衞生防護中心
Centre for Health Protection

HEALTH TALK on

Understand Seasonal Flu, Human Swine Flu and Hand-foot-mouth Diseases

Infection Control Branch of
Centre for Health Protection

December 2009

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1. Seasonal Flu
2. Human Swine Flu
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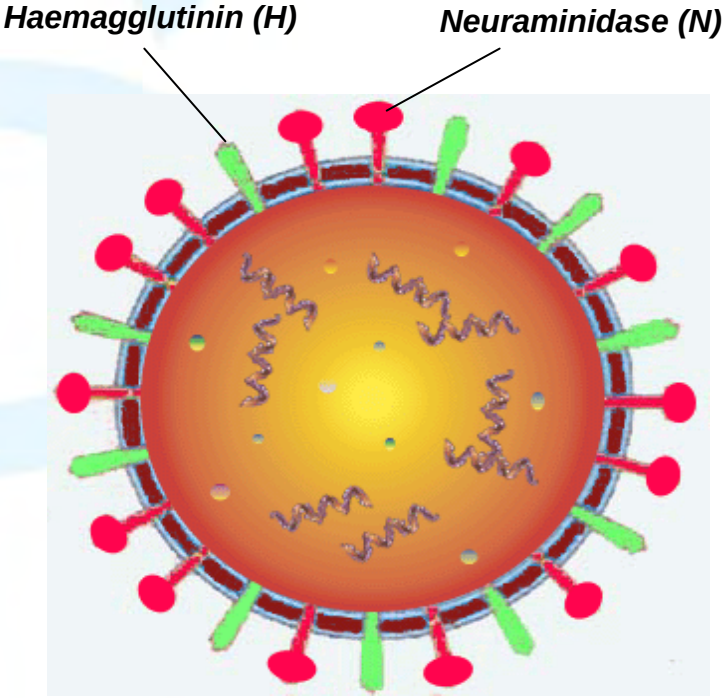
Influenza (Flu)

- Three types of virus: A, B & C
- Subtypes depend on the surface antigens: haemagglutinin (H) & neuraminidase (N)
- Resulting in H1N1, H3N2, H5N1 influenza etc



Single-strand RNA with 8 gene segment

The influenza Virion

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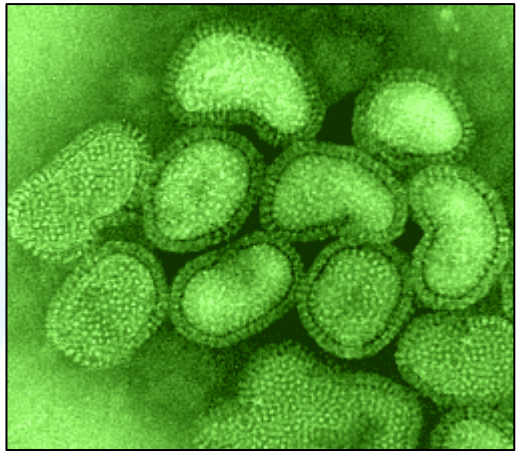
Human Influenza

- **Typical Incubation period:** around 2–4 days

- **Symptoms:**
  - fever,
  - headache,
  - myalgia (muscle pain),
  - running nose,
  - cough, and
  - sore throat.



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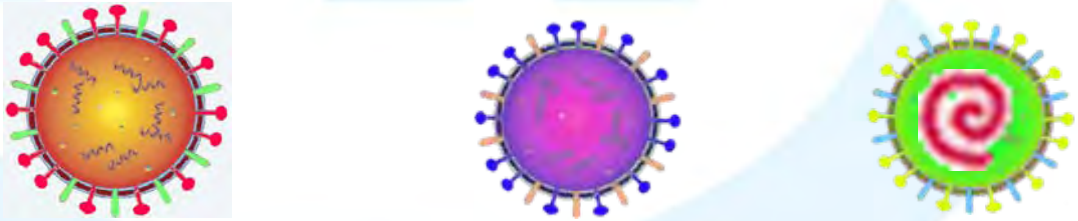
Route of transmission

- Droplet transmission(>5um), within 1 meter
- Droplet nuclei generated during coughing and sneezing

Why we cannot have life long immunity after influenza infection?

- Antigenic drift → seasonal influenza
- Seasonal outbreaks of influenza due to influenza viruses from time to time give rise to new varieties, In other words, each year, a slight change in influenza virus, and to generate new viral strains.
- Minor variations of these viruses would lead to the outbreak of seasonal influenza



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Seasonal influenza – Management

•Infected persons should take adequate rest and drink plenty of water.

•Supportive treatment can relieve symptoms.

•Antiviral agents can reduce the severity and duration of illness but must be used under doctor's prescription and given in the early stage of illness.

•Antibiotics are unnecessary unless influenza is complicated by bacterial infection.

•If symptoms persist, one should consult a doctor.

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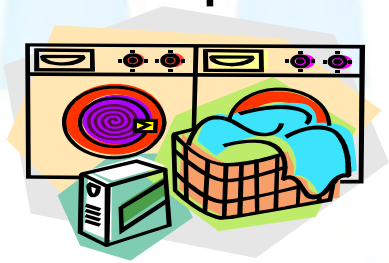
Seasonal influenza – Prevention

Build up body resistance helps to prevent influenza infection.

- **Observe personal hygiene**
- **Observe environmental hygiene**
- **Vaccination**

There is effective influenza vaccine to prevent influenza and its complications.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Why do we need seasonal flu vaccination?

- Influenza virus is very easy to spread by coughing or sneezing.
- Influenza virus in contact with the objects after we touch our mouths, noses or eyes.
- No symptoms prior to contagious
- Influenza vaccine is the most effective way in preventing seasonal influenza and its complications

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Seasonal Flu Vaccine

- Consists of three inactivated influenza vaccine:
  - An Influenza A (H1N1) influenza virus
  - An Influenza A (H3N2) influenza virus, and
  - A kind of influenza B virus

Who should be vaccinated?

1. elderly home residents
2. the long-term disabled residents
3. 65 years of age or above
4. long-term illnesses
5. health care workers
6. poultry workers
7. children aged 6 months to 5 year old
8. pregnant women

Seasonal Flu Vaccine

- After vaccination, it takes two weeks to be effective.
- Inactivated vaccine is manufactured by dead virus.
- Inoculation of inactivated influenza vaccine will not cause influenza.

Side effects of vaccine

- Redness or mild pain at the vaccination site appears 6-12 hours after injection and lasts for the 1-2 days(15-20%)
- Others:
  - Fever, fatigue, and muscle pain (1-10%)
- Fatal complications are rare.

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Human Swine Influenza (H1N1)

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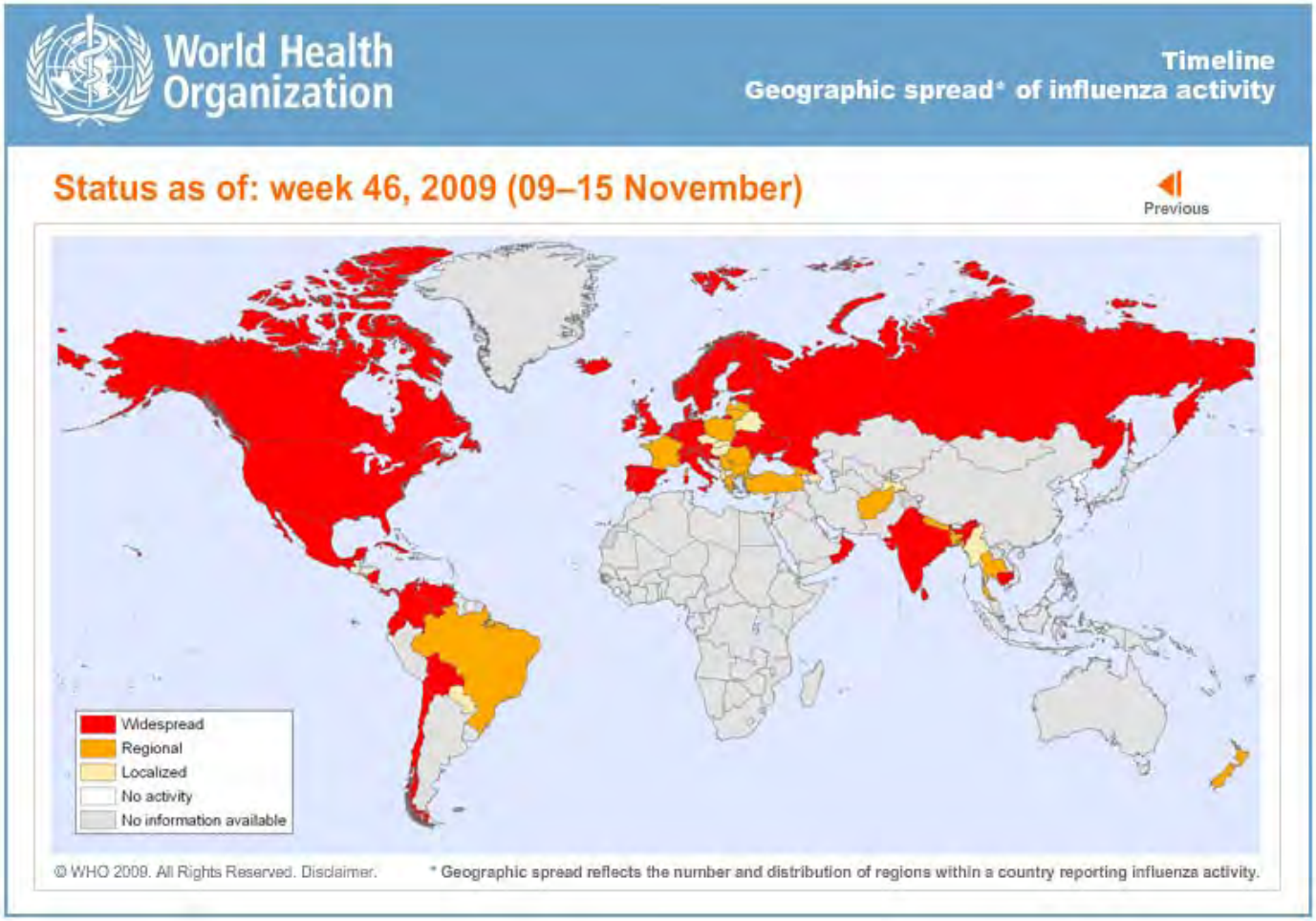
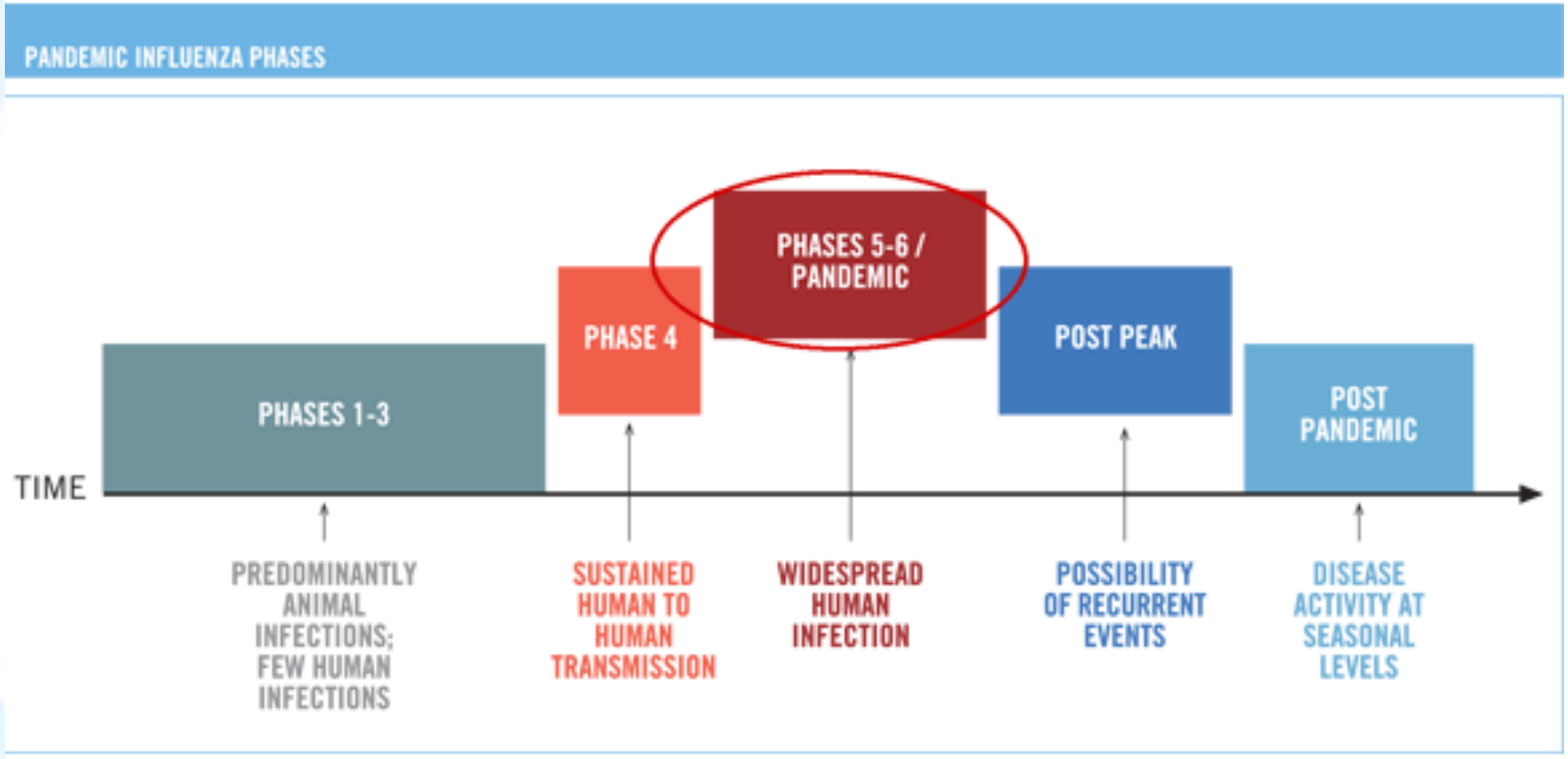
Global Situation



WHO declared pandemic alert phase 5 on 29 Apr 2009

WHO named the virus as influenza A (H1N1) virus on 1 May 2009

Pandemic Alert Level phase 6



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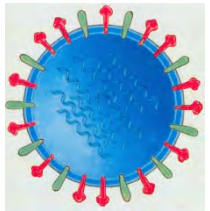
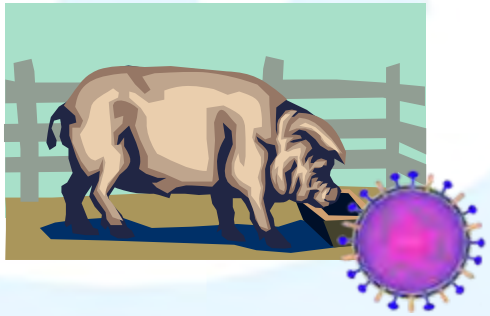
Human Swine Flu

- Originally known to circulate among pig populations, the swine flu viruses do occasionally infect human beings.
- Human-to-human transmission has occurred.
- Human beings have no immunity to humans swine influenza, so it can spread rapidly especially among children and adolescence.

預防人類豬型流感
Prevention of Human Swine Influenza





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Global Situation (as of 20th Nov)

District	Cases	Death	Case Mortality Rate
WHO Regional Office for Africa (AFRO)	15503	104	0.67%
WHO Regional Office for the Americas (AMRO)	190765	5360	2.81%
WHO Regional Office for the Eastern Mediterranean (EMRO)	38359	330	0.86%
WHO Regional Office for Europe (EURO)	Over 154000	At least 650	0.42%
WHO Regional Office for South-East Asia (SEARO)	47059	738	1.57%
WHO Regional Office for the Western Pacific (WPRO)	176796	644	0.36%
Total	Over 622482	At least 7826	1.26%

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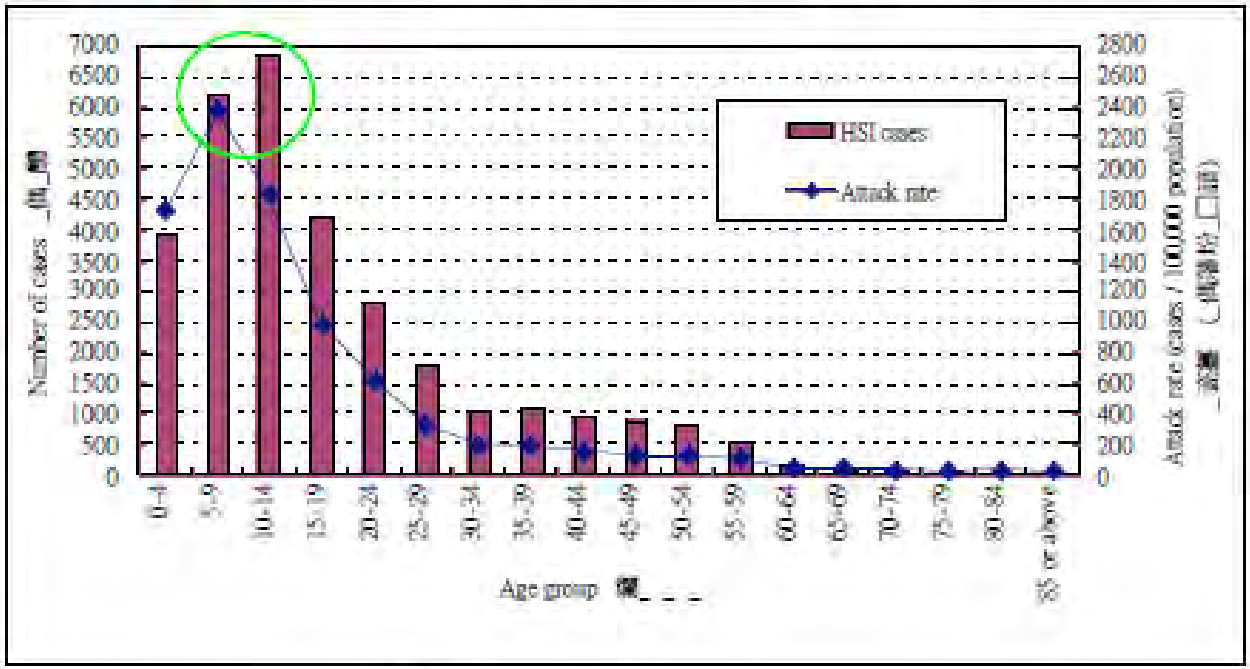
Basic Reproduction Number Ro

Diseases	Transmission Route	Ro
Measles	Airborne	12-18
SARS	Airborne droplets	2-5
1918 Pandemic	Airborne droplets	2-3
1968 HK Flu	Airborne droplets	1.89
H1N1HSI	?Droplets	1.3-3.3
Avian Flu	Droplets	1.3
Seasonal Flu	Droplets	1.3

Secondary attack rate 22-33% (c.f. 5 – 15% for seasonal flu)

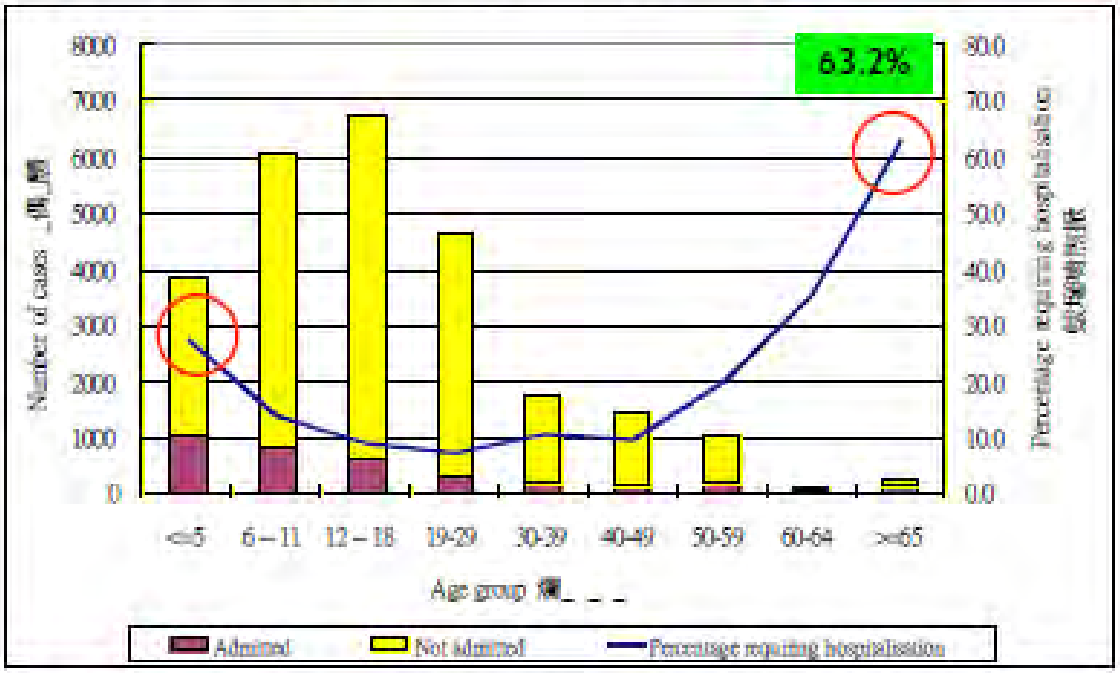
May increase in second and subsequent waves

Age distribution & age-specific attack rates of HSI cases (May 1 – Nov 3)



< 20 years old: 70.0%
< 30 years old: 81.4%
65 years or above only 1.13%

Age distribution of HSI cases & percentages requiring hospitalization*



Overall percentage of cases requiring hospitalization was 13.9%

*For cases confirmed between June 27 & Sep 27 (during mitigation phase and before change of testing strategy)

Human Swine Flu Symptoms

The symptoms of human swine influenza are usually similar to those of human seasonal influenza and include

- fever,
- cough,
- sore throat,
- runny nose,
- muscle pain and
- headache.
- Some people infected with swine flu may also have vomiting and diarrhoea.

Human Swine Flu - Mode of transmission

- Human-to-human transmission of swine flu is thought to occur in the same way as seasonal flu is spread among people
  - mainly through coughing or sneezing.
  - People may also become infected by touching objects soiled with flu viruses and then touching their mouth, nose or eyes.
- Infectious Period
  - It is presumed that as with seasonal influenza virus, a person may infect another person 1 day before symptoms start, and up to 7 days after becoming sick.
  - This can be longer in some people, especially children and people with weakened immune systems.
  - People with swine flu virus infection should be considered contagious for as long as they show symptoms.

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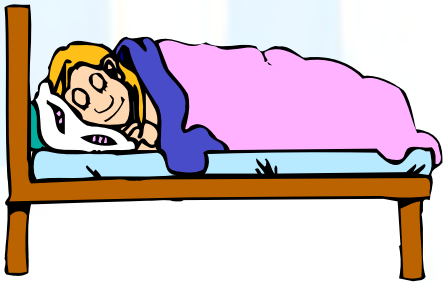
Human Swine Flu – Prevention

- Should have symptoms of respiratory tract infection or fever, you should wear mask and seek medical advice.
- Do not go to work or school if you develop influenza-like symptoms.
- Get HSI vaccination.



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Human Swine Flu – Vaccination

- The Government will provide human swine influenza vaccine to five target groups :
  1. healthcare workers;
  2. persons with chronic illnesses and pregnant women;
  3. children between the age of 6 months and less than 6 years;
  4. elderly persons aged 65 years or above; and
  5. pig farmers and slaughterhouse workers.

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- Local expert warns the second wave pandemic in coming Spring

袁國勇警告明春大爆發

港大微生物學系系主任袁國勇（見圖）估計，本港有三十萬至五十萬人感染豬流感，但大部分市民仍沒有抗體，若不接種豬流感疫苗，明年一至三月會大爆發，且疫情嚴重。他建議高危病人接種豬流感疫苗，因接種後患上嚴重併發症機會低於百萬分之三，但豬流感的死亡率是千分之一，「你問我打不打，我一定打！」但他承認一歲以下小童免疫系統發育未成熟，接種效果成疑。

倘變種「冬天死很多人」

袁國勇昨日說，即使本港有一百萬人感染豬流感，仍有六百萬人沒有抗體，「除非接種疫苗，否則冬天豬流感會大爆發。三百萬劑豬流感針快到港，若市民接種，爆發不會很嚴重，但若接種率差，會很嚴重。」他預計，本港會在明年一至三月出現豬流感大爆發，已經與衞生防護中心總監曾浩輝討論，學校的新年和復活節假需要作彈性安排，若延長假期，便要縮短暑假。

他提醒市民不要看輕豬流感，季節性流感病毒只在人的鼻腔找到，但豬流感病毒病在鼻腔、肺和氣管也找到，一旦變種，「冬天可以死很多人……美國最初不擔心，現在買得最多豬流感針的是美國。」他又說，最可怕的傳染病，是同時感染流感和社區抗藥性金黃葡萄球菌，本港首名豬流感死者便同時感染該兩菌。

「你問我打不打，我一定打」

至於疫苗的安全，他說豬流感針於數千人身上做了測試，美國亦已爲二千萬人接種，並無嚴重併發症。美國三十三年前爲一百萬人打豬流感針，有十至二十人患上令人癱瘓的吉－巴氏綜合症，是次接種後患上該病機會低於百萬分之三，但豬流感的死亡率是千分之一，「你問我打不打，我一定打！」他認爲高危人士包括長者、小童和長期病患者應打豬流感針，但一歲以下小童免疫系統發育未成熟，又未感染過流感，疫苗成效未明。

記者 胡幗欣

Human Swine Flu – Vaccination

- **Aged from 6 month up to 3 years**
  - 0.25ml intramuscular injection x 2 doses, at least 3 weeks apart
- **Aged from 3 years up to 8 years**
  - 0.5ml intramuscular injection x 2 doses, at least 3 weeks apart
- **Aged 9 years up**
  - 0.5ml intramuscular injection x 1 dose

Hand-foot-mouth disease

EV71強勁母子同中招

【本報訊】EV71型腸病毒今年特別強勁，一名就讀早前爆發手足口病停課的建生浸信會白普理幼兒園的兩歲男童，證實感染EV71，男童任職青山醫院精神科病房護士的母親，早前亦因感染EV71而休假。

日出現咳嗽、流鼻水、腳部出現皮膚紅疹及口腔潰瘍，同日向屯門醫院求診，情況穩定，化驗報告顯示糞便樣本對EV71呈陽性反應。

與男童同住的外祖父母並無出現病徵，但男童的拼四歲母親早前

幼園手足口病須停課

【本報訊】屯門建生浸信會白普理幼兒園爆發手足口病超過兩星期，但未能完全受控，昨日仍有新增感染個案，先後已有13名學童及一名家長感染，其中兩名學童及一名家長證實染上EV-71型腸病毒（圖），衞生防護中心建議校方由今日起停課兩周，進行徹底消毒。

日出現手足口病病徵後，傳染給29歲的母親，兩人曾向私人醫生求醫，母須入院，化驗結果證實母女二人均感染EV-71型腸病毒。

衞生防護中心發言人表示，由於該校昨日再有一名五歲男童出現手足口病徵狀，校方雖已加強感染控制措施，但爆發情況仍然持續，故建議該校今日起停課兩周至本月16日，以便徹底消毒。該中心總監曾浩輝日前指手足口病已提前爆發，預料今年EV-71腸病毒個案會較多，至今已有11宗個案。

徹底消毒

該校於上月16日至30日期間，已有12名學生感染手足口病，當中兩人證實感染EV-71型腸病毒，其中一名兩歲女童在上月25

兩歲童染EV-71 今年第十四宗

衞生防護中心證實今年第十四宗EV-71型腸病毒感染個案，患者是一名兩歲男童，就讀因爆發手足口病而正在停課的屯門建生浸信會白普理幼兒園，其母親亦出現手足口病徵狀，已於上周五證實感染EV-71型腸病毒，兩人均向屯門醫院求診，母須留院，情況穩定。

衞生防護中心昨日公布，該男童於上月二十七日出現咳嗽、流鼻水、腳部出現皮膚紅疹和口腔潰瘍徵狀，即日向屯門醫院求醫，化驗顯示其糞便樣本對EV-71型腸病毒呈陽性反應。中心表示，其三十四歲母親較早前亦曾出現手足口病徵狀，並爲EV-71型腸病毒確診個案，與男童同住的外祖父母並無病徵。

母親亦確診染病

不過，該中心上周五公布男童母親確診感染EV-71型腸病毒時，指她於上月三十日才出現病徵，較兒子遲三天，並表示她的家人並沒有感染EV-71型腸病毒的徵狀。衞生署解釋，男童初期的病徵並不明顯，故未能確診染上該病毒，至其母確診後，男童的糞便才證實有病毒。

衞生防護中心呼籲市民提高警覺，預防感染。該中心於二〇〇六、〇七和〇八年分別錄得十六、十二和九十八宗EV-71型腸病毒感染個案。

本報記者

13童手足口病 屯門幼園停課

【本報訊】位於屯門的建生浸信會白普理幼兒園，先後有13名學童患上手足口病，當中有兩人確診為腸病毒71型（EV71），更有學童將病毒傳染給母親，幼兒園須停課兩周，徹底清潔。

2確診EV71 1病毒傳母親

衞生防護中心指出，該校在上月16至30日期間，有12名學生出現手足口病徵狀，當中兩人確診感染可致命的腸病毒71型，包括一名兩歲男童，以及一名在上月25日發病的女童，其中女童的29歲母親，上月29日亦有類似病徵，至昨日亦證實染腸病毒71型。

該3名確診者曾經求診私家醫生，但毋須入院，目前情況穩定。

停課2周至16日 徹底消毒

防護中心上月23及30日曾往該校，校方已根據建議加強校內清潔，但校方昨日再有一名5歲男童出現手足口病徵狀，他毋須入院，現時情況穩定。

由於再有新個案，防護中心建議該校今日起停課兩星期至本月16日，以便徹底消毒，並防止疾病進一步蔓延。

屯門建生浸信會白普理幼兒園爆發手足口病，校內13名學童染病，當中兩人確診腸病毒71型。（學校網頁圖片）

最近今年至今接獲11宗腸病毒71型個案，從06至08年則分別有16、12及98宗。fif

What is Enteroviruses?

Enterovirus group

- Polioviruseswith three types,
- Coxsackie viruses with 23 type A and 6 type B,
- Echoviruses with 31 types
- Enteroviruses 68 ~ 72 types
- EV 71 is the latest viruses found in group which has the highest morbidity and mortality especially in nervous system complications

What is a HFMD ?

Causative agent

- Hand, foot and mouth disease (HFMD) is a viral infection commonly seen in infants and children. It is usually caused by a group of viruses called Enteroviruses.
- The most common causative agent is Coxsackie virus A.
- Enterovirus 71 (EV 71) is also one of the causative agents for HFMD.
- Individual cases and outbreaks occur worldwide, more frequently in summer and early autumn.

What is a HFMD?
Mode of Transmission

Mode of transmission

- HFMD is transmitted from person to person by direct contact with nose and throat discharges, saliva, fluid from blisters, or the stool of infected persons

Incubation period is 3-7 days.

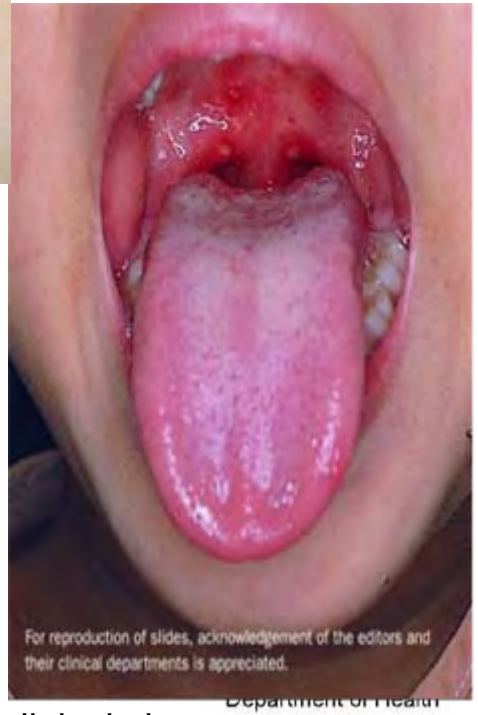
- The patient is contagious.
- The patient may not aware of his infectivity.

What is a HFMD?
Mode of Transmission

- The first week after onset is the highest contagious
- discharged patients will continue to shred the virus, so their faeces, nose and mouth secretions are still infectious
  - Enterovirus can sustainable in the patient's mouth and nose secretions up to 3 ~ 4 weeks
  - Virus shredding from gut can sustain as long as 6 to 8 weeks

Symptoms

- fever,
- sores in the mouth,
- a rash with blisters,
- poor appetite,
- Malaise,
- sore throat,



- Complications are very rare
- Rarely, EV71 may cause more serious diseases, such as encephalitis, or a poliomyelitis-like paralysis.

Acknowledgement to Paediatric Infectious Unit, HA Infectious Disease Centre for the clinical photos

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What is EV 71 infection?

- The first case was reported between 1969 to 1970 in California USA and a new enterovirus was found.
- Later outbreaks were reported in Taiwan, Singapore, Malaysia
- Among all types of enterovirus infection, EV71 infection has particularly serious complications in the nervous system.

EV 71 infection – mode of transmission

- Contact transmission: Contact transmission (Direct or Indirect)
- Enteroviruses are classified as non-envelop virus in virology, and are resistant to inactivation in environment
- An appropriate concentration of household bleaching agent is therefore required to disinfect them effectively

What is EV 71 infection?

- Symptoms:
  - Are not difference from typical hand-foot-month diseases
  - Prolong in feverish duration
  - Most of the patients recover uneventfully
  - A small group will have complications include viral encephalitis and polio-like symptoms
  - Present more complications than other infections caused by Enteroviruses
- High Risk Groups
  - Children under age of 5

EV 71 Infections

- Hand - foot - mouth disease
- Herpangina
- Acute hemorrhagic conjunctivitis
- Nervous system complications
  - encephalitis
  - aseptic meningitis
  - acute flaccid paralysis
  - myoclonic jerk
- Pulmonary edema and pulmonary hemorrhage

- Most infected cases are asymptomatic (around 50～80%）or mild flu-like symptoms, patient will develop immunity after recovery.

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When should we seek medical advice immediately?

- **Parents should seek medical advice if their children having HFMD developing the following symptoms after 7 days:**
  - Persistent and high fever >39 ^{o}C;
  - Drowsiness;
  - Weakness ;
  - Loss of appetite and low urine output;
  - Breathless;
  - Repeated vomiting;
  - Over sleepiness or irritable; or
  - Persistent and involuntary jerks.

Summary

- Seasonal influenza and Human swine influenza
  - Both vaccination and infection control measures can prevent spread
- Hand-foot-mouth disease and EV71 infection
  - Infection control measures are very important
- You can browse CHP website for up-to-date information at http://www.chp.gov.hk

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Thank You

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