

It has to be accepted that AI is a new issue for Thai society, and little is known about it. People are concerned about the outbreak but the epidemiological knowledge to support the dis. control is still limited and scattered. Therefore, when an outbreak occurs, the baseline knowledge or information is not sufficient to lead to rapid decision making to solve the problem. This also leads to confusion among officials at the operation level, the general public, and the poultry farmers who are directly affected.

The AI problem is complicated and is concerned with multiple factors, including economics, medical, public health, husbandry, lifestyle of natural birds and the lifestyle of the local people, like raisers of poultry for personal consumption, raisers of free range ducks, raisers of exotic birds, etc. This led to complexity in disease control. Another important factor that complicates control of the AI is the spread of infections among neighboring countries in the region. Therefore, regional and global collective efforts are essential to the success of the dis. control.

In Thailand, there are many organizations which work on AI and other emerging and re-emerging diseases. The responsibilities are thus scattered under various organizations. Efficient coordination mechanisms are inadequate. This situation led to lack of unity in dis. surveillance and control in humans and animals. The reform in the civil service system which has led to the removal of district level livestock officials, in addition to shortage of manpower, lack of development in areas of medical technology, public health and livestock, are factors that lead to inadequate dis. control capacity in humans and animals.

AI cases as of September 2005										
Regional update on confirmed AI cases										
Period	Indonesia		Vietnam		Cambodia		Thailand		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
26 December 2003 – 10 March 2004	0	0	23	16	0	0	12	8	25	24
19 July 2004 – 8 October 2004	0	0	4	4	0	0	5	4	9	8
16 December 2004 – 5 August 2005	1	1	63	28	4	4	0	0	68	25
Total	1	1	90	48	4	4	17	12	112	57

(http://www.who.int/csr/disease/avian_influenza/updates/en/)

The government tried every method to control the disease, increase awareness of the population on AI, risk communication for the public, continual releases of information and full disclosure of information to public & NGOs have been implemented. The government established a committee to address the problem in January 2004.


Rather than waiting for scientists to reduce the uncertainties, concerns about the effect

on chicken export have led Thailand to forbid the use of vaccines in all animals and to forbid the legal registration of a "AI vaccine".

Protection of high-risk groups, case management and infection control, enhance diseases surveillances both human and animal, enhance collaboration among concerned organizations were also emphasized.

Responded to the problems

- Increased awareness of the population on AI and provide risk communication for the public
- Continual releases of information & full disclosure of information to the public & NGOs
- Established a committee to address the problem
- Prohibited the import, sale, or use of AI vaccines



The National Committee on Avian Influenza Control and the National Committee on Influenza Pandemic Preparedness have developed the 5 year strategic plan lies on the following principle, (1) the safety of the people as the priority consideration (2) the economic factors and the lifestyle of the villagers are given equal importance (3) maintenance of biodiversity of poultry (4) emphasize on integrated measures build up within Thai context, in addition to development of knowledge and information available to solve the problem and (5) the strategic plan targets the most important factors that need to be carried out in 3 years, so that it clearly reflects the points that need immediate consideration. There are six strategies which mentioned in the slide with 25 measures.

Lessons Learned

It is undeniable that there is no easy solution to the problem of AI .Thailand itself needs to prepare plan for dealing with a large-scale outbreak of AI, as well as finding ways to fight the disease. From 3 outbreaks, health advocacy should be implemented in all level, the transparency in operation and disclosure the information to public including NGOs who work in Thailand in the early stages were essential. Prompt responses and strong commitment from the concerned organizations were needed as well as the active participation from stakeholders in order to get the consensus planning and implementations.

References

Kanchanachitra C, Podhisita C, Archavanitkul K, and Im-em W. Thai Health 2005. Bangkok: Amarin Printing and Publishing Ltd., 2005.

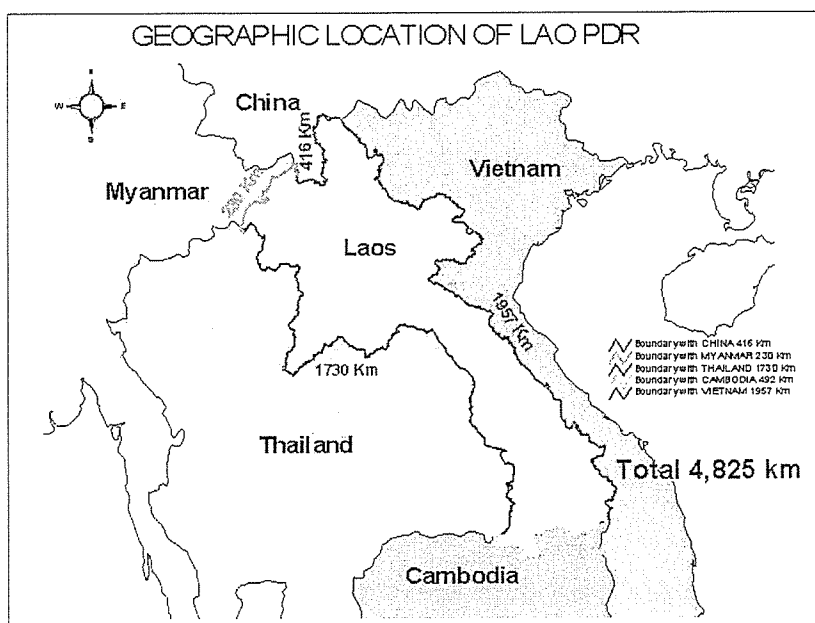
World Health Organization. Responding to the avian influenza pandemic threat: recommended strategic actions. 2005.

The National Committee on Avian Influenza Control and the National Committee on Influenza Pandemic Preparedness. National Strategic Plan for Avian Influenza Control in Thailand B.E. 2548-2550 (A.D. 2005-2007) Ministry of Public Health and Thai Health Promotion Foundation, 2005.

Fighting on Emerging Diseases in Landlocked Country: Report from Lao PDR.

Sisavath Southa Niraxay

Let me begin in briefing the geographical situation by showing the Map of my country. Laos is small land lock country is surrounding in five neighboring namely: Cambodia, China, Myanmar, Thailand and Vietnam and extending in a North-South direction, the land of boundary about 4,825 km. Its population is about 5.6 million (data from national statistic May 2005) and its land area is 236,800 square kilometers. Because Laos has a very low population density (only 20 persons/km² and poor transportation networks, the provision of basic services is problematic for the government. Laos is a multi-ethnic country consisting of 49 ethnic groups. Communication is therefore difficult due to physical distance and language /social-cultural barriers.



Since the beginning of Avian Influenza outbreak in early 2004 in Lao PDR, we had approximately 20 millions of poultry, of which 16.5 millions were household poultry and 3.5 millions commercial poultry. At present, more than 100 commercial farms exist in the country and are located in the periphery of larger towns such as: Vientiane Capital, Savannakhet province and Champassack province.

Samples of poultry from affected areas were collected, tested and confirmed from Avian Influenza. There were 45,000 thousands death of poultry and 100,000 heads were

stamped out. So far, until now, there are no human cases of Avian Influenza.

What we had done to fight Avian Influenza?

1. To response of the government of Lao PDR to control of diseases, the government has paid special attention by issuing several related decrees and orders in the prevention and control of diseases such as:

- Decree of Prime Ministry office on the establishment of a communicable Disease joint Task force composed of members from 10 concerned Ministries.
- Establishment of Task Force within the Ministry of Health (MOH) and the Ministry of Agriculture and Forestry (MAF) for collecting data, active surveillance and field operations.
- Issuing notification on preventive measures disseminated to all provinces of the country by MOH and MOF.
- Emergency donor Meeting on Avian Influenza was held in February 2004 and jointly hosted by MAF and MOH.
- EWORS supporting surveillance.
- Meeting with mass media.
- Strong IEC campaign, but not panic.
- Training of trainers for doctors, nurses, Health workers.
- Distribution of personal protective Equipment (PPE)
- Surveillance system strengthened.
- Check points at border identified.
- Isolation ward in designated hospital renovated.
- Laboratory diagnostic facilities identified.

2. International Assistance and Collaboration

During the outbreak of Avian Influenza, a number of partners and international organizations have already provided technical and financial assistance, namely: UNDP, FAO, WHO, EU, ADB, JICA, China, France, Belgium, Singapore, USA, Australia, Thailand, Vietnam, Cambodia, NGO, etc.

3. Constraints

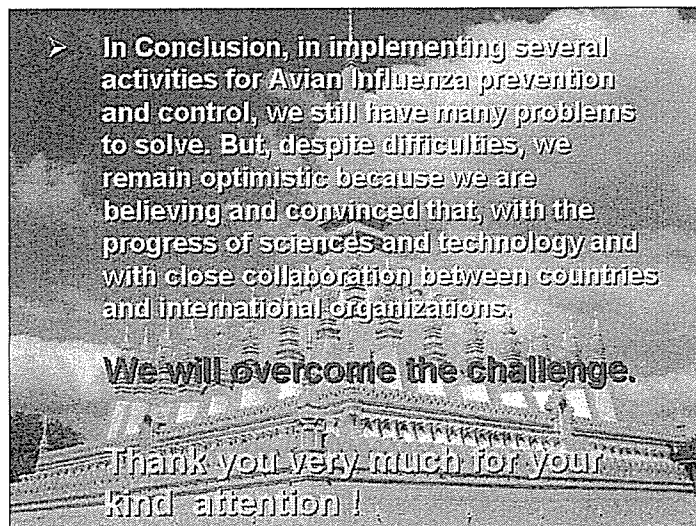
- Avian Influenza infection is still new disease for health authority and community.
- Quarantine system at Checkpoint still weak.
- Shortage laboratory diagnostic facilities for Avian Influenza at central level.

- Shortage of personal protective Equipment (PPE)
- Lack of antiviral drugs
- Lack of experience and knowledge on management of Avian Influenza infection and outbreak preparedness

4. Propositions

- Strengthening Laboratory capacity on Avian Influenza diagnosis
- Improving Human resource development.
- Provision of personal protective equipment (PPE) and disinfectants
- Provision of testing kit for Avian Influenza diagnosis
- Antiviral drug

In conclusion, in implementing several activities for Avian Influenza prevention and control, we still have many problems to solve, but, despite difficulties, we remain optimistic because we believe and convinced that, with the progress of sciences and technologies and with close collaboration between countries and International organizations, we will overcome the challenge.



Thank you very much for your kind attention!

Fight to Avian Influenza and SARS in Laos
–National Coordination Committee on Communicable Diseases

Soulisack Mingboupaha

The government of Laos has committed to prevent and control any infectious disease like Avian Influenza and SARS which have a threat to our public health. During the recent years we are facing constant threat of infectious diseases like Avian Influenza and SARS from our neighboring countries like China, Thailand and Vietnam. So, for our effective control and prevention of these highly infectious diseases we shall have to need some domestic policy as well as inter-country border collaboration for the control and prevention of infectious diseases under a common guideline.

This is why our government decided to form a high powered committee able to manage our national activities and at the same time empowered enough to coordinate with our neighboring countries for establishing effective Inter-country border collaboration for the control of infectious diseases. This committee should also be able to communicate with National and International organizations, NGOs for their technical help.

Now with these tasks taking in mind from the office of Prime Minister circulate one ordinance on this issue that is to form a high power committee.

Our honorable prime minister understanding the gravity of the problem issued an ordinance under Ref: Order of the Prime Minister Office. No. 02 dated January 27, 2004 and also issued another Decree of the Prime Minister Office.

No. 17, dated February 12, 2004

This is very important issue and also the political commitment from the side of our government, because of the SARS is very new and very highly infectious diseases. It is not only for my country but also involved the neighboring countries related to the inter-country border transmission.

National Coordination Committee Roles

It takes into action the Order of the Prime Minister, which issuing different measures and regulations for prevention and control of communicable diseases particularly the emerging infectious diseases like avian influenza, SARS etc.

It is collaboration with concerned Institutions National and International Organizations, NGOs and other non profit organizations in health sector for the

control and management of communicable diseases and also mobilization of adequate resources.

Secretariat Roles

By the order of the Prime Minister, National Coordination Committee on Monitoring and Evaluation of Avian Influenza has implemented and facilitate to control activities. Its roles are Implementation, Promotion, Monitoring, Evaluation and Submission of the Final Report to the National Commission Committee.

In case of need, the Secretariat is responsible for informing the National Coordination Committee, the Mass media and the International Organizations on unexpected changes of communicable diseases and also to informed and involved the neighboring countries in the inter-country border collaboration for the control of communicable diseases.

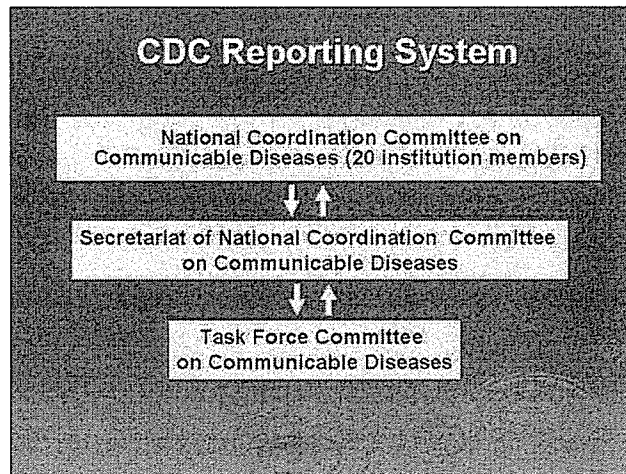
Task Force Roles

It has role of data collection from different hospital in Vientiane, such as Mahosot Hospital, Setthathirat Hospital and Friendship Hospital. From the provincial health department and after collecting the data they should compiled, analyzed and interpret the data and informed the concerned departments for taking necessary actions. They also make a multi-sectoral collaboration within the country for effective control activity. In our country we have 17 provinces and one special zone in Xaysomboune province. The main task of this committee is to make liaison with other departments like MAF, poultry and fishery department, water and sanitation department about the recent status of the Avian Influenza and SARS

Communicable Diseases Control Reporting System (CDC)

Our government also established an effective CDC system to tackle the situation. This system works in two ways.

1. Top down and Bottom up reporting system.
2. Sustainable surveillance system to take rapid measure.

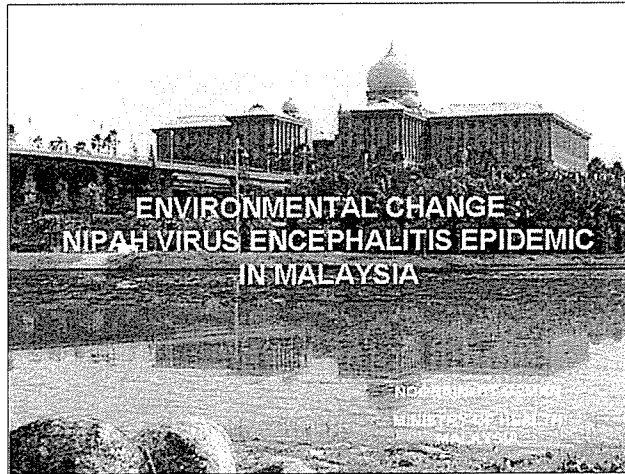


Thank you so much for your attention



Environmental Change: Nipah Virus Encephalitis Epidemics in Malaysia

Nooraini Bt Osman



Firstly, I would like to explain what Nipah virus is. The word Nipah came from one type of plant that growth in the swamp area and the virus get its name from the village where Nipah virus was isolated that is Sungai Nipah in Negeri Sembilan, Malaysia. This virus causes Nipah virus encephalitis. Nipah virus is from family Paramyxoviridae. Nipah virus was identified in March 1999. The clinical symptoms have ranged in severity from mild to fatal. Onset of disease is usually influenza-like with high fever and myalgia. Sore throat, dizziness, drowsiness and disorientation have also being described. Nipah Virus Encephalitis also shows febrile encephalitis and respiratory illness, rapid increase in blood pressure and body temperature. There were 283 cases since the outbreak with 109 fatalities, and overall fatality rate was 38.5.

Why Environmental change?

Complex interplay of multiple factors that lead to the spillage of Nipah virus from the natural host, which is fruit bats into domestic pig population and subsequently to humans.

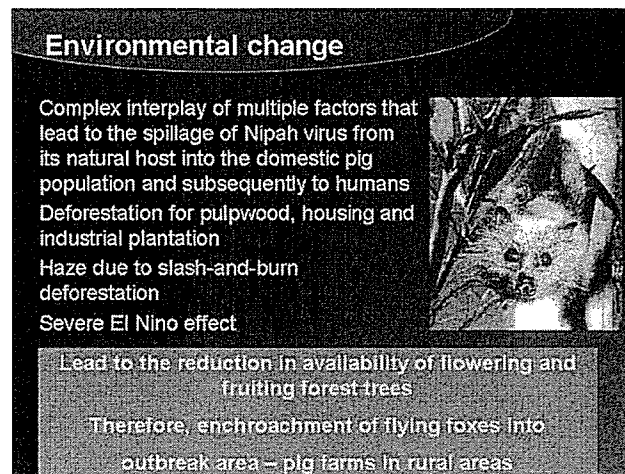
Deforestation for pulpwood, housing and industrial plantation is going on, since Malaysia is a developing country, many housing estates and industrial areas were developed.

Haze due to slash-and-burn deforestation. This will result in the migration of flying

bats from forest to the farms.

Severe El Nino effect – that is the global climate change might change the habitat of these fruit bats.

All the factors lead to reduction in availability of flowering and fruiting forests. Therefore encroachment of fruit bats coming into outbreaks area, where pig farms in rural area.



Outbreak

The first outbreak documented in a village in Kinta District Perak in September 1998. Three farmers identified with febrile encephalitis. Some of the pigs in the farm show respiratory and encephalitic diseases. The farm in the village interspersed with orchards containing fruit trees for example durian, rambutan etc. Villagers noted many fruit bats species feed in the orchards since 1977.

The second outbreak was in Negeri Sembilan in December 1998, affected other 5 farmers. This was believed to be because of the transportation of infected pigs.

Initially thought to be cause by Japanese Encephalitis virus because of:

- a) Viral encephalitis among pig farmers
- b) Some early serum were positive

But, in these cases, adults were affected in contrast that Japanese Encephalitis seldom affects adults. In addition with jerking neck and abdomen muscles is a characteristic of Nipah Encephalitis.

Pig handlers are affected

Pigs are affected – pigs aged 4 weeks to 6 months usually exhibited an acute febrile illness with respiratory signs varying from open mouth breathing to rapid and labored respiration and loud barking cough. Experts believe that pigs were a key link in Nipah

infection of human. Pigs act as mixing vessels. Because they are the only mammals raised in large concentrations, they give opportunity for diseases to spread quickly. In pigs the virus multiplied but didn't always cause any illness – making it difficult to detect.

The pigs in turn, secreted the virus in their respiratory droplets and urine. Transmission is through close contact with infected pig

Human to human transmission of Nipah virus has not been documented. In a survey of nurses and physicians who cared for encephalitis patients for the outbreak and pathologists who conducted postmortem examinations of case-patients, none developed an encephalitic illness or had acute serologic evidence confirming recent Nipah virus infection. To further define risk factors for human transmission, other groups being surveyed include case patients and their families, pig handlers from 10 Malaysian states, soldiers involved in pig culling, and veterinary workers with potential exposure to Nipah virus-infected animals.

Follow up study revealed the following findings

Among Human

- 12 patients (17%) who recovered from acute encephalitis developed relapse encephalitis
- 10 patients (3.7%) who had non-encephalitis or asymptomatic infection developed late onset encephalitis
- 4 patients died attributed to the persistence of Nipah virus infection in Central Nervous System
- 25% of survivor had residual neurological deficits

In pigs

Because of the initial misdiagnosis, the pigs had been vaccinated against Japanese encephalitis several weeks earlier, the reuse of syringes may have contributed to the spread within the farms.

Mortality rate: 5-15%

Incubation period: 7-14 days

Both Central Nervous System and respiratory manifestation

Management of the epidemics

- The outbreak was arrested by a movement ban and a mass cull, which began on 20th March and ended 26 April 1999
- 1.1 million pigs and 956 farms had been destroyed

The outbreak gave a big impact to the economy of Malaysia, despite the promoting prognosis, the future of pig-farming still hangs in the balance. Previously, Singapore was our main export market of local pork. Negeri Sembilan has banned pig farming and not keen to start again in designated pig farming area. Most authorities had the opinion that the pig farming industry has to be restructured.

Other measures include education about contact with pigs, use of personal protective equipments among persons exposed to pigs, and a national surveillance and control system.

- WHO declared the outbreak virtually over in May 1999

Conclusion

- Environmental change, not only change the ecology of the bio-system but also can cause harmful effect to animals and human beings.

Everybody has their responsibilities in preserving the environment in spite of development in the infrastructures.

- Will it come back in the future? Is still questionable.

Until September 2005, no case reported in Malaysia

- Surveillance and monitoring of pig farms all over the country had been carried out.

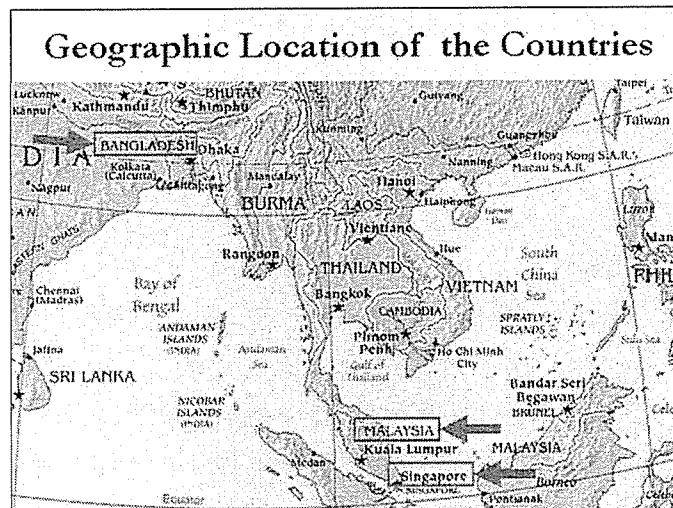
Thank you very much for your kind attention, Arigato, gozaimasu!

Outbreak of Importing Disease: Nipah Virus Encephalitis in Bangladesh

Muzibur Rahman

As Dr. Nooraini from Malaysia already explained, Nipah Virus is a zoonotic paramyxovirus, produces symptoms like, Japanese Encephalitis Virus, Hendra Virus in Australia. After Malaysia and Singapore outbreaks, WHO takes necessary actions and declared virtually ending of outbreak in May 1999.

Please take a look of the map. Malaysia and Singapore are in the South. And Bangladesh is in the North far from these countries. Why Nipah Virus issue in Bangladesh? Consider this distance in like this way, it may mistake.



Outbreak in Bangladesh

First we reported Nipah Virus infection in April 2001. The reported case is 24 and 9 deaths. Then later part of 2001 and 2002, no cases reported in Bangladesh. But again in January 2003, we reported 20 cases of which 8 deaths. And again, after January, the whole season, no case reported. In February 2004 and April 2004, again there is 42 cases reported of which 14 deaths. And in April, 35 reported of which 10 are died. The total case reported in Bangladesh from April 2001 to April 2004 is 121 and death is 41. The calculated approximate case fatality rate is 33%, it is quite alarming. But here there are some points to look. There may be under-reporting, because this Nipah Virus infection in my country is a new disease. Not only my country, it is approximately a new disease for the whole world except Malaysia and Singapore.

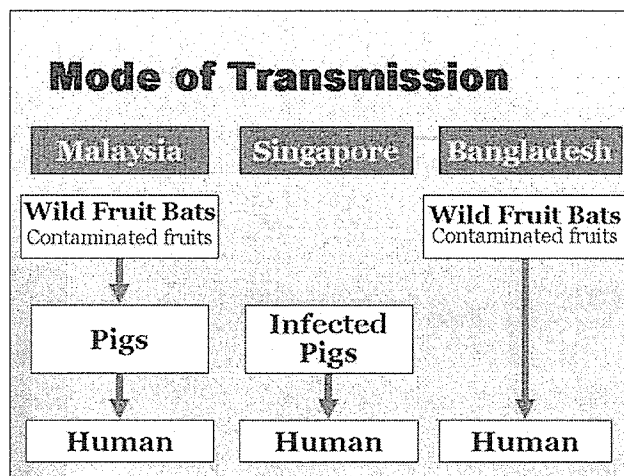
Bangladesh Situation

<i>Time</i>	<i>Reported Case</i>	<i>Death</i>
April, 2001	24	9
January, 2003	20	8
February, 2004	42	14
April, 2004	35	10
Total	121	41

Our health worker may mistake about the reporting. By under-reporting, case fatality rate may be higher, shown higher. And again, in other observation, we can look here that is the time; that it ranges from January, February, March and April. In 2001, 3, 4 in the 3 years, we observed the same phenomenon. And in my country this is the winter and spring. And migrating birds fly in this season in my country. Probably it may be one of the causes.

Transmission Mode Change

In case of Malaysia, the mode of transmission of Nipah viruses is from wild fruit bats. Then pig farms, where they have large fruit trees. And wild fruit bats come from far away to eat this fruit. And some of this fruit are contaminated and stripped down which is taken by the pig in a pig farm. And after taking this contaminated fruit, these pigs become infected. And from these pigs, human being who are working in this farm and look after these pigs, they become infected, that is how the infection comes from infected... from wild fruit bat, then pig and then human being.



Now, in case of Singapore, they don't have wild fruit bat. What is happening here? The Singapore is importing pigs from Malaysia. And the people who are taking these pigs and cut in the market, they get the infection from the pigs. These pigs are looking healthy when they are imported but ultimately they carry the virus and from these pigs, the human beings become infected. And now in my country, we have wild fruit bat just like Malaysia. But we have no infected pig. Directly, wild fruit bat to human.

Lessons Learnt

We can learn some lessons from an epidemiological point of view. First of all we should have to confirm the encephalitis of Nipah virus, that is validity and reliability of diagnosis is very important. For this, the antibodies reacting to Nipah virus antigen were detected from the survivors' serum. And these tests were done in my country, in an international laboratory, ICDDR-B, IEDCR and again, CDC Atlanta, USA. So from the 3 sides, we get the same result. So we can rely on the infection is caused by Nipah virus. Second one is. Clustering of patients found in every episode. What does it mean? Nipah virus may spread from person to person. This is why clustering of the infection occurred. This outbreak close conduct may result in direct contamination. This is why clustering has occurred.

Nipah virus infection is not a Malaysian issue, I think it's a global issue. In case of Avian flu and SARS, WHO estimated 30 billion US dollar will be required in this region. But in fact, actual expenditure was 59 billion. So I think it is the time to take necessary action against not only Nipah virus, SARS, Avian Flu, these all are emerging public health problem. So I think these are needed that, real time, due time, to take necessary action in a combined way, in a globalized way, in a regional way, against all these emerging public health problem.

Thank you very much for patiently hearing.

Polio Outbreak in Indonesia: An Alert to Improve Surveillance System

Hikmandari Abudari



I would like to share with you, the recent Polio outbreak occurs in Indonesia. As a subheading, I will highlight the alert to improve the country's surveillance system.

In April and May this year, newspaper headlines around the world highlighted the international spread of polio. With the re-infection of Indonesia, Yemen and Angola, polio has spread to 18 countries which previously have been free from polio.

Indonesia had been polio-free since 1995. But in March this year, a case of Acute Flaccid Paralysis was identified. The case infected an 18-month old boy in one village in West Java Province. In April, the wild poliovirus isolate was confirmed. The Ministry of Health and WHO-Indonesia, conducted an immediate investigation and response in the infected area. In May, 15 paralysis cases was identified. And until September, 236 children have been paralyzed and 8 of them died.

The global reference laboratory in Mumbai, India, confirmed a wild poliovirus type 1 isolate from the case. Genetic analysis of the virus demonstrates that its origin is in West Africa. Further analysis suggests, the virus traveled to Indonesia through Sudan, and is similar to recently isolated viruses in Saudi Arabia and Yemen. The virus might be brought by Indonesian worker or pilgrimage whom came back from Saudi Arabia.

Problem

- Indonesia had been polio-free since 1995
- March 2005: 1 case found
- April 2005: wild poliovirus confirmed
- May 2005: 15 cases found
- September 2005: 236 children have been paralyzed, 8 died.
- Cause: Imported poliovirus from Africa (Sudan)

Wild Poliovirus, 2005

Legend:
 • Affected provinces
 • Wild poliovirus confirmed
 • Imported poliovirus from Africa (Sudan)

As a response, the Government of Indonesia has issued a notification of the outbreak to all provinces, districts, and all surveillance units, to ensure that no new cases anywhere in the country are missed. Ministry of Health continues to inform the media on the outbreak.

On 31 May, a polio mopping-up immunization was conducted, followed by second round on 28 June 2005. The mop-up covered three affected provinces: West Java, Banten and Jakarta. Two rounds of National Immunization Days are also conducted, first on 30 August, and second on 27 September 2005. The immunization is targeting 24.4 million children under five throughout the country. The first NID was officially inaugurated by Indonesia's First Lady.

More than 750,000 vaccinators, health workers and volunteers, are visiting house-to-house and working at vaccination sites across Indonesia. With more than 6,000 inhabited islands, reaching every child is a challenge. The authorities are working with hundreds of NGOs and established a network of more than 500 mobile vaccination teams to ensure that children traveling through transit points are not missed. The international polio eradication partnership has scaled up their technical and financial assistance to Indonesia.

Why is it a problem?


Now why is it a problem? First, the outbreak spreads significantly, from two provinces, expanding to five provinces: from West Java and Banten, expanding to Jakarta, Central Java, and Lampung Province in Sumatra Island.

Second fact, during the mop-up immunization in May and June, coverage data indicates that the first round vaccinated 6.5 million children while the second round vaccinated only 5.5 million. This one million drop could jeopardize effort as they could be a source of infection in later stage.

Third, given the above situation, the epidemic is of serious concern. The outbreak could re-infect other Asian countries, such as Malaysia, the Philippines, Vietnam and China. From another aspect, the above situation raised question about the country's surveillance and response system to infectious diseases. And if it is not handled properly, other infectious diseases might hit the country again.

Why is it a problem?

- Significant spread of virus
- Drop on mop-up coverage
- Risk to re-infect neighboring countries (Philippines, Malaysia, China)
- Indicate collapsed of surveillance and response system
- Other controlled infectious diseases might come back



The image contains a list of five bullet points on the left and a map of Southeast Asia on the right. The map labels Viet Nam, Philippines, Malaysia, Indonesia, Jakarta, Australia, and Timor-Leste.

Deterioration of Surveillance System

Indonesia's surveillance system for paralysis in children is meeting global standards. A review by a team of international experts in June 2003 found that surveillance system was adequate to detect wild poliovirus transmission.

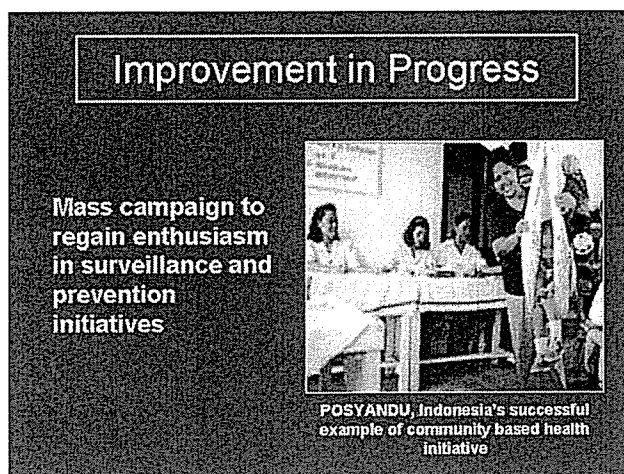
Experience in polio eradication demonstrates that outbreaks can be quickly contained with high quality immunization campaigns.

In this regard, the recent outbreak is an alarm to the surveillance and response system. Among other factors, it is appeared that decentralization process in Indonesia has contributed to the weakening of the system. Indonesia started implementing decentralization in January 2001. And some of its early effect in health sector has been disappointing. There is still confusion about which level of government is responsible for what. The surveillance of infectious diseases was previously maintained by Directorate General for Communicable Disease Control of the Ministry of Health. Under decentralization, some programs have essentially been discontinued because of lack of uptake by districts. The inadequacy of facilities and limited budget are also significant constraints on infectious disease surveillance and control.

Improvement in Progress

To improve the situation, the government, led directly by the President, is currently conducting campaign to regain enthusiasm in maintaining health status, including

activities related to surveillance and control of infectious diseases. The campaign has called for participation of all government organizations, NGOs, private sector, as well as community based. Special program to re-vitalized POSYANDU has been launched. Posyandu is a community based initiative, run by member of community, usually mothers, to provide integrated service and monitor the health of children under five within a cluster of households. For some years, this successful initiative has been neglected by lack of attention from district authority.



Another improvement is rationalizing the decentralization in health sector. These include:

- Re-defining roles and relationship of different government levels in surveillance and communicable disease control,
- Establishing regulation on minimum standard of services that districts must provide in which communicable disease control is included, and,
- Securing funding for CDC program under newly introduced performance budgeting system.

The government also keeping their global commitment including to the Global Polio Eradication Initiative, spearheaded by WHO, Rotary International, the US CDC, and UNICEF. Networking and partnership with international, national, and local NGOs is continuously strengthened.

Lessons Learnt

This year, for the first time ever, the number of polio cases in endemic countries is lower than those in previously polio-free countries. Almost 400 cases in endemic countries, compared to more than 700 cases in re-infected countries. This highlights the fragility and continuing risk to population in polio-free areas. Therefore, the lesson to learn is: