CONFRONTING PANDEMIC INFLUENZA: JUST DON’T LET IT START

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HONG KONG SAR
CHINA
BACKGROUND TO THINKING
PANDEMIC INFLUENZA

UNIFYING HYPOTHESIS

Obstacles

COUNTLESS AVIAN INFLUENZA VIRUSES IN SOUTHERN CHINA

WHY DON’T WE HAVE PANDEMICS EVERY YEAR OR SO?

EACH PANDEMIC VIRUS IS DIFFERENT
Pandemic Influenza

ZOONOSIS
UNIFYING HYPOTHESIS

PANDEMIC INFLUENZA

JUST DON’T LET IT START

UNIFYING IDEAL
• The Best Medicine is Preventive Medicine
  Warring States Period  472-221 BC

• A Skilful Doctor Cures Illness when there is No Sign of Disease, and thus the Disease Never Comes
  Han Dynasty  206 BC-220 AD

CHINESE HIPPOCRATIC CORPUS
SOME BACKGROUND

MOTHER  1918/19 PANDEMIC

HONG KONG  UNIVERSITY 1972

GET AHEAD OF THE NEXT PANDEMIC
REALIGNMENT OF THINKING

ALL TO WORK FOR THE COMMON GOOD

HUMANS

ANIMALS

WELL BEING OF THE PLANET

Multi-level understanding - education
HOW ARE WE DOING?
INFLUENZA ACTIVITIES

“PREPAREDNESS”

• MUCH WORK BEING DONE ACROSS MANY DISCIPLINES AND FIELDS

• WIDER PICTURE LACKS FOCUS

• GOALS SHORT TERM

• MANY VOICES, MANY ORGANIZATIONS
PROCESS

VACCINES
ANTIVIRAL AGENTS
FUNDAMENTAL STUDIES
EPIDEMIOLOGY
PREPAREDNESS - HUMAN

ECOLOGY
PREPAREDNESS – BIRDS & ANIMALS
## Tackling an Avian Influenza Problem

e.g. Outbreak, Dead Birds, Sick Pigs

<table>
<thead>
<tr>
<th>Appropriate Means</th>
<th>Maybe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intelligence</td>
<td>Maybe</td>
</tr>
<tr>
<td>Insertion</td>
<td>Maybe</td>
</tr>
<tr>
<td>Execution</td>
<td>Maybe</td>
</tr>
<tr>
<td>Exit Strategy</td>
<td>Maybe</td>
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</tbody>
</table>

**Follow-Up Strategy**

- Virus Surveillance
- Serology
- Sentinel Birds
MUST CAPITALIZE ON H5N1 MOMENTUM AND VIGILANCE

MAJOR ACHIEVEMENT - A DECADE OF HOLDING H5N1 AT BAY

H7N7 THE NETHERLANDS ELIMINATION

H5N1 THE DRIVER

But not perceived as a problem
SOME AVIAN INFLUENZA VIRUS WARNINGS

1982  SOUTHERN CHINA - HYPOTHETICAL PANDEMIC INFLUENZA EPICENTRE

1996  GEESE DIE IN GUANGDONG PROVINCE

1997  >1 MILLION CHICKEN DIE IN GUANGDONG PROVINCE. REPORTED 4 APRIL 1997 GUANGZHOU

2003  H9N2  HEALTHY DUCKS/OTHER POULTRY SOUTHERN CHINA  Li et al J. Virol

2006  H5N1  HEALTHY DUCKS SOUTHERN CHINA  Smith et al PNAS

1995  QINGHAI LAKE, QINGHAI PROVINCE. “INFLUENZA HOT SPOT”
1997.4.4: "南方日报" 刊文报道

疫情袭击广畜鸡群
百七万只毛鸡病亡

市场鸡价未见波动 市民吃鸡亦请放心

本报讯（记者张纯胜、通讯员彭勤）在去年底至今，广州市部分地区、肉禽鸡户饲养的鸡群爆发严重疫情，其中疫情最为严重的某区至今已有118万只毛鸡病亡，经过有关区、县及各级防疫部门的多方施救，目前疫情已基本得到控制。

据传，此次流行的禽流感主要有新城疫（鸡痘）、喉气管炎、传染性非氏病等，其中今春广州市禽病控制，采取了防疫隔离措施。而疫区后，市内疫病的发生主要为新城疫，目前全市染病死亡的肉鸡目前已有110万只左右，造成肉鸡市场直接经济损失约1000万元。

此次疫情中除当前饲养的家禽外，大范围的禽类死亡，多发生在一些中小型养鸡场中，尤其是养鸡场的家禽群的感染情况更为严重。广州市畜牧防疫检疫站副站长谭德根认为，部分养鸡专业户科学防疫意识薄弱，是造成此次疫情发生的重要原因。有关部门已对全市疫区进行了严格消毒，防止疫情扩散。

对市民关注的“病死鸡是否会变质”问题，有关部门已进行过多次试验。据称，病死的鸡只有同类鸡只具有传染性，其余均无传染性。因此，市民不必恐慌。
WAYS AHEAD
Pandemic Influenza Prevention Basic Principles

Scientific Problem → Scientific Solution → Political Solution → Political Problem

Co-operation ↔ Transparency

Common good
Humans
Animals
Well being of planet
New Influenza Directions

Political Will

Glastnost

Transparency

VIRUS

SURVEILLANCE

Good Science

Good Governance
“Prevention is better than cure”

Reactive approach “cure”

Proactive approach “prevention”

Investment in prevention

Direct and indirect costs

“CHEAPER TO PREVENT DISEASE IN HEALTHY POPULATIONS THAN TO TREAT DISEASE IN SICK POPULATIONS.”
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
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<tbody>
<tr>
<td>DAVID HILL</td>
<td>WORLD INNOVATION FOUNDATION</td>
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<td>LUTZ BAEHR</td>
<td>WORLD INNOVATION FOUNDATION</td>
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<tr>
<td>ALAN GIBBINS</td>
<td>PRESIDENT</td>
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<tr>
<td></td>
<td>ASIAN PACIFIC FEDERATION</td>
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<td></td>
<td>WORLD’S POULTRY SCIENCE ASSOCIATION</td>
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Professor Dr. Glenn T. Seaborg
Founding President of the World Innovation Foundation
WORLD INNOVATION FOUNDATION

THE USE OF SCIENCE AND TECHNOLOGY IN THE SERVICE OF GLOBAL DEVELOPMENT AND THE CAUSE OF HUMANKIND

Capacities

- FACILITATOR
- PROVIDER OF CONSULTANCY SERVICES
- EXECUTOR OF INITIATIVE
- PARTNER
LONG-TERM INFLUENZA STRATEGY

PREVENTION OF INFLUENZA PANDEMICS

- PROACTIVITY
- INTERNATIONAL UNITY
- CO-OPERATION
- UNIVERSAL PREVENTION
HOW TO DO?
AN INFLUENZA VISION NEEDED

- SMALLPOX ERADICATED 1977/1979

- POLIOMYELITIS CLOSER TO ERADICATION

- INFLUENZA
  - HUMANS
  - AVIANS
  - POULTRY

- INFLUENZA PANDEMICS – NON-ERADICABLE ZOONOSES

- GLOBAL PROBLEM – GLOBAL SOLUTION
Population through time
<table>
<thead>
<tr>
<th>Country</th>
<th>Chicken kg/person/y</th>
<th>Eggs/person/y</th>
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</thead>
<tbody>
<tr>
<td>Australia</td>
<td>36</td>
<td>155</td>
</tr>
<tr>
<td>Brazil</td>
<td>34</td>
<td>132</td>
</tr>
<tr>
<td>USA</td>
<td>44</td>
<td>256</td>
</tr>
<tr>
<td>Japan</td>
<td>15</td>
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<td>China</td>
<td>8</td>
<td>340</td>
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<td>Thailand</td>
<td>10</td>
<td>150</td>
</tr>
<tr>
<td>India</td>
<td>2</td>
<td>38</td>
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<td>Nigeria</td>
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<td>Vietnam</td>
<td>5</td>
<td>42</td>
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from Watt Poultry Executive Guide, 2006

Global poultry meat market, 81 million tonnes (2005)

<table>
<thead>
<tr>
<th>Species</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Chicken</td>
<td>86.4%</td>
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<tr>
<td>Turkey</td>
<td>6.4%</td>
</tr>
<tr>
<td>Duck</td>
<td>4.2%</td>
</tr>
<tr>
<td>Goose</td>
<td>2.9%</td>
</tr>
<tr>
<td>Other</td>
<td>0.1%</td>
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from Windhorst, 2006
WPSA

- WORKING TOWARD CO-ORDINATING ROLE
- DEVELOPMENT OF SMALL SCALE FAMILY POULTRY FARMING
- THROUGH CORE VALUES
- EDUCATION, ORGANIZATION AND RESEARCH
CO-ORDINATE EFFORT OF ALL HIGH-LEVEL INTERNATIONAL AGENCIES

LARGE INTENSIVE COMMERCIAL UNITS
SMALL FAMILY BASED (OFTEN VILLAGE) UNITS

OPTIMIZATION OF RESOURCES
TOO SCARCE
TOO EXPENSIVE
WASTEFUL INEFFICIENCY

COMMERCIAL PRESSURES
# ASPECTS OF EDUCATION

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<tr>
<th>UNIVERSITY</th>
<th>VETERINARY CURRICULA</th>
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<tr>
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<td>AVIAN MEDICINE SUB-</td>
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<td>OTHER CURRICULA</td>
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<thead>
<tr>
<th>UNIVERSITIES AND OTHER TERTIARY INSTITUTES</th>
<th>EXTENSION OFFICERS</th>
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<tr>
<th>SCHOOLS, etc.</th>
<th>HYGIENE</th>
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| QUALITY ADVICE TO DECISION MAKERS |
MODELS FOR TRANSMITTING KNOWLEDGE INCLUDE

- discussion groups
- field days
- seminars / workshops
- personal contact
- demonstration / instruction
- printed material
- electronic sound and video
- resource kits
GLOBAL HOUSEKEEPING

GLOBAL REGISTER  HPAI H5N1 AND H7NX
OTHER SUBTYPES??

BIOTERRORISM

ESCAPE FROM LABORATORY
INFLUENZA RESEARCH EMPHASES

IMPROVED ECOLOGICAL UNDERSTANDING

THE HUMAN-ANIMAL INTERFACE

ASSESSING PANDEMICITY POTENTIAL OF ALL H SUBTYPES

e.g. ESCAPE MUTANTS
     IMMUNE RESPONSE
VISION
Influenza ideal

NO MORE PANDEMICS

Relegation of influenza A viruses

GLOBAL AVIAN INFLUENZA GENE POOL

ECOLOGICAL UNDERSTANDING

INF A

INF B-LIKE ILLNESS

INF C-LIKE ILLNESS

NIL
VISION

NO MORE PANDEMICS

H5N1 START OF LONG HAUL
PANDEMIC INFLUENZA QUESTION

EXCEEDINGLY COMPLEX

GLOBAL PROBLEM REQUIRING GLOBAL EFFORT

SMALLPOX
POLIOMYELITIS

ACHIEVABILITY AND AFFORDABILITY FOR ALL NATIONS

GLOBAL STRATEGY AND GLOBAL PREVENTION PROGRAMME

INTERNATIONAL DECISION MAKING OF UNITED NATIONS
"True success is not in the learning, but its application to the benefit of mankind."

His Royal Highness
Prince Mahidol of Songkla