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Central Asia Roundtable on Influenza

Almaty, 12-13 June 2006

Senior Officials' Meeting on

Central Asia Regional Economic Cooperation (CAREC)

10-11 April 2006, Urumqi

Yon Fleerackers, Infectious Disease Specialist

Why a CAREC initiative on influenza?

- Experts, the public & gov'ts are concerned
- In line with global plans (cfr. UN System Strategic Approach & Multidonor Financing Framework [WB], Jan. 2006)
- In line with multilateral initiatives (cfr. ADB Taskforce)
- Based on best practice in other regions (cfr. SE-Asia)
- Based on best practice from other major global health threads (SARS, HIV/AIDS)

UN System Influenza Coordination (UNSIC)

Dr. David Nabarro has been appointed as the UN System Influenza Coordinator. His tasks include developing and implementing a comprehensive unified strategy for the UN system on pandemic influenza prevention, preparedness and response and increase the effort to control avian influenza. The office will oversee the execution of this strategy and adapt the plan as the situation changes.

Not only will the responsibility be to ascertain that all countries or regions have a preparedness strategy but also that they have a contingency or response plan that is well-rehearsed in the event of a pandemic. This involves supporting the resident coordinators at the country level and the Governments. These plans will be readily accessible on this website.

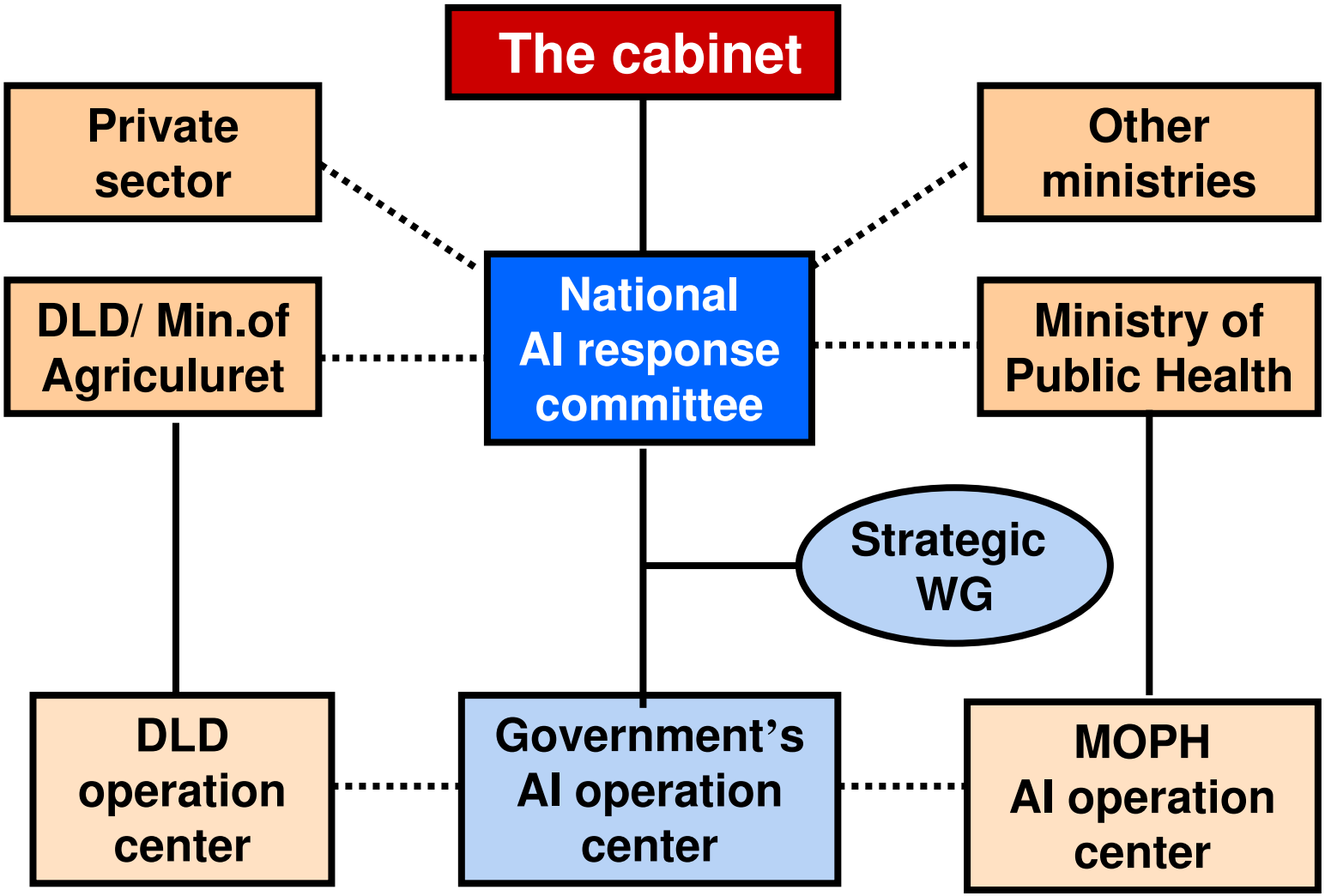
The office will monitor progress and ensure that communication

Inter-linked Interventions

Intervention areas

- Animal Health
- Human Health
- Governance and Rule of Law
- Economic and Social Systems
- Humanitarian and Relief
- Communication and Coordination

AI response coordination in Thailand at national level



Central Asia Roundtable

***Participating* (=CAREC):**

- Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan
- Russian Federation
- XUAR, PR China
- Afghanistan, Mongolia

Invited:

- International organizations
- Greater Mekong Sub-Region (e.g. Thailand)

Experts (human & animal health sector, coordination & communication)

& Senior officials

Institutional framework

- Intersectoral government co-ordination
  (agriculture, health, emergencies/ KAZ) ***-> endorsed 7 April***
- Interagency co-ordination (ADB, EC, UNSIC &
  3 UN agencies [*FAO, UNICEF, WHO*], USAID, World Bank)
  -> weekly teleconference meetings (27 March, 3 & 10 April)
- Conference Secretariat
  linked with technical working group & administrative support
  -> established 29 March

Chicken with flu … why should we be concerned? -> flu pandemic

1. Large outbreaks in wild and domestic poultry of H5N1 (Africa, Asia, Europe & Middle East)

   !!! now endemic in 3 countries

2. H5N1 continues to infect humans, with more than half of confirmed cases dying (Azerbaijan, Cambodia, China, Egypt, Indonesia, Iraq, Thailand, Turkey, Vietnam)

3. H5N1 may evolve/ mutate in influenza pandemic

Why concerned? -> flu pandemic

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3. H5N1 may evolve/ mutate in influenza pandemic

Avian influenza in animals and man
- Date of last update:
11 January 2006 (WHO, FAO, OIE)

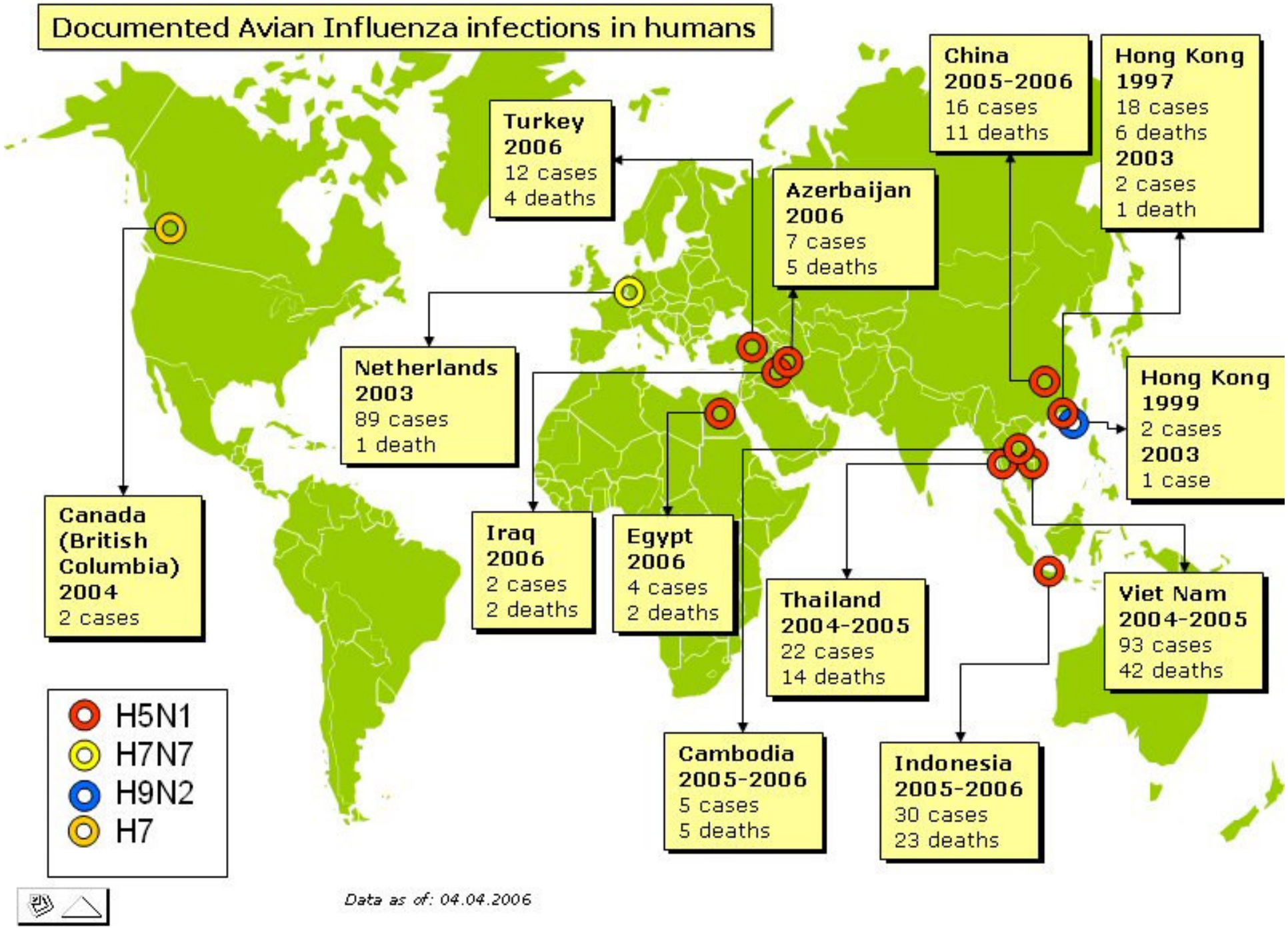
Why concerned? -> flu pandemic

1. Large outbreaks in wild and domestic poultry of H5N1 (Africa, Asia, Europe & Middle East)

   !!! now endemic in 3 countries

2. H5N1 continues to infect humans, with more than half of confirmed cases dying (Azerbaijan, Cambodia, China, Egypt, Indonesia, Iraq, Thailand, Turkey, Vietnam)

3. H5N1 may evolve/ mutate in influenza pandemic


Documented Avian Influenza infections in humans
Turkey
2006
12 cases
4 deaths
China
2005-2006
16 cases
11 deaths
Hong Kong
1997
18 cases
6 deaths
2003
2 cases
1 death
Azerbaijan
2006
7 cases
5 deaths
Netherlands
2003
89 cases
1 death
Hong Kong
1999
2 cases
2003
1 case
Canada
(British
Columbia)
2004
2 cases
Iraq
2006
2 cases
2 deaths
Egypt
2006
4 cases
2 deaths
Thailand
2004-2005
22 cases
14 deaths
Viet Nam
2004-2005
93 cases
42 deaths
Cambodia
2005-2006
5 cases
5 deaths
Indonesia
2005-2006
30 cases
23 deaths
H5N1
H7N7
H9N2
H7
Data as of: 04.04.2006

Cumulative nb of human cases of avian influenza (H5N1), 4 April 2006

Country	2003	2004	2005	2006	Total
Azerbaijan				7 (5)	7 (5)
Cambodia			4 (4)	1 (1)	5 (5)
China			8 (5)	8 (6)	16 (11)
Egypt				4 (2)	4 (2)
Indonesia			17 (11)	13 (12)	30 (23)
Iraq				2 (2)	2 (2)
Thailand		17 (12)	5 (2)		22 (14)
Turkey				12 (4)	12 (4)
Vietnam	3 (3)	29 (20)	61 (19)		93 (42)
Total	**3 (3)**	**46 (32)**	**95 (41)**	**46 (31)**	**191 (108)**

Why concerned? -> flu pandemic

1. Large outbreaks in wild and domestic poultry of H5N1 (Africa, Asia, Europe & Middle East)

   !!! now endemic in 3 countries

2. H5N1 continues to infect humans, with more than half of confirmed cases dying (Azerbaijan, Cambodia, China, Egypt, Indonesia, Iraq, Thailand, Turkey, Vietnam)

3. H5N1 may evolve/ mutate in influenza pandemic

Influenza Pandemics 20th Century

Credit: US National Museum of Health and Medicine

1918: "Spanish Flu"

20-40 million deaths

A(H1N1)

1957: "Asian Flu"

1-4 million deaths

A(H2N2)

1968: "Hong Kong Flu"

1-4 million deaths

A(H3N2)

Pandemics of Influenza virus

- 1918-19 Influenza A (H1N1)
  "Spanish flu"
- 1957-58 Influenza A (H2N2)
  "Asian flu"
- 1968-69 Influenza A (H3N2)
  "Hong Kong flu"
- 1977 Influenza A (H1N1)
  "Russian flu"

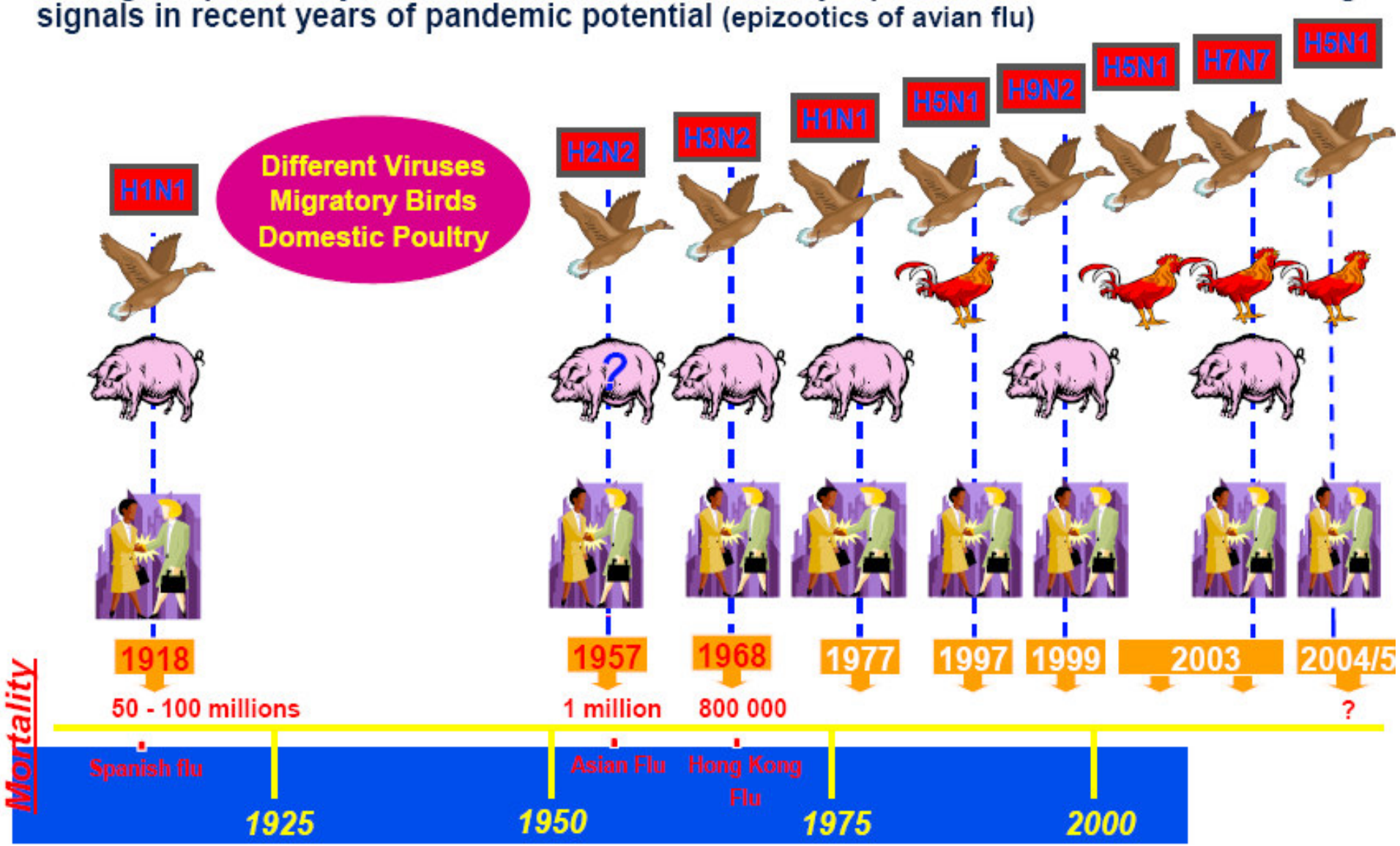
Avian Influenza Infections in Humans

- 1997 Hong Kong
  Avian influenza A (H5N1)
- 1998-99 China / Hong Kong
  Avian influenza A (H9N2)
- 2003 China / Hong Kong
  Avian influenza A (H5N1)
  Avian influenza A (H9N2)

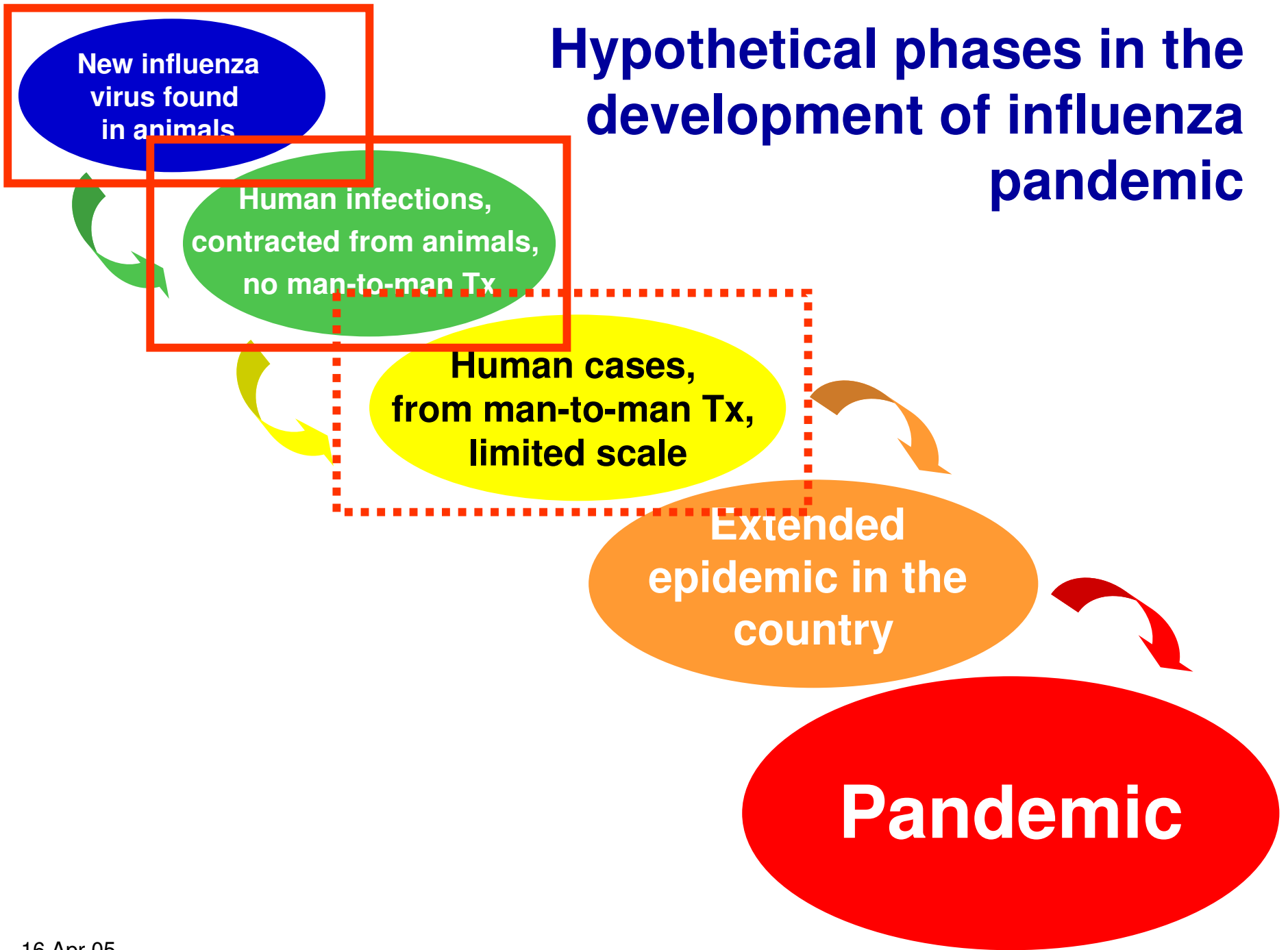
  Netherlands
  Avian influenza A (H7N7)

Why the Concern?

During the past 100 years, there have been three major pandemics, and there are strong signals in recent years of pandemic potential (epizootics of avian flu)



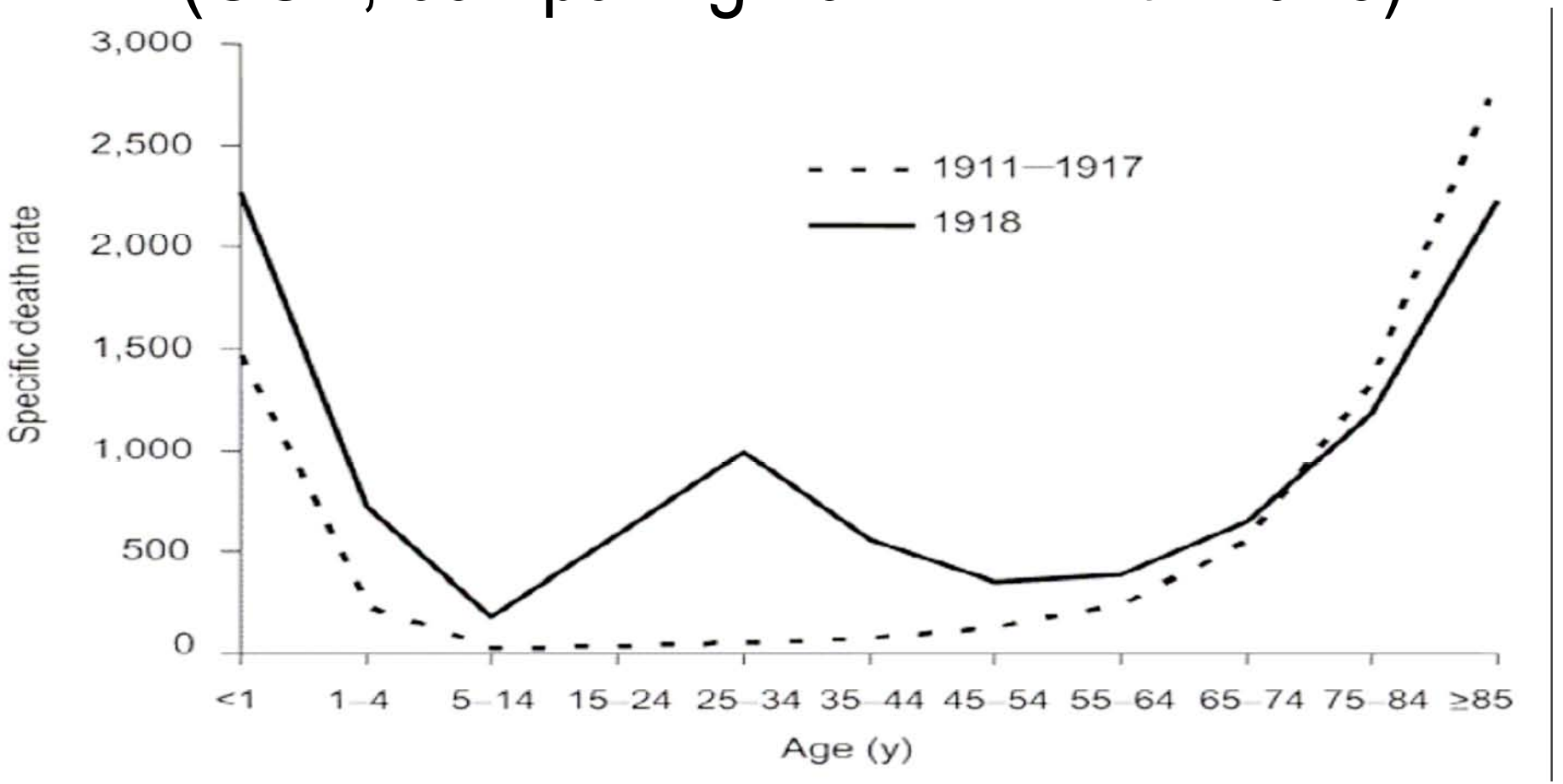
Hypothetical phases in the development of influenza pandemic



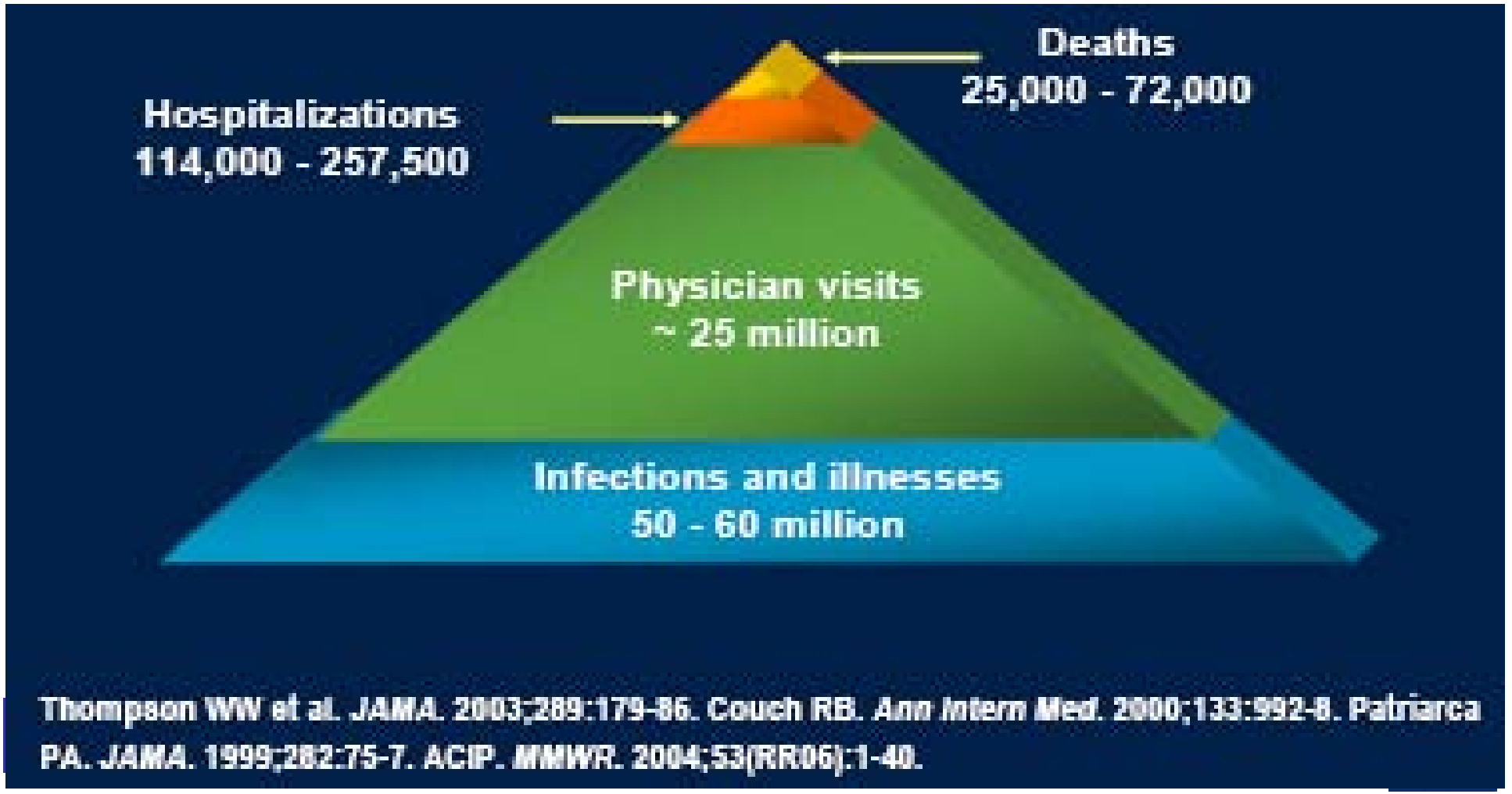
WHO pandemic scale

Inter-pandemic phase New virus in animals, no human cases	Low risk of human cases	1
	Higher risk of human cases	2
Pandemic alert New virus causes human cases	No or very limited human-to-human transmission	3
	Evidence of increased human-to-human transmission	4
	Evidence of significant human-to-human transmission	5
Pandemic	Efficient and sustained human-to-human transmission	6

Influenza & pneumonia mortality (USA, comparing 1911-17 with 1918)



Seasonal Influenza Disease Burden to U.S. Society In an Average Year



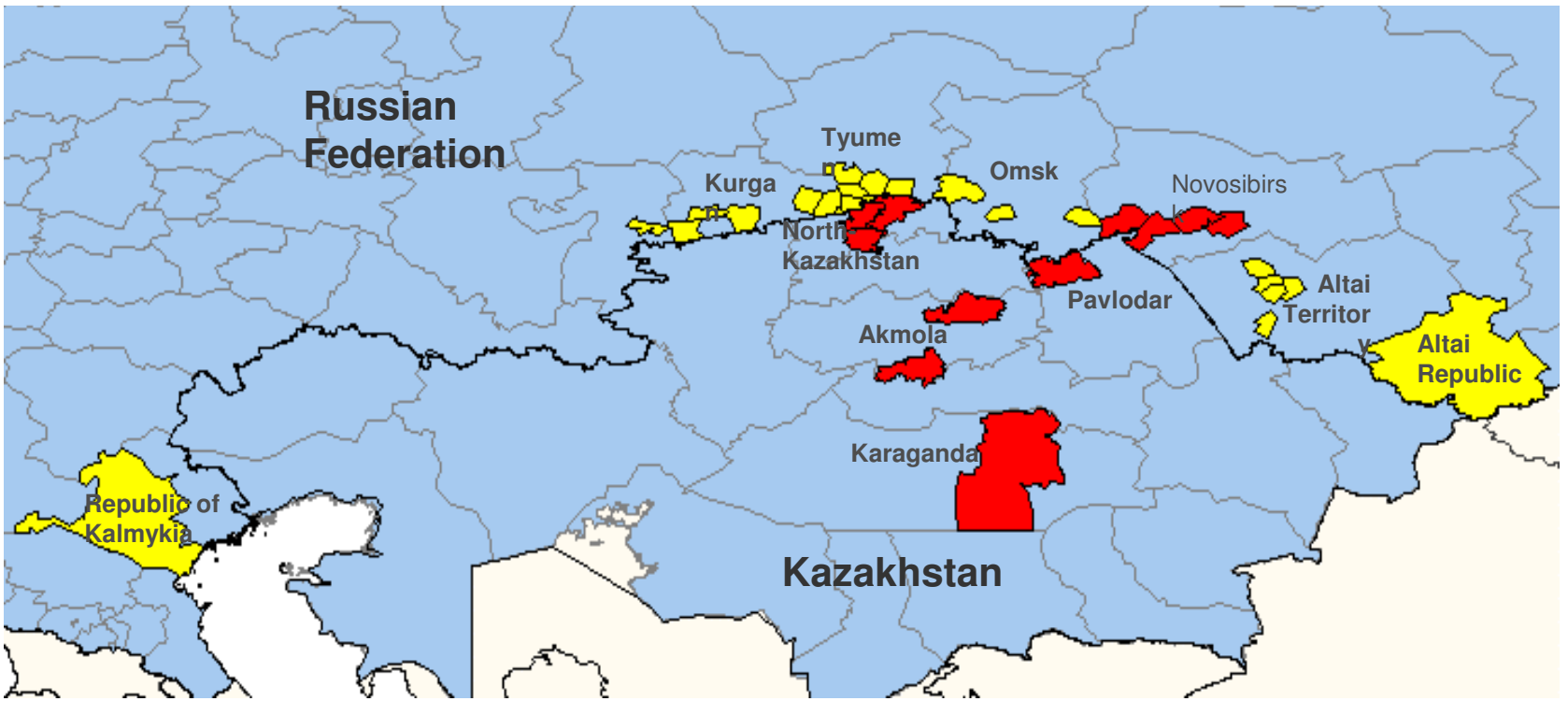
Thompson WW et al. JAMA. 2003;289:179-86. Couch RB. *Ann Intern Med.* 2000;133:992-8. Patriarca PA. *JAMA.* 1999;282:75-7. ACIP. *MMWR.* 2004;53(RR06):1-40.

Avian Flu Situation in CAREC

- Confirmed H5N1 virus found in wild & domestic poultry in 6 countries/ regions: Afghanistan, Azerbaijan, Kazakhstan (13.000 birds killed), Russian Federation (90.000 birds killed), Mongolia, XUAR – PRC
- Human infections in Azerbaijan (n=7)
- Control measures (culling of domestic animals, border control, continued surveillance of sick animals, stopping of hunting permissions)

Avian Influenza in Kazakhstan and Russian Federation

(as of 29 August 2005)

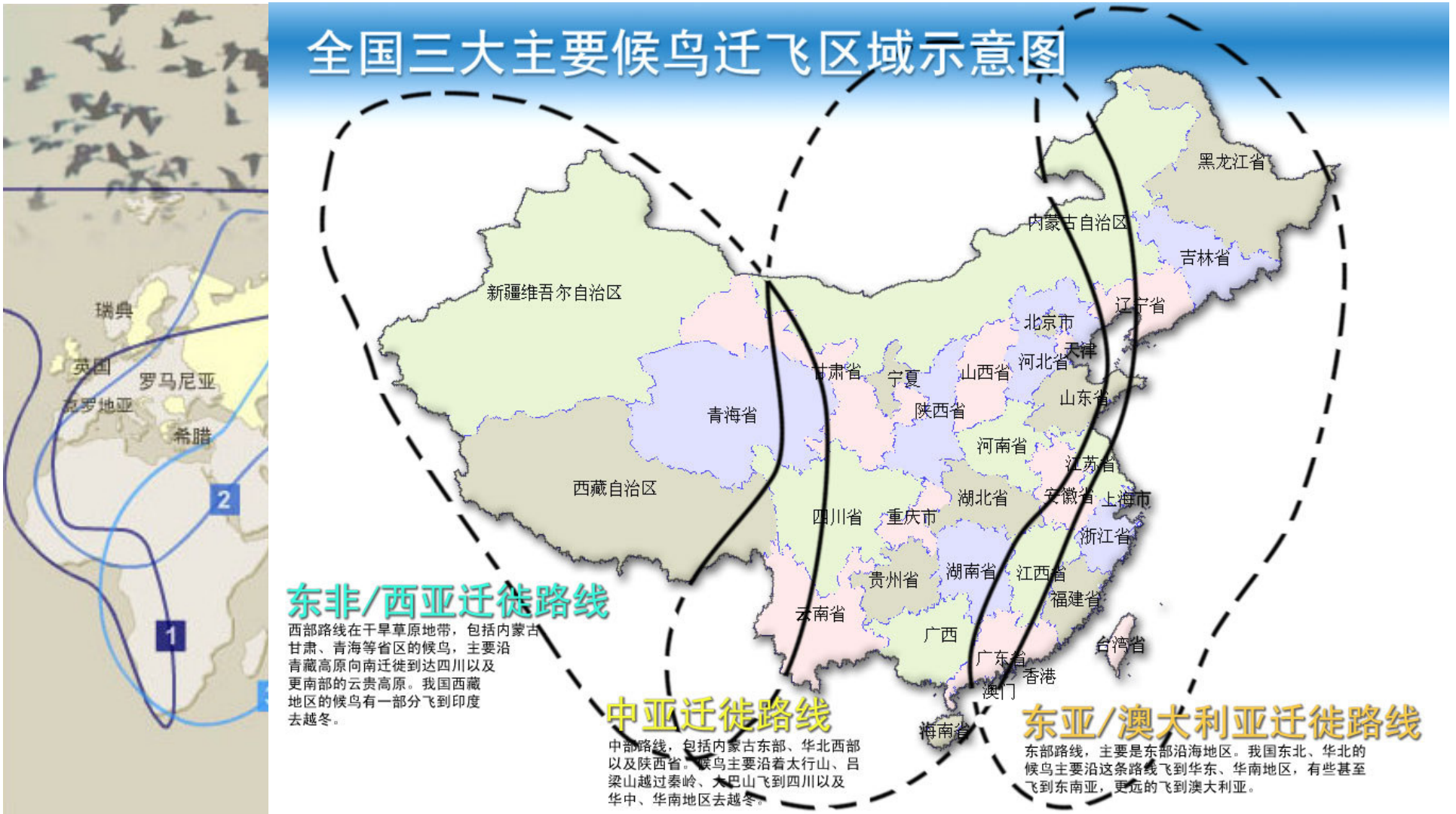


Reported outbreaks in birds

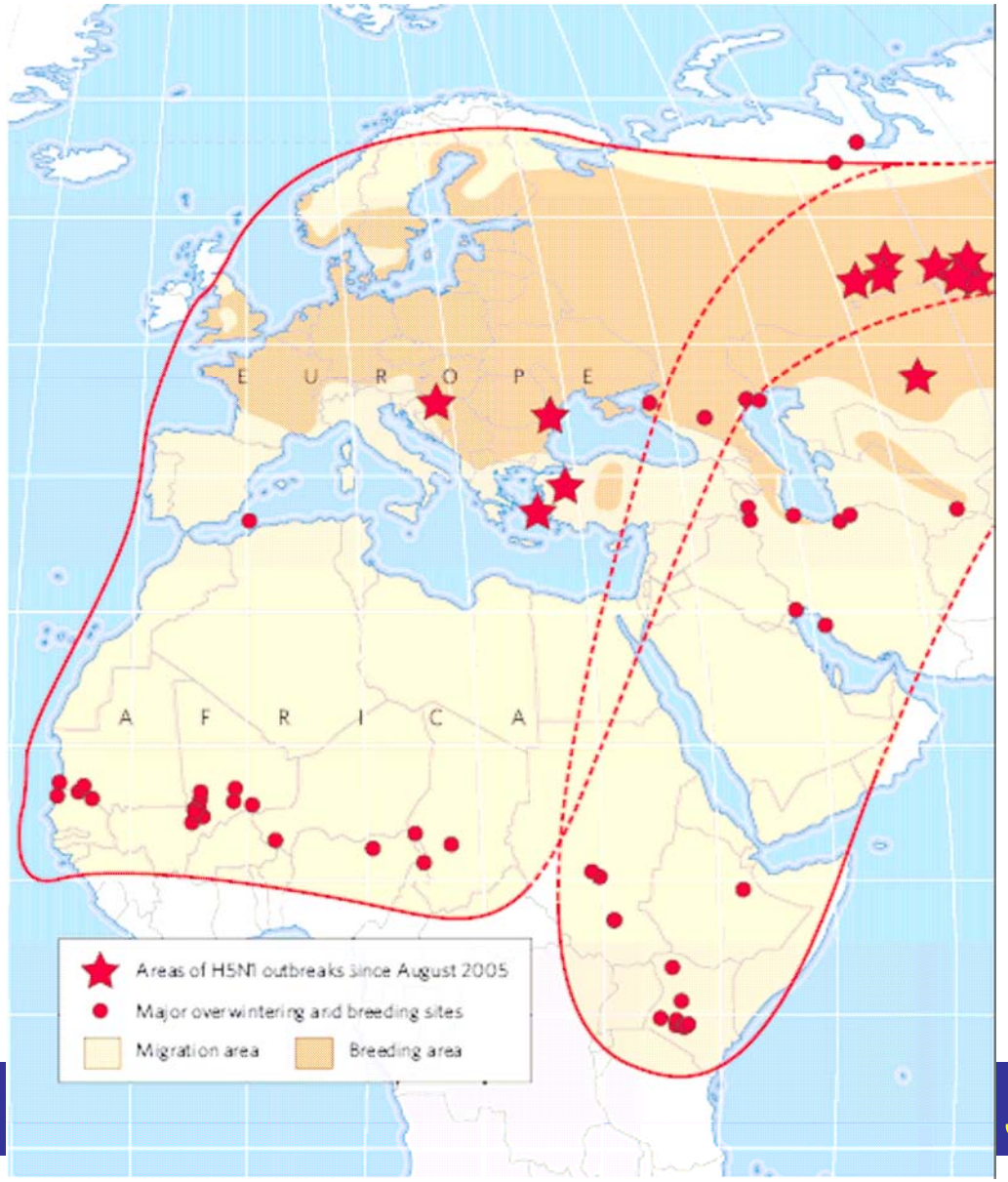
- Unconfirmed
- Confirmed

WORLD HEALTH ORGANIZATION
EUROPE

H5N1: role of migratory birds


全国三大主要候鸟迁飞区域示意图
瑞典
英国
罗马尼亚
希腊
2
1
新疆维吾尔自治区
内蒙古自治区
黑龙江省
吉林省
辽宁省
北京市
天津
河北省
山西省
甘肃省
宁夏
陕西省
山东省
青海省
河南省
江苏省
西藏自治区
湖北省
安徽省
上海市
四川省
重庆市
浙江省
贵州省
湖南省
江西省
福建省
云南省
广西
台湾省
广东省
香港
澳门
海南省
东非/西亚迁徙路线
西部路线在干旱草原地带，包括内蒙古甘肃、青海等省区的候鸟，主要沿青藏高原向南迁徙到达四川以及更南部的云贵高原。我国西藏地区的候鸟有一部分飞到印度去越冬。
中亚迁徙路线
中部路线，包括内蒙古东部、华北西部以及陕西省。候鸟主要沿着太行山、吕梁山越过秦岭、大巴山飞到四川以及华中、华南地区去越冬。
东亚/澳大利亚迁徙路线
东部路线，主要是东部沿海地区。我国东北、华北的候鸟主要沿这条路线飞到华东、华南地区，有些甚至飞到东南亚，更远的飞到澳大利亚。

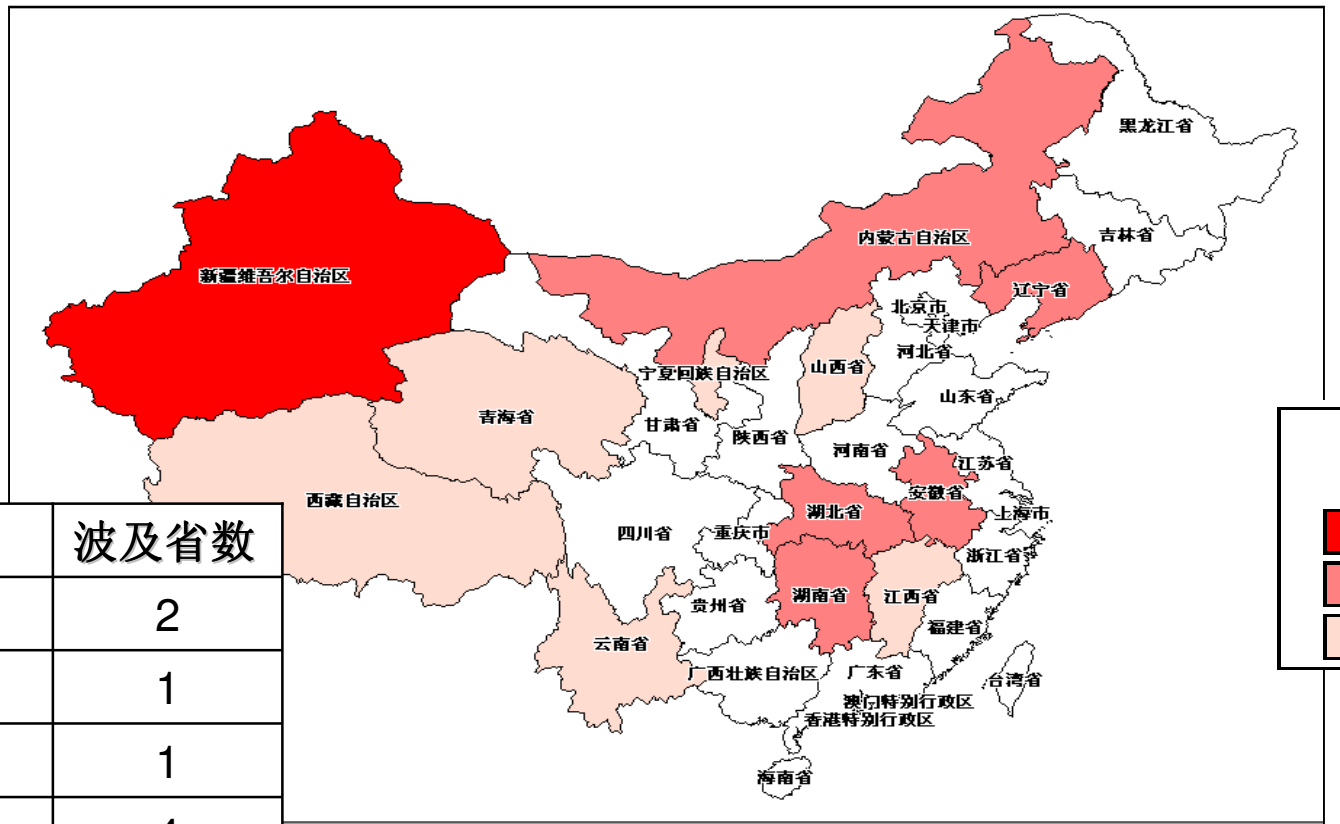
Mass migration of ducks



Red outlines show flyways of the Garganey duck, a species at high risk of spreading the H5N1 virus. The birds breed in the north in summer (dark orange) and then fly south for the winter.

(*Nature, 27 October 2005*)

Animal H5N1 Outbreaks in China, in 2005 *(as of 20/12/2005)*



月份	起数	波及省数
5月	2	2
6月	1	1
8月	1	1
10月	4	4
11月	22	9
12月	1	1

What is needed to reduce the risk of potential outbreaks?

STRATEGY now = contain or delay the spread at source

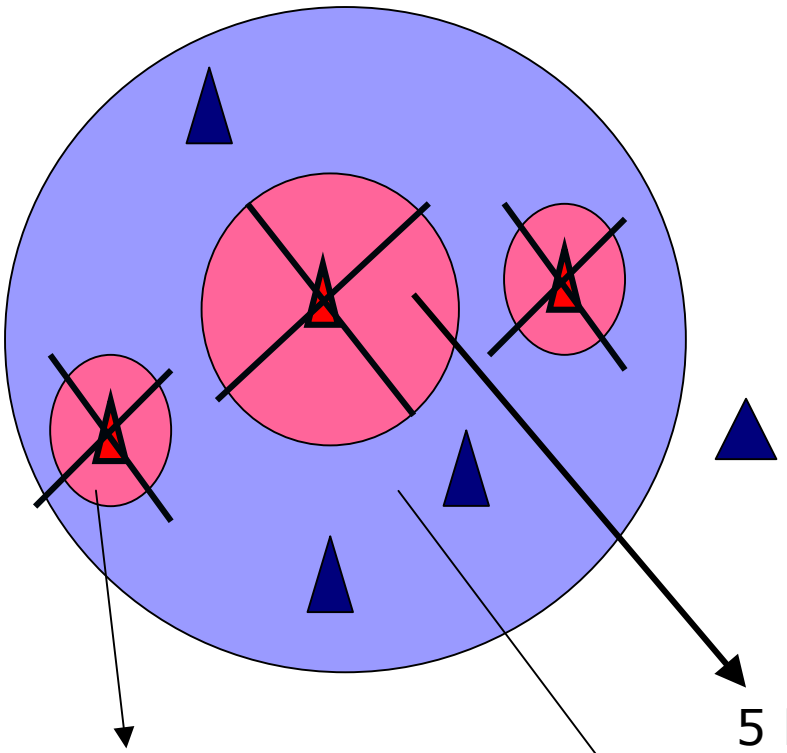
1. Prevent or rapidly control infection at source among birds strengthening early detection, reporting & control
2. Rapidly improve clinical management of human influenza caused by H5N1 virus
3. Prepare for a possible pandemic

CAR Roundtable on Influenza ¤ *Almaty, 12-13 June 2006*

Asian Development Bank ADB

Stamping-out and Surveillance

First wave

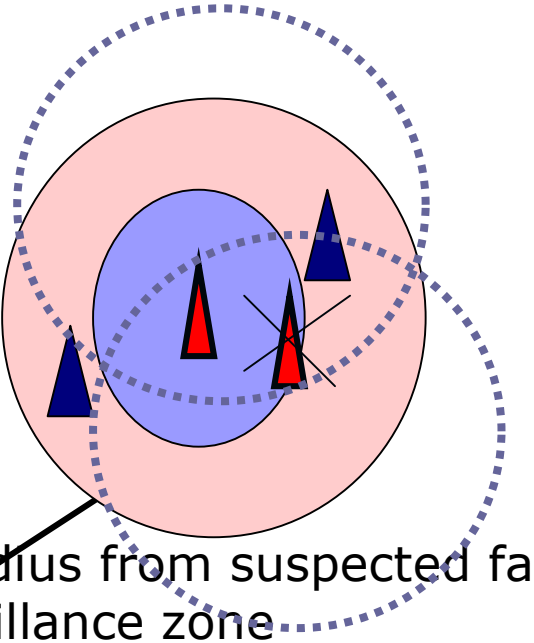


1 km radius from infected farm

5 km radius from infected farm = Preemptive culling

10 km radius from infected farm = Surveillance zone

Second wave



5 km radius from suspected farm = Surveillance zone

10 km = movement restriction zone

Animal Influenza Surveillance System, Thailand (since January 2004)

All year round

A. Active Clinical Surveillance

B. Passive Clinical Surveillance

C. Movement Control

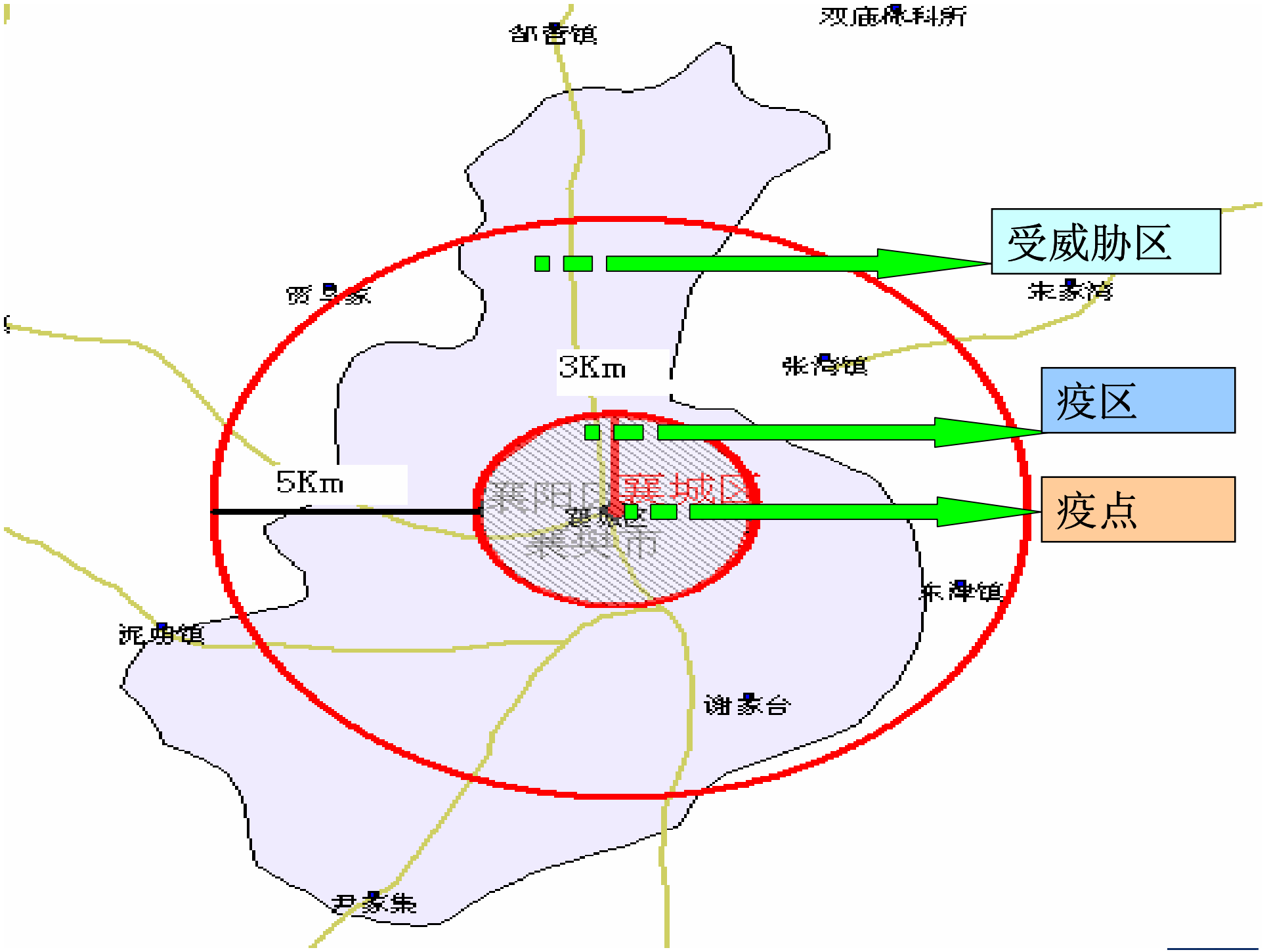
D. Monitoring

X-ray campaign

A+B+C+D

E. Strengthen active Clinical Surveillance

F. Active Agent Surveillance program


受威胁区
疫区
疫点
3Km
5Km

Situation estimation —— Dangerous factors

- Blank in avian influenza immunity
- Immunized poultry （especially water birds） is infected and carries virus

Situation estimation ——Dangerous factors

- Family-wise raising model
  - Hennery raising accounts for 60%.
- Living style facilitates virus transmission
  - Many people, many birds, many pigs, and human, birds and pigs live together

What is needed to reduce the risk of potential outbreaks?

STRATEGY now = contain the threat at source

1. Prevent or rapidly control infection at source among birds: strengthening early detection, reporting & control
2. Rapidly improve clinical management of human influenza
3. Prepare for a possible pandemic

3. Pandemic: can we avert worst-case scenario?

STRATEGY= **Detection & response mechanisms** in place through **increased regional collaboration**

a. Countries can draw on expertise & experience easily

b. Countries can pool resources (stockpiles of medicine, vaccine, communication/ ICT) & take full advantage of global support

c. Countries can respond more effectively to cross-border outbreaks

3. Pandemic: can we avert worst-case scenario?

STRATEGY= **Detection & response mechanisms**

(1) Reduce human exposure to H5N1 through risk communication

(2) Strengthen early warning system at every level

(3) Rapid containment measures (*WHO: "20 days time to respond" effectively after human-to-human transmission started*)

(4) Build capacity to cope with a pandemic

(5) Accelerate vaccine development and expand production capacity (*currently: 6 to 8 months are needed*)

Country needs (next 2-3 yrs)

1. Coordination & communication
2. Surveillance & early warning (animal & human influenza)
3. Response capacity to handle local outbreaks
4. National health system strengthening, including surge capacity to address generalized epidemics (a.o: lab equipment, protective clothing, overtime payment for staff, etc…)

Central Asian & Caucausus: $ 45 million
(including $10 to $ 15 million self-funded)

other Asian developing countries: $ 711 (incl. $240- $380)

Regional needs (next 2-3 yrs)

1. Stockpiles of drugs & medical equipment -> economies of scale
2. Exchange of information (transparent & immediate reporting) through:
   a) Regional training of animal and health workers
   b) Regional networking (workshops, communication system)

Animal (FAO): $ 10 to 20 million for CAREC-countries

Human (WHO): $ 11 million for CAREC countries

Impact estimate of pandemic

- Higher unemployment & reduced wages
- Immediate loss of livelihoods & subsequent decline in household income
- Cost of health care can strain weak social protection & health system
- Households may sell productive assets or dip into savings to pay for medical care
- Households' income is further reduced by those unable to work and/or those who may die

7 million deaths globally/ 3 million in Asia (WHO's best-case scenario)

$ 297 billion cost for Asia in one year

-> May slow down & even stagnate rate of economic growth

Economic analysis (1/2)

- With a 20% attack rate, and a 0.1% total fatality.
- Epidemiological impact
  - 49.6 million DALYs in lost lives = $ 267.2 billion lost income
  - 20.8 million DALYs in lost lives = $ 14.2 billion lost income
- Psychological impact
  - 3% decline in domestic consumption
  - 60% - 70% decline in export of services
- Two scenarios ->> estimated reduction in annual GDP ($ billion)

	DEMAND SHOCK	& SUPPLY SHOCK
Asia regional shock (2 quarters)	99.2	14.2
Global shock (4 quarters)	282.7	14.2

Economic analysis (2/2)

Positive economic impact of investment of a pandemic influenza likelihood reduction program:

- An investment which may reduce the probability of virus mutation allowing human-to-human transmission by 0.1% will have a savings of $ 300 million in terms of economic impact.
- Thus an investment of $ 30 million which may obtain this goal has a very high risk of return.

What is done by global community to reduce risk for influenza outbreaks?

- *Consensus*: Integrated country programs, complemented by regional & global support

  (cfr. Partners Meeting on Avian Influenza and Human Pandemic Influenza, 7-9 Nov. 2005, **Geneva**)

- Robust donor response

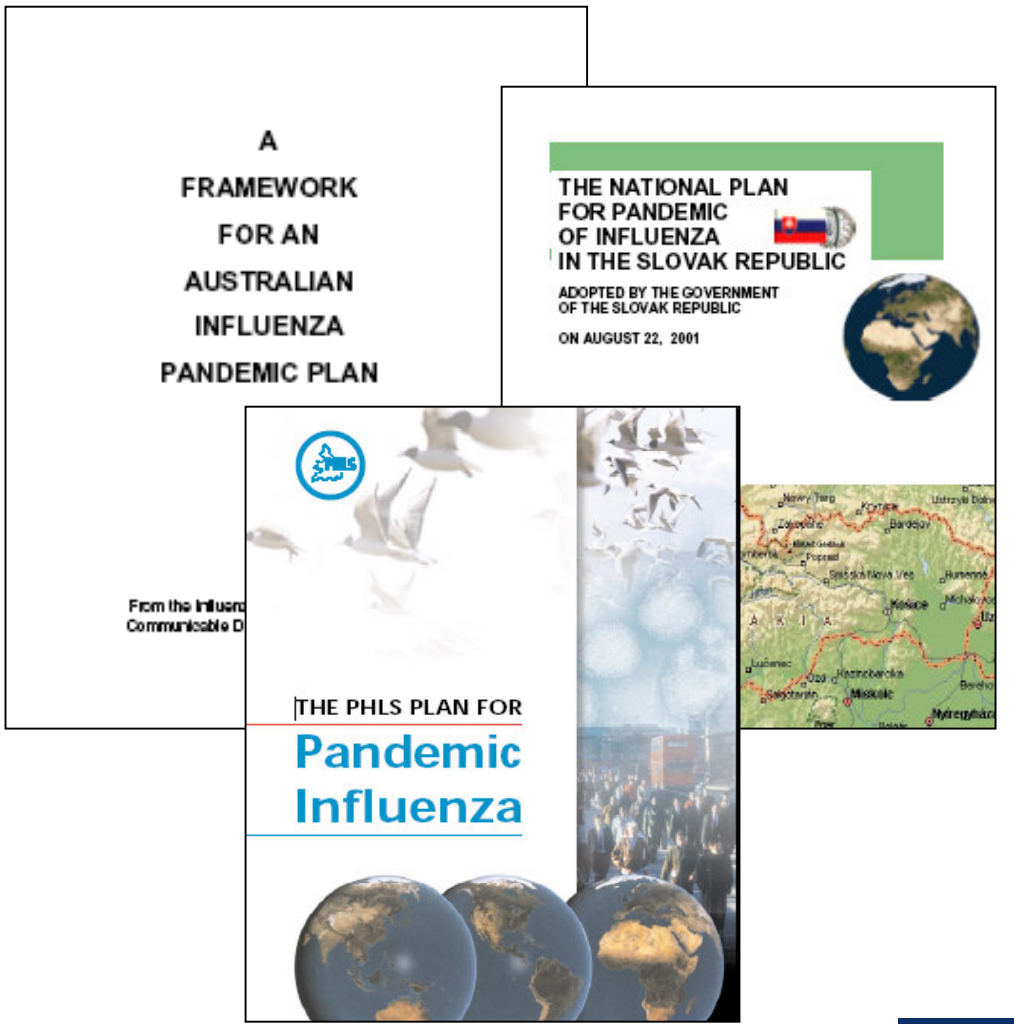
  (cfr. International Pledging Conference on Avian and Human Influenza, 17-18 Jan. 2006, **Beijing**)

Geneva, 7-9 Nov. 2005 (UN system)

Local	Regional	Global
1 Development of integrated national plans	5 'Rapid response' teams of experts	9 Expanded global anti-viral stockpile
2 Aggressive control of Avian Influenza in birds and human pandemic preparedness	6 Stronger country and regional capacity	10 Global strategy for vaccine research and development
3 Assess needs of veterinary infrastructures	7 Expanded network of influenza laboratories	11 Costing of country plans and regional and global requirements
4 Voluntary compliance of International Health Regulations	8 Multi-country technical networks	12 Finalize coordination framework building on existing mechanisms

National Pandemic Preparedness Plans

- > 30 countries have plans
- Existing plans in WPR
  - Australia
  - Japan
  - New Zealand
  - South Korea?
  - Hong Kong (China)
  - China (draft)
  - Philippines (draft)



Dynamicity in influenza

Pandemic preparedness plan

New knowledge

Improved technology

Viral changes

Environmental & behavioral changes

Changes in work systems

Etc.

Need for periodic revisions of the plan

Exercise of the plan

Operation levels:

- National/ Central
- Provincial
- Local

Types of exercise:

- Table-top
- Drills
- Full-scale exercise
- Etc.

Influenza Pandemic Preparedness

a Win-Win task

Expected outcome of Preparedness

- *Public confidence*
- *Confidence of the professionals*
- *Improved capacity of essential public services*
- *Surge capacity*

Pandemic → **Reduced losses and suffering**

No pandemic → **National & regional capacity**