases Institute in Nonthaburi, Thailand. The occurrence of viral transmission to Thai people could be assumed its infection from the travelers. However, as the infection caused mild symptoms, the endemic was not obviously noticed. However, the first pandemic began in May 2009, with peaked in July. By the end of July 2009, cases were reported from all 76 provinces, with 65 fatalities. The serological surveillance based on the hemagglutination inhibition assay revealed that approximately 8-12% of Thai people were infected with the pandemic influenza A (H1N1) 2009 virus infection. The WHO declared the initial pandemic phase of influenza A (H1N1) 2009 on 11 Jun 2009 and the post-pandemic phase on 10 Aug 2009. The second wave of influenza A (H1N1)

occurred during December 2009 to April 2010 and peaked in February 2010. The third wave was observed from June to October, with a peak in August 2010. After the third wave, the pandemic of influenza A (H1N1) virus infection was only occasionally observed in Thailand.

Thailand had mostly been affected with influenza since one century ago. The spreading of influenza or called "Spanish flu" was firstly reported in October 1918 through March 1919. The second outbreak of Asian flu was recorded after the Singapore outbreak in 1957 while the third outbreak of Hong Kong flu was notified in 1968. The fourth outbreak of Avian flu was initially appeared in January 2004. The last pandemic influenza of H1N1 was reported in May 2009. After August 2010, the pandemic of influenza A (H1N1) virus infection was only occasionally seen in Thailand. The global outbreak of influenza has been beaten Thailand almost century and it will continue to challenge to Thai health officers and Thai scientists as the viral influenza is developing to surviving in the environment. Therefore, we must improve our knowledge to understand the viral development and develop the diagnosing method to handle immediately which is included the effective viral treatment.

Suggested Citation

Thongcharoen P. Excerption from the crucial instructive talks, 2017: a chronological outbreak of influenza in Thailand, 1918-2010. OSIR. 2017 Dec;10(4):24-26.

References

1. Wongsapa S. The influenza outbreak during the reign of King Rama VI. Siriraj Hospital Gazette. 1967;19(11):615-20.
2. Vardhababhuti S. An attempt to isolate influenza virus causing the recent epidemic in Thailand. J Med Assoc Thai. 1958;41:253-61.
3. Thongcharoen P. Emerging infectious diseases and re-emerging infectious diseases. In: Chotipithayasunont T, editor. Emerging infectious diseases/ re-emerging infectious diseases. Nonthaburi: Department of Medical Services; 2008. p. 256.
4. Thongcharoen P. Theppitaksa M, Prakobpol C, Tuchinda U, Maranetra N. Roongpitarangsri V. 1968-Outbreak of influenza in Thailand. J Med Assoc Thai. 1969;52:724-37.