

# CONTROL OF HIGHLY PATHOGENIC AVIAN INFLUENZA (HPAI) AT SOURCE IN MALAYSIA

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ADIA RAZEE

## Bird flu outbreak in Kelantan contained, no known human infections: Minister

By Melissa Oon Posted 09 Mar 2017 12:06



The photo of chickens kept in a cage waiting to be sold at a market in Kuala Lumpur, as Malaysia reported an outbreak of a highly contagious H5N1 bird flu virus in the northern part of the country, the World Organisation for Animal Health (OIE) said on Mar 8, 2017. AFP PHOTO/Jaret Lau

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KUALA LUMPUR: Malaysia's health minister said on Thursday (Mar 9) that the outbreak of the highly contagious H5N1 bird flu virus in the country was contained in the northern tip of Kelantan and that there was no report it had spread to human beings.

"It is still limited to poultry stock and within the area affected, there is no report it has spread to other places," Dr S Subramaniam said.

The strain of avian flu was confirmed among chickens at a backyard farm in Kelantan, according to a report by the World Organisation for Animal Health (OIE) on Wednesday.

More than a thousand poultry birds have been culled within a 2km radius of the affected areas.

The H5N1 strain - which is different from the H7N9 virus that has killed at least 110 people in China this winter - has also been detected in Cambodia in recent weeks.

As a precaution to ensure the containment of the virus' spread, the health minister urged the veterinary service department to tighten checks at borders with Thailand.

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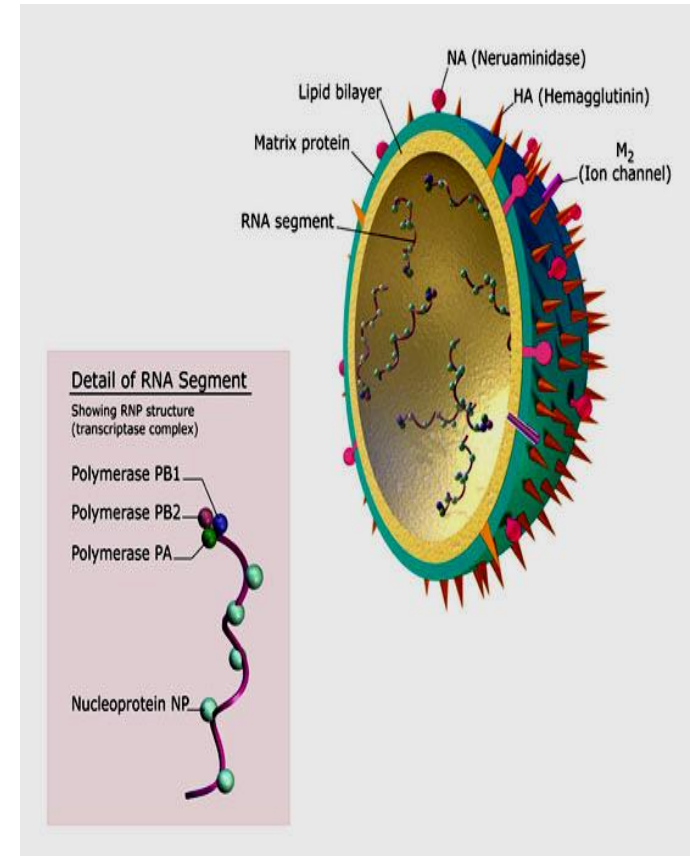
# AVIAN INFLUENZA

RNA, species of influenza A virus.

Genus: Influenzavirus A and

Family: Orthomyxoviridae

- Zoonotic and listed as notifiable disease in Malaysia
- Occur naturally among wild aquatic birds worldwide and can infect domestic poultry and mammals.
- Classified as Low and Highly pathogenic avian influenza (HPAI)
- Subtypes based on surface protein hemagglutinin (HA) and neuraminidase (NA)
- At present there are at least **17 H** and **9 N** distinct subtypes.



# HISTORY OF HIGHLY PATHOGENIC AVIAN INFLUENZA

- “Fowl plague’ was first reported in Italy in 1878
- has been recognized as a highly lethal viral disease of poultry since 1901.
- In 1955, it was discovered that the virus causing Fowl Plague was influenza virus
- Current outbreaks started in 2004 in South Asia
- Impact of AI in poultry industry has increased
  - 23 million birds were affected between 1959 and 1998
  - over 200 million from 1999 to 2004
- 1997: In Hong Kong HPAI caused serious disease in both people and poultry
  - 18 human cases were recorded with 6 fatal cases
- 2003 and 2004 - has spread from Asia to Europe and Africa.

# HISTORY OF HPAI H5N1 IN MALAYSIA.

HPAI H5N1 was first encountered in Pasir Pekan, Kota Bharu Kelantan.

19 August 2004

Second outbreak of HPAI H5N1 in WP, Penang and Perak states.

19 Feb 2006

Another outbreak of HPAI in Paya Jaras, Sg Buluh Selangor.

5 June 2007

Outbreak in Kelantan.

28 Feb 2017

Outbreak in Sabah

Ogos 2017



# HPAI IN P. MALAYSIA

HPAI OUTBREAKS DISTRIBUTION 2004-2007

2. 2006 outbreaks in state of Penang, Perak and WP Kuala Lumpur.

1. 2004 outbreaks (17 Aug-19 Nov), 5 districts in state of Kelantan (Thai, Viet)

4. 2017 Outbreak (28 Feb 2017), 6 district in state of Kelantan

4. 20 Mac 2006  
Permatang Bogak, Penang  
Mort: 6/20 vil.chic. (Thai, Viet)

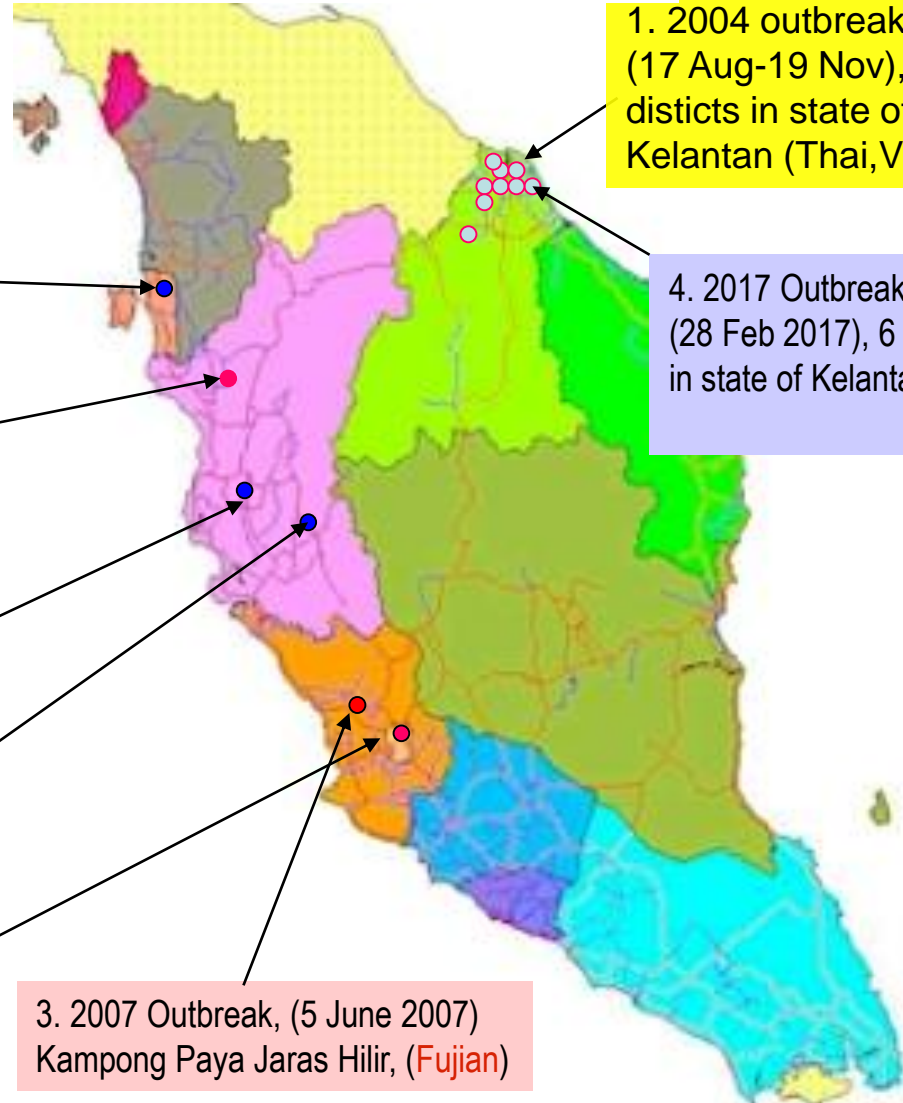
3. 16 Mac 2006  
Bukit Merah, Perak  
Virus Isolation (Fujian)

5. 21 Mac 2006  
Titi Gantong, Perak  
Virus Isolation (Thai, Viet)

2. 16 Mac 2006  
Changkat Tualang, Perak  
Mort: 9/20 vil.chic. (Thai, Viet)

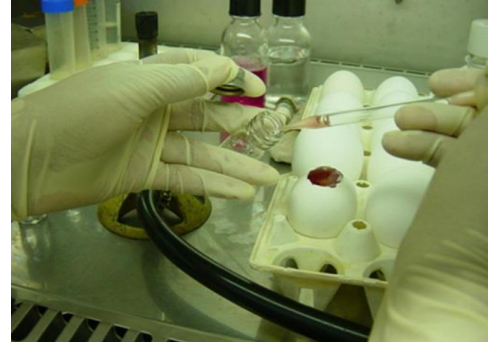
1. 19 Feb 2006  
Pasir Wardieburn, WP  
Mort: 40/150 vil.chic. (Hunan)

3. 2007 Outbreak, (5 June 2007)  
Kampong Paya Jaras Hilir, (Fujian)



# POLICIES ADOPTED IN HANDLING HPAI OUTBREAKS

- serious impact – animal and human health.
- strong commitment from national government to control the disease at source
- Unfortunately - affected developing nations are unable to realize the commitment and translate it into effective control and eradication activities
- Reasons for this failure are
  - lack of resources including finance and manpower
  - insufficient law
  - regulation and its enforcement and poor veterinary service especially in diagnostic and early response.



# LAWS AND REGULATIONS.

- Ministerial Functions Act, 1969
- **Animals Act, 1953 ( Revised - 2006)**
  - **Section 31 (4)(a) states that “Any person who fails without reasonable excuse to make any report required for any animal infected with or reasonably suspect to be infected with disease to the Veterinary Authority shall be liable to a fine of RM 25,000”.**
- Veterinary Surgeons Act, 1974
- Abattoir (Privatisations) Act , 1993
- Feed Act, 2009
- Animal Welfare Act 2015
- Others: State enactment, Ordinance, Rules, Regulations etc.

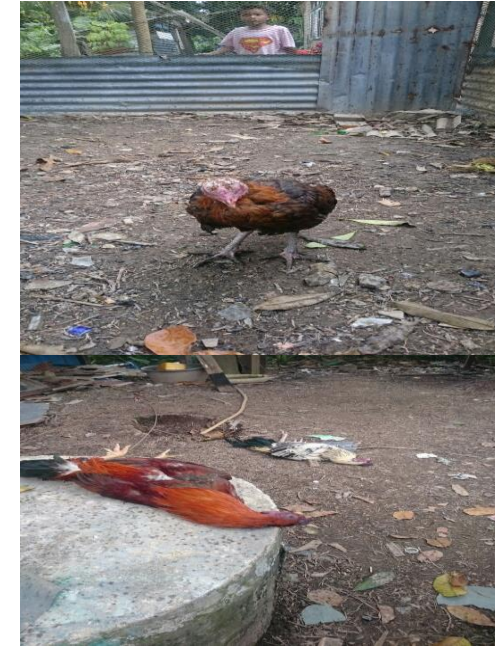
# HPAI CONTROL AND ERADICATION POLICY

Parameters	Policy
<b>Control/Eradiation method</b>	Stamping out and disinfection
Case definition	Detection of HPAI virus subtype H5 or H7 (w/wo CS) in domesticated chickens, ducks and birds
<b>Confirmation test</b>	RT-PCR conducted by Veterinary Research Institute, Ipoh
<b>Compensation</b>	Commensurate and timely compensation (poultry, ducks, birds, eggs)
Infected Premise (IP)	Premise that confirmed HPAI
<b>Protected/control zone</b>	1 km radius around the Infected Premises (IP) (stamping out)
<b>Surveillance zone</b>	9 km radius around the control zone.
Free zone	Other areas declared as free zone
<b>Surveillance strategy</b>	SZ = intensive clinical and virological (2X) within 42 days FZ = active/targeted (clinical and virological (2X per year) and passive surveillance
Freedom declaration	3 months after final disinfection
Vaccination	Prohibited



# 2017 WAVE

- 28 Feb 2017
  - free ranging village chickens (backyard), freely roam around the owner's house area during the day and night.
  - Kampung Pulau Tebu, Tunjung, Kota Bharu, Kelantan.
  - was taken by a private vet to Regional Veterinary Laboratory (RVL) in Kota Bharu
- Clinical signs
  - swollen face, loss of appetite, bluish or purplish discoloration of head.
  - 16 out of 26 chickens were death.
- Laboratory finding
  - samples were sent to VRI
  - positive to AI H5N1 virus.by RT PCR on 6 March 2017.
  - Sequencing shows HPAI virus HA Clade 2.3.2.1c, which is closely related to Vietnam strain.



# STAMPING OUT OPERATION

- Subsequent the confirmation by VRI, **the crisis management and operation room were activated.**
- All teams (including RAT team, culling, compensation, enforcement, disinfection, destruction and logistic) were assembled immediately.
- Inter agency cooperation (MOH, APM, Police, Local government etc.)
- On the night of the 6 March 2017 **culling and disinfection** was commenced in the infected premise and within 1 km radius.
- Immediate Notification Report was submitted to OIE on 8 March 2017.
- Culling and disinfection operation were completed on 31 Mac 2007.
- A total of 56,961 birds and 17,531 eggs were destroyed, involving a total of 1,243 premises
- The farmers were compensated after the completeness of culling.Total compensation paid was RM413,004, 60.



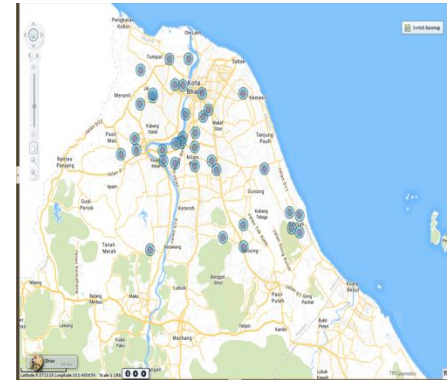
# CONTAINMENT MEASURES

- While active stamping-out was taking place in IZ, it was crucial to prevent AI H5N1 virus from being smuggled out.
- Twenty-four hours operated roadblocks at 4 exit roads were established with the cooperation of Police personnel.
- At the same time vehicles leaving the IZ were disinfected with veridical solution
- A total of 30,334 vehicles were inspected and 288 of birds have been confiscated.



# INTENSIFIED ACTIVE SURVEILLANCE (TWO ROUNDS)

- conducted in SZ within 10 kilometer radius from the outbreak foci
- clinical observation and collection of cloacae swabs samples for virological test.
- Objective of the surveillance are:
  - To detect HPAI infection beyond IZ
  - To prove HPAI infection is well contained in IZ
  - To prove the one kilometer radius for IZ is a valid policy
  - To prove SZ is free of HPAI infection evidence
- A total of 36 cases were detected with 130 birds deaths involving 6 districts (Kota Bharu, Pasir Mas, Bachok, Tumpat, Pasir Puteh and Tanah Merah).
- There was no new cases was detected after 26 February and manage to contain the disease within 24 days
- Post outbreak surveillane to prove country freedom – 2x surveillance within 42 days in the SZ and in the FZ
- A total of 5038 cloacae were collected and tested – negative for HPAI.



# RESULT OF INTENSIVE SURVEILLANCE TO PROVE HPAI INFECTION IS WELL CONTAINED AND FOR COUNTRY FREEDOM.

## ACTIVE SURVEILLANCE IN SURVEILLANCE ZONE (FIRST ROUND FOR POST OUTBREAK) FROM 1 MAY TO 31 MAY 2017

BIRD GROUP	NUMBER OF BIRD SAMPLED IN DISTRICT OF KELANTAN STATES							Results
	Kota Bharu	Pasir Mas	Pasir Puteh	Bachok	Tanah Merah	Tumpat	Total	
Village Chickens	252	5	435	145	170	20	1027	Negative for AI Virus
Ducks	15	0	30	20	25	0	90	Negative for AI Virus
Others	56	0	0	25	15	0	96	Negative for AI Virus
<b>Total</b>	<b>323</b>	<b>5</b>	<b>465</b>	<b>190</b>	<b>210</b>	<b>20</b>	<b>1213</b>	

## ACTIVE SURVEILLANCE IN SURVEILLANCE ZONE (SECOND ROUND FOR POST OUTBREAK) FROM 1 JUN TO 30 JUN 2017

BIRD GROUP	NUMBER OF BIRD SAMPLED IN DISTRICT OF KELANTAN STATES							Results
	Kota Bharu	Pasir Mas	Pasir Puteh	Bachok	Tanah Merah	Tumpat	Total	
Village Chickens	618	990	255	385	176	820	3,244	Negative for AI Virus
Ducks	70	55	55	50	0	35	265	Negative for AI Virus
Others	179	30	20	30	7	50	316	Negative for AI Virus
<b>Total</b>	<b>867</b>	<b>1075</b>	<b>330</b>	<b>465</b>	<b>183</b>	<b>905</b>	<b>3825</b>	

# EPIDEMIOLOGY FINDING

- There are 1 strains of HPAI H5N1 causing the disease, namely; Vietnam.
- All outbreaks involved village chickens in villages that are far away from commercial poultry production
- One kilometre radius of Infected Zone where by all birds are culled (efficiently) is sufficient to contain the HPAI H5N1 virus from spreading to outside of the zone together with implementation of other containment measures such as disinfection and roadblocks
- Illegal introduction of contaminated poultry products from affected countries are one the important risk for reoccurrence of the disease in Malaysia

# ISSUES /CHALLENGES

- Limited frontline staff in Kelantan, need to be deployed from other states.
- Transportation of samples to national reference laboratory in VRI, Ipoh because of distance (350 km)
- Insufficient budget in emergency situation.
- Insufficient capabilities of regional laboratories in Kelantan to do the diagnosis of AI at the early stage of outbreak.
- Difficulty in getting cooperation from the farmers during the outbreak
- Border controls are generally weak will lead to illegal movement of birds from neighboring country.

# **BENEFITS OF CURRENT NATIONAL PREVENTION AND CONTROL MEASURES**

- Stamping out was found to be an effective method in controlling and eradicating avian influenza in Malaysia,
- Cost effective if the outbreaks can be identified at very early stages.(time factor is crucial in this control plan to prevent the spread)
- One health approached (Integrated inter-agency collaboration between DVS, MOH, RELA, APM and local governments).
- Improve the awareness, emergency preparedness and early detection of Notifiable Avian influenza.
- Improve the capacity and capability of avian influenza diagnosis at Kota Bharu Regional Veterinary Laboratory.



# POSSIBLE IMPROVEMENTS

- Restructuring of the village chicken system through farm registration.
- Public awareness campaigns need to be upgraded and run continuously
- Strengthening border and entry points control and monitoring – together with other enforcement agencies(MAQIS, PDRM, Customs and UPP
- Control poultry movement between district through e-permit system.
- Increase active surveillance in areas bordering Thailand especially for village chicken and "good chicken".
- Develop the cooperation with Village Chicken farmer Association and chicken competition organizer for animal movement and disease monitoring purposes.
- Improve biosecurity measures for chicken farms especially from hygiene and hygiene management.
- Improve the regional veterinary laboratory capability and capability in avian influenza virus detection.

# CONCLUSION

- Malaysia proves that the HPAI outbreak can be eradicated and complied with OIE Terrestrial Standards.
- DVS capabilities in the control and eradication of the HPAI outbreak have increased using existing policies (stamping out).
- Opportunities for threats and recurring risk of epidemics are still present as neighbouring countries are still not free of HPAI.

THANK YOU

..... *For your attention*