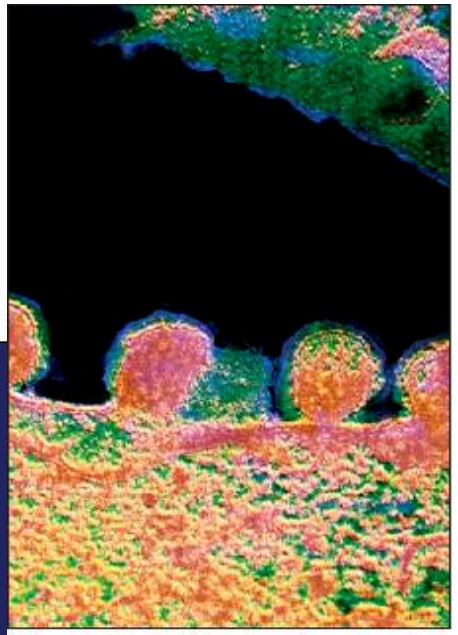
European Network of Scientists for Social and Environmental Responsibility

European Environment Agency

Meeting 15/16 April 2010, Copenhagen

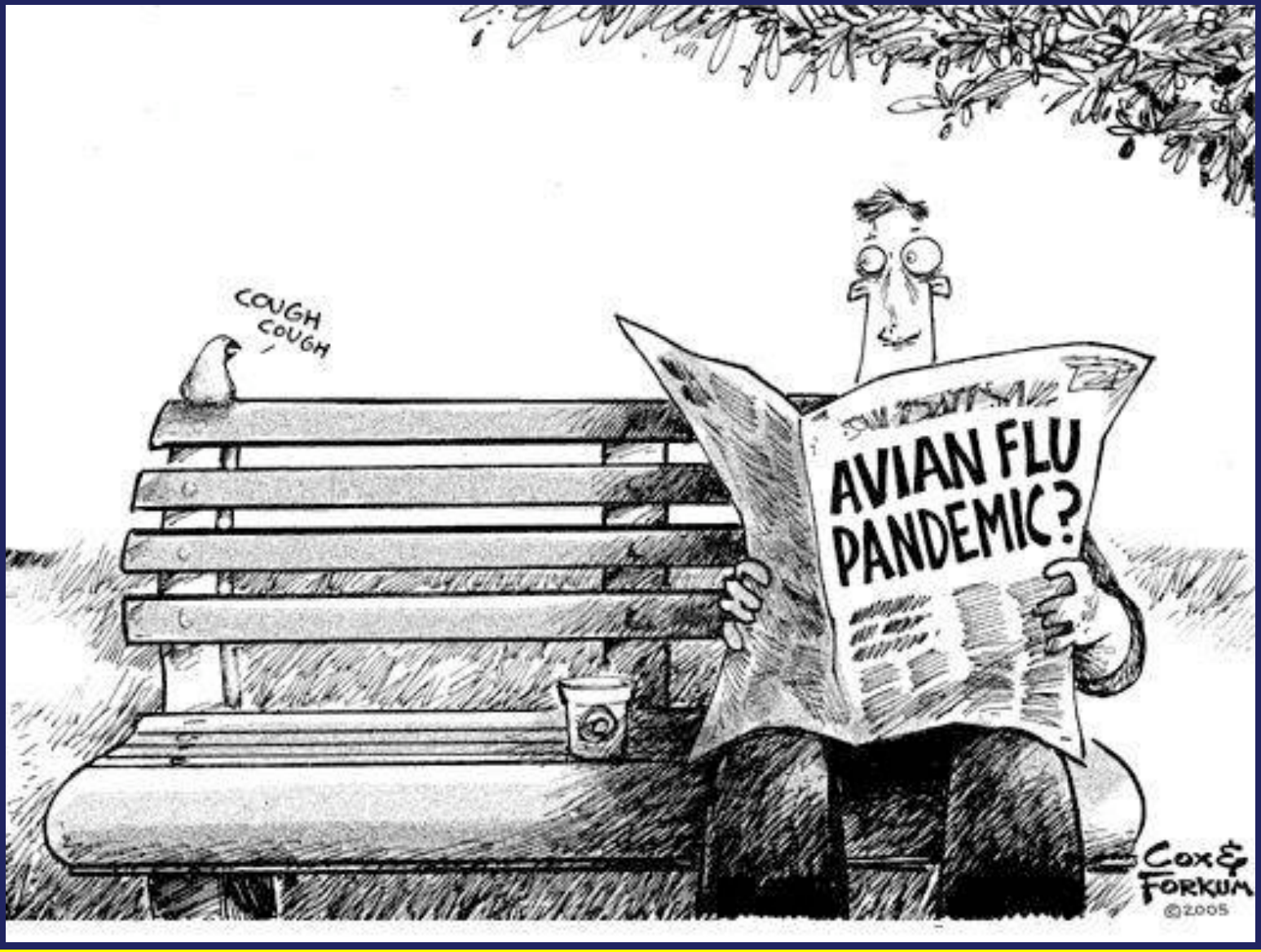


Influenza virions budding from the surface of an infected cell

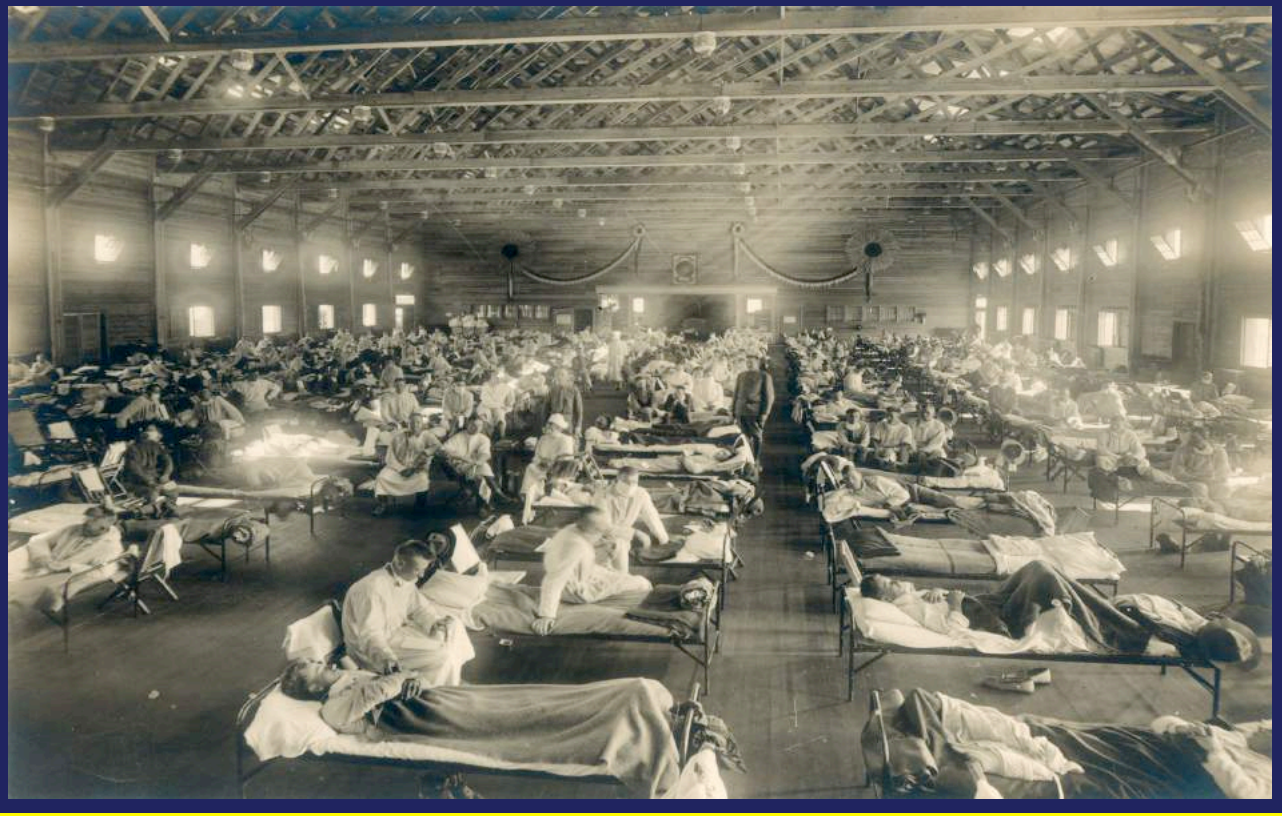
Avian/Swine Flu: the dangerous link between *Science* and *Hype*

Ernesto Burgio
Comitato Scientifico
ISDE Italia

doctors for the environment



<u>After the two recent pandemic alerts</u> – **the first "virtual" for a truly dangerous avian flu *orthomyxovirus*: H5N1/Avian Flu/1997-2003,** the **<u>second "*formalized*" by the WHO for a mild pig flu virus</u>** – most of the world's ***media*** and therefore most of ***<u>people</u>* <u>seem to believe in a sort of *global media hoax*</u>** – heavily ***conditioned*** by *Big Pharma* (***Aventis, Baxter, GlaxoSmithKline, Novartis, Pfizer, Roche, Sanofi***) interested in selling their own ***medicines*** and ***vaccines***.
To **<u>better understand the situation</u>** we should bear in mind **<u>some key points</u>**.

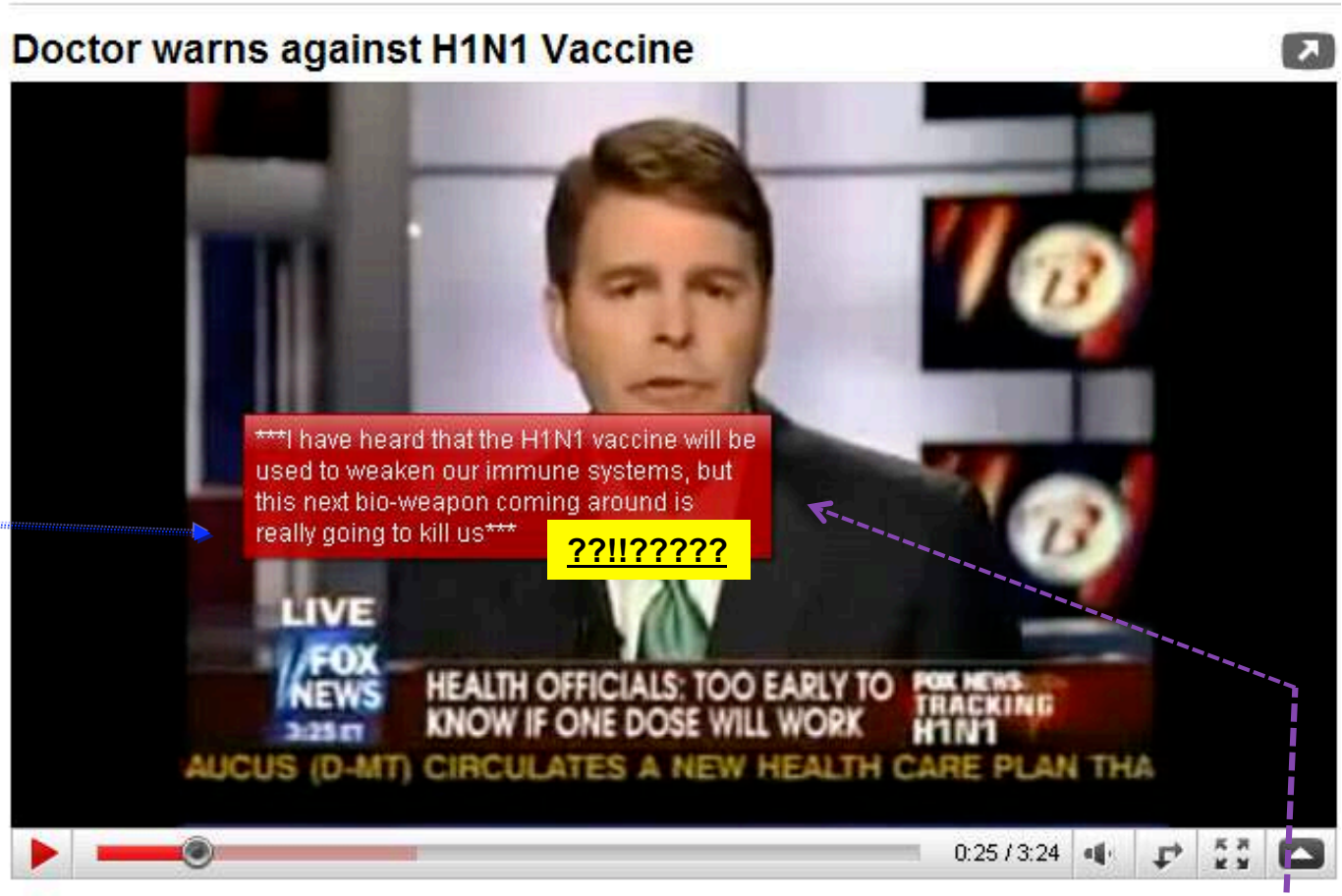


The **first point** is that influenza viruses are **the only ones with a relatively constant and predictable behaviour**. In fact flu **follows a dual epidemic trend**:

- ***seasonal epidemics***: when the **influenza virus prevalent in the human reservoir**, showing minimal mutations (***genetic drift***), affects hundreds of millions of people (with significant economic and social costs) and causes a **large number of deaths** (in average 3-500.000/year), usually in the *elderly* and those with ***weak* immune systems**;
- ***pandemics***: when, following very ***irregular cycles***, a ***"new" virus* coming out from the avian-flu-virus reservoir** and/or **recombined with human isolates in pigs (*mixing vessel*)** spreads rapidly around the world, hard hitting and killing a significantly larger number of people, ***often* young and in full health** (up to 40 million deaths in a few months - 4 times more numerous than the victims of the *Great War* - during the ***Spanish Flu* pandemic** of 1918-19).

to deal with a **possible pandemic**, …the **pharmaceutical companies should produce and distribute medicines and especially *vaccines* in a very short time**

… which has generated much **suspicion…**



This should provide **better predictability for surveillance** and more effective prevention strategies by the national and international health and political institutions **and a better planning of research and production** of medicines and **vaccines** from the *pharmaceutical companies*. **But *this is a delicate point***: to deal with a possible pandemic, the **pharmaceutical companies should be able to produce and distribute medicines and especially *vaccines* in a very short time** (in a *globalized world*, the virus can travel around the world in a few weeks): a billion doses of vaccines against a virus which is relatively "new" for our immune systems. Furthermore, these *vaccines* should give **guarantees of effectiveness higher than usual** (it is known that **influenza vaccines** are **not** generally considered, for many reasons, **particularly effective**, especially in **children**. **Hence the need to find**, especially in the field of vaccines, new and sophisticated **production strategies (*mock-up, reverse genetics*) and new formulations (*adjuvants*),** and **to test their efficacy *in vivo* (directly on populations)**

ScienceDaily

Your source for the latest research news

.. Producers look for **new technologies *(reverse genetics, mock-up vaccines)*** showing that **production and distribution is feasible in few weeks…**

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Science News

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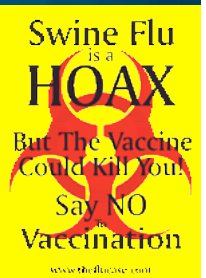
Insect Cells Provide the Key to Alternative Swine Flu Vaccination

ScienceDaily (Jan. 12, 2010) — Scientists in Vienna have developed a new technique for producing vaccines for H1N1 -- so-called swine flu -- based on insect cells. The research, published in the *Biotechnology Journal*, reveals how influenza vaccines can be produced faster than through the traditional method of egg-based production, revealing a new strategy for the fight against influenza pandemics.

The team's new method turns to **insect cell based technology to create recombinant influenza virus-like particles (VLPs),** which resemble virus particles but **lack the viral nucleic acid, so they are not infectious.** The Austrian team **took just ten weeks to produce swine-origin pandemic H1N1 influenza VLPs** for immunological study in mice. This shows that **production of a *mock-up vaccine* is feasible in this time range**, outcompeting conventional production methods which take months.

the first question.. **can we draw the line between the necessary and legitimate experiments**.. and ***mass experimentation*** **in such situations ?**

Inevitably **the first question** that comes to mind is: **can we draw the line between the necessary and legitimate experiments aimed at improving the effectiveness of medicines** (and **especially *vaccines***) and ***mass experimentation* in situations where the need of an early intervention may appear a global priority** ?



??!!??

The second question, closely related to the first one, is: is it correct **to affect the development of the immune system in hundreds of millions people (particularly in children !)** with **new (experimental) *adjuvants*** acting (with **mechanisms still unknown**) **by stimulating both the natural (TLRs) and the adaptive immunity**?

Drug Discovery Today • Volume 14, Numbers 11/12 • June 2009 REVIEWS

ELSEVIER

One important lesson learned is to apply the KISS principle whenever possible, KISS is an acronym for Keep It Simple Stupid! To encourage success in adjuvant development, unnecessary complexity must be avoided.

The path to a successful vaccine adjuvant – 'The long and winding road'

Derek T. O'Hagan[1] and Ennio De Gregorio[2]

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[2] Novartis Vaccines, Via Fiorentina 1, 53100 Siena, Italy

The safety issues surrounding adjuvants have been with us for a long time and were discussed knowledgeably back in 1980 [102]. Most of the concerns raised almost 30 years ago still remain valid today, although perhaps we now know a little more about how the adjuvants work. Even back in 1980, it was highlighted that there were concerns that potent immune stimulators could potentially trigger autoimmune diseases, because this had been seen with Freund's adjuvants in animal models. Recently, this has been discussed in the literature as a concern for TLR agonists [103]. Unfortunately, this will remain a challenging issue, particularly because the available animal models are unlikely to be predictive.

This is a paper published by ***Novartis Experts !***

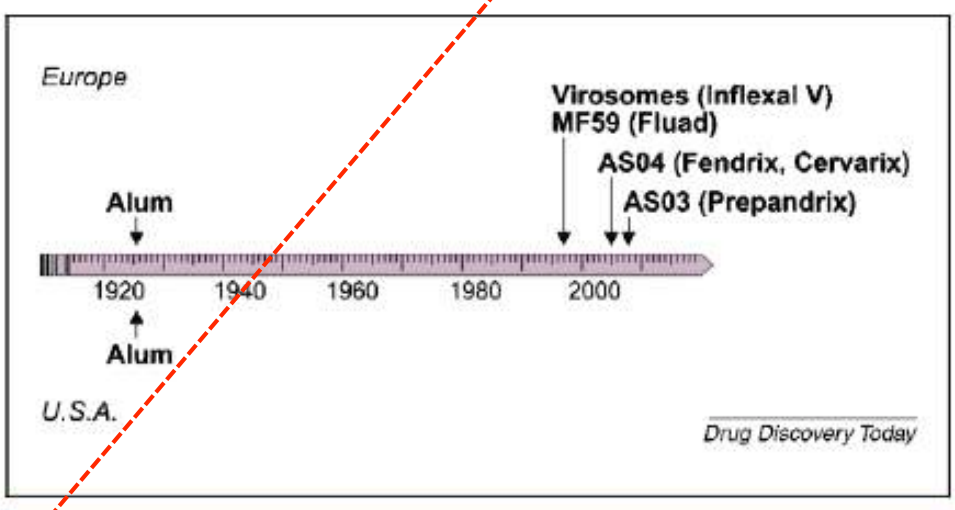

FIGURE 1

Alum was licensed in the 1920s and is still the only adjuvant included in oved for human use in the US. MF59 and virosomes were clusion in flu vaccines (Fluad and Inflexal V) in 1997. The LPS ohosphoryl lipid A (MPL) formulated with Alum (AS04) was licensed vaccine for a HBV (Fendrix) in 2005 and for a HPV rix) in 2007. The oil-in-water emulsion AS03 was approved for a vaccine (Prepandrix) in 2008.

Most of the **concerns** raised almost 30 years ago still remain valid today, ***although perhaps* we now know a little more about how the adjuvants work**. Even back in 1980, it was highlighted that there were concerns that **potent immune stimulators** could potentially **trigger autoimmune diseases,**

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journal homepage: www.elsevier.com/locate/vaccine

Mechanism of action of licensed vaccine adjuvants

Elaine Tritto, Flaviana Mosca, Ennio De Gregorio*

Novartis Vaccines and Diagnostics, Via Fiorentina, 1 - 53100 Siena, Italy

… *squalene*-based emulsion MF59, for example, stimulates human **macrophages**, monocytes and granulocytes ..attracting **chemokines like CCL2, CCL3 and CCL4 and CXCL8**

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Keywords:
Innate immunity
Alum
MF59
NLRP3 inflammasome

Despite the fact that alum and oil-in-water emulsions have been used for decades as human vaccine adjuvants in a large number of individuals, their mechanism of action is not completely understood. It has been reported that these particulate adjuvants act by increasing antigen availability and uptake by immune cells. However, recent work on alum and on the squalene-based emulsion MF59, has demonstrated that besides antigen delivery functions, these classes of adjuvants can also activate innate immunity pathways *in vivo*, generating an immunocompetent environment at injection site. Interestingly, it has been demonstrated that alum adjuvanticity depends on the activation of a protein complex called NLPR3/inflammasome, which is required for the correct processing of a number of pro-inflammatory cytokines, including IL1β. More work needs to be performed to investigate if the inflammasome is also required for the activity of MF59 and of other particulate vaccine adjuvants.

… recent work on **alum** and on the **squalene-based emulsion MF59**, has demonstrated that besides antigen delivery functions, these classes of adjuvants can also **activate innate immunity pathways *in vivo***, *generating an immunocompetent environment at injection site.* Interestingly, it has been demonstrated that alum adjuvanticity depends on the **activation of a protein complex called *NLPR3/inflammasome***, which is **required for the correct processing of a number of pro-inflammatory cytokines, including IL1**. More work needs to be performed to investigate if the inflammasome is also required for the activity of MF59 and of other particulate vaccine adjuvants.

The **third question**, which follows the first two, is : are we truly **convinced that the best way** - the most effective and, at the same time, surer - to tackle the flu-problem in its dual form (seasonal epidemic / pandemic) is **mass-active immunoprophylaxis**?
Or there are **better possibilities for a true *primary prevention*, right there (large pig farms, *wet markets* etc...) where many different strains can easily exchange genetic material, producing new flu-viruses?**

a great problem are: **chicken and turkey breedings**.. ***swine farming***… and ***wet markets***

At this point I'll try to ***summarize*** the **public hearing** of PACE's *Committee on Social, Health and Family Affairs*, which examined the **management of the pandemic H1N1**

(at the **first** public hearing in January , **Strasbourg** 26 01 10, the **WHO flu chief defended his organization**, saying his advice was **not improperly influenced by the pharmaceutical industries**)

Social, Health and Family Affairs

Swine Flu: 'the next time someone cries wolf on a pandemic, it will not be taken seriously'

Paris, 29.03.2010 - "The next time someone cries wolf over a pandemic, the overwhelming majority will not take it seriously," participants were told today at a parliamentary hearing on the handling of the H1N1 pandemic, organised in Paris by PACE's Social, Health and Family Affairs Committee.

"A pandemic cannot be whatever the WHO declares it is. If it turns out that former PACE member Wolfgang Wodarg was right when he said the pandemic was decided to help the pharmaceutical industry make bigger profits, this might well turn out to be one of the biggest health scandals ever," **said Paul Flynn (United Kingdom, SOC), PACE rapporteur on this issue.**

Participants also expressed regret at the WHO's failure to revise its position on the pandemic, and warned against a possible repetition of events if no lessons were learnt. "The world no longer trusts the WHO, but we need a body of this kind and it must therefore restore its own credibility," Mr Flynn added.

He paid tribute to the rare courage of the **Polish Health Minister Ewa Kopacz**, who had refused to be held hostage by the pharmaceutical industry and did not order vaccines. She said that drug company profit should not be more important than people.

She urged the WHO to urgently re-examine their position and decrease the pandemic alert level. She also denounced the lack of solidarity among European states when the pandemic was declared and the lack of co-ordination at EU level. **Marc Gentilini**, an expert in infectious diseases who is a former President of the French Red Cross, regretted that there was no such thing as a European health policy and called for the building of what he called a Europe of Health: "The precautionary principle is not a political umbrella to be abused," he said.

Health researcher Tom Jefferson, of the independently-funded Cochrane Collaboration, stressed that parliamentary democracy was the best means of ensuring that private interests do not prevail over the sovereignty of states: "We trust democracy to have a surveillance system that works. The public health sector may not rely on privatised expertise," he warned, underlining that so-called experts did not emerge like daisies but


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Parliamentary Assembly
Council of Europe
(1) At the first public hearing in Strasbourg, 26 January…
Dr. Woodarg, former chair of the PACE committee on Health….said:
We were told this was a 'flu which would threaten humanity, and millions would fall ill…millions of dollars of medications were bought. The WHO basically .. had a key role to play in deciding on the pandemic. Around 18 billion dollars was spent on this pandemic worldwide.
The definition of a pandemic was changed by the WHO last May. It was only this change of definition which made it possible to transform a run-of-the-mill 'flu into a worldwide pandemic – and made it possible for the pharmaceutical industry to transform this opportunity into cash,
Extracts of statements made by the leading participants at the public hearing on "The handling of the H1N1 pandemic: more transparency needed?", organised by the Committee on Social, Health and Family Affairs of the Parliamentary Assembly of the Council of Europe (PACE) in Strasbourg on Tuesday 26 January 2010
Paul Flynn (United Kingdom, SOC), appointed to prepare a PACE report on this subject, for possible debate in June 2010:
The world has been frightened by a serious of health scares – SARS, Avian 'Flu and now Swine 'Flu. We now know, in hindsight, that the fears that were aroused do not appear to be justified. So we want to know how decisions on pandemics are taken – are they taken on the best scientific, epidemiological evidence, or are they influenced by other interests? That is the basis of this complaint. With H1N1, did the WHO, once again, frighten the world without any substantial evidence?
Dr Wolfgang Wodarg, medical expert specialising in epidemiology and former Chair of the PACE Sub-committee on Health:
We were told this was a 'flu which would threaten humanity, and millions would fall ill. This is why millions of dollars of medications were bought. The WHO basically held the trigger for the pandemic preparedness plans, they had a key role to play in deciding on the pandemic. Around 18 billion dollars was spent on this pandemic worldwide.
The definition of a pan
of definition which mad
pandemic – and made
opportunity into cash,
Millions were vaccinate
positive effect, becaus
In my view, the WHO undertook an incomprehensible action, which cannot be justified by
Around 18 billion dollars was spent on this pandemic worldwide.
The definition of a pandemic was changed by the WHO last May. It was only this change of definition which made it possible to transform a'flu into a worldwide pandemic – and a great opportunity for the pharmaceutical industry to transform it into cash,

The **H1N1 pandemic is not the same as seasonal influenza** and differs in major respects. Large **outbreaks occurred outside the usual season** for influenza. The virus caused a striking and unusual **pattern of severe illness and deaths in younger people**, with **many deaths caused by viral pneumonia..** This pattern is not typically seen during seasonal influenza.
The **pandemic is not over,** but to date, **more than 14,000 laboratory confirmed deaths** have been reported. We often see **the number of deaths compared with figures from seasonal influenza**. This is ***comparing apples with oranges***. Deaths from seasonal influenza are based on statistical models. **Deaths from the pandemic have been confirmed one by one** through laboratory tests and unquestionably are **much lower than the true number…**
The '**flu pandemic policies were not improperly influenced by the pharmaceutical industry**.

Dr Keiji Fukuda, Special Advisor on Pandemic Influenza to the Director-General, World Health Organisation (WHO): replied in this way (2)

There is much to learn about how the world can improve its handling of such events and a need to separate fact from rhetoric. Again, we welcome this opportunity. 'Flu viruses mutate constantly and are notoriously unpredictable. History has shown that influenza pandemics can range enormously in their impact, but that it is impossible to accurately predict the eventual impact at the beginning. What is seen early may be very different from what has been experienced by the end. The 1918 influenza pandemic, which killed an estimated 50 million people worldwide, started with relatively mild waves of illness and then evolved into the most severe influenza pandemic in history. The new virus spread with unprecedented speed, reaching 120 countries and territories in about 8 weeks, and now has been reported from virtually all countries.

The H1N1 pandemic is not the same as seasonal influenza and differs in major respects. Large outbreaks occurred outside the usual season for influenza. The virus caused a striking and unusual pattern of severe illness and deaths in younger people, with many deaths caused by viral pneumonia, an especially aggressive form of pneumonia. This pattern is not typically seen during seasonal influenza.

The pandemic is not over, but to date, more than 14,000 laboratory confirmed deaths have been reported. We often see the number of deaths compared with figures from seasonal influenza. The is comparing apples with oranges. Deaths from seasonal influenza are based on statistical models. Deaths from the pandemic have been confirmed one by one through laboratory tests and unquestionably are much lower than the true number.

WHO takes seriously provid
responses were not improp
with a range of partners, in
safeguards are in place to a

WHO is confident of the scie
pandemic as "fake" is to ignore recent history and science and to trivialize the deaths of over 14,000 people and the many additional serious illnesses experienced by others.

.. ***pandemic* is not over… to date, more than 14,000 laboratory confirmed deaths** have been reported. .. **Comparing such number of deaths with figures from seasonal influenza** is ***comparing apples with oranges***.

The '**flu pandemic policies were not improperly influenced by the pharmaceutical industry**.

The **EVM rejects this motion**, particularly the **accusation of inappropriate response** of vaccine manufacturers in their response to H1N1. The **vaccine industry did what it was asked to do..** Pandemic vaccines were **properly developed and tested – for the first time in history, vaccines were available shortly after the declaration of a pandemic**. thanks to a decade of **research** and **development** and 60 years of **experience**

The **H1N1 virus is not a new virus,** but has been known to us for decades…
Only a very small number of deaths, namely 187, can be attributed to the H1N1 virus in **Germany – and many of those are dubious.** We are witnessing a **gigantic misallocation of resources** in terms of public health.. investing in **pandemic diseases whose evidence base is weak..**

Dr Luc Hessel, European Vaccine Manufacturers:

(3)

The EVM rejects this motion, particularly the accusation of inappropriate response of vaccine manufacturers in their response to H1N1. The vaccine industry did what it was asked to do. The industry's role is to produce safe vaccines in a timely manner and respond to government's requests. It is governed by stringent international health regulations and rigorous safeguards against conflict of interest. Decision-making regarding vaccine needs can only be based on the best available data at the time.

The industry responded quickly effectively and was able to deliver the vaccines ordered by governments. Our industry responded to requests from WHO and governments who wanted to have fast access to a large quantity of vaccines. It is too early to speculate on the overall re[illegible] and reliable p[illegible]

…. for the first time in history, vaccines were available shortly after the declaration of a pandemic…

Pandemic vaccines were properly developed and tested – for the first time in history, vaccines were available shortly after the declaration of a pandemic. This was only possible thanks to a decade of research and development and 60 years of experience.

Professor Dr Ulrich Keil, Director of the WHO Collaborating Centre for Epidemiology at the University of Munster:

(4)

A number of scientists and others are questioning the decision of the WHO to declare an international pandemic. The H1N1 virus is not a new virus, but has been known to us for decades. The H1N1 vaccination campaign was stopped abruptly when it was realised that the effects were milder than anticipated. I am asking for a reconsideration of this pandemic announcement by the WHO.

In Germany, abo[illegible] and frail people. [illegible] the H1N1 virus in [illegible]

Only a very small number of deaths, namely 187, can be attributed to the H1N1 virus in Germany – and many of those are dubious…We are witnessing a gigantic misallocation of resources …

The Director Gen[illegible] cascade of actions by individual countries who were prepared for this by the SARS and Avian 'Flu scares.

Parliamentary Assembly
Council of Europe

Paris, **29.03.2010**

The **second public hearing** of PACE's *Committee on Social, Health and Family Affairs*, on H1N1 management in **Paris (20,03, 2010**) began with these words by

Paul Flynn (United Kingdom, Socialist), PACE rapporteur on this issue.

A *pandemic* cannot be whatever the WHO declares it is

- The **warning given out by the WHO resulted in a *calamity*..** in the **waste of huge sums of public money**.
- We were also **frightened** by the unnecessary **idea that there were going to be ten of thousands or even hundred thousands of deaths.** We also know that the priorities of many health services in many countries were distorted, money was being spent at defending against a formal flu…
- **We are trying to find out the truth, what really happened and why and which was the role of the WHO.**
- In ***Strasbourg* the evidence was not convincing** and the representatives of the **WHO still wanted to rely on secrecy and the privacy of the people involved…**
- so **we don't really know who actually took the decisions, who decided** that this was going to be defined as a **phase six pandemic** resulting in a great alarm all over the world...
- **A *pandemic* cannot be whatever the WHO declares it is.**

Paris, 29.03.2010

…having cried wolf so often.. next time very few people would take notice of it

- **The world no longer trusts the WHO** but we need a body of this kind and it must therefore **restore its own credibility**
- **The great danger is** if the **trust in WHO is undermined by false alarms such as SARS, CJD, Millennium Bug, Avian Flu, Swine Flu,** warning about **announced calamities** that have not occurred.
- I think that the danger is that **having cried wolf so often.. next time there might be a real scare, a virus that mutates, very few people would take notice of it**.
- So it's necessary to make sure that the this **trust will be reconstructed**

Paris, 29.03.2010

2

Polish Health Minister Ewa Kopacz who refused to be held hostage by the pharmaceutical industry and didn't order vaccines

.. the quick alarm by the WHO about the phase six of the pandemic caused a lot of interest in the media ….

- **Our government analyzed** the situation, **kept in touch with the CDC of Atlanta**, tried to take the appropriate measures as well as **controlling the panic of the population**.
- It's very important to know that **the quick alarm by the WHO about the phase six of the pandemic caused a lot of interest in the media which didn't really verify the significance of the figures and started to talk about a *coming apocalypse***, reminding the famous ***Spanish flu*** and the more recent ***avian flu..***


Killer plague that shook the world with panic and death

Parliamentary Assembly
Council of Europe

Paris, 29.03.2010

… the conditions of purchase of these vaccines proposed by the producers were very dubious…

- The *Polish Flu Pandemic Committee* defined a high risk group and the **Government set aside the resources to buy the appropriate number of vaccines**..
- but **the conditions of purchase of these vaccines proposed by the producers were very dubious** for the Polish government.
- The **producers of the vaccines refused to take the responsibility for the possible undesirable side effects**…
- moreover **the vaccines were two or three times more expensive that those against the seasonal flu.**

For these reasons the **Polish government decided not to purchase the vaccines** under the conditions offered by the producers.

Parliamentary Assembly
Council of Europe

Paris, 29.03.2010

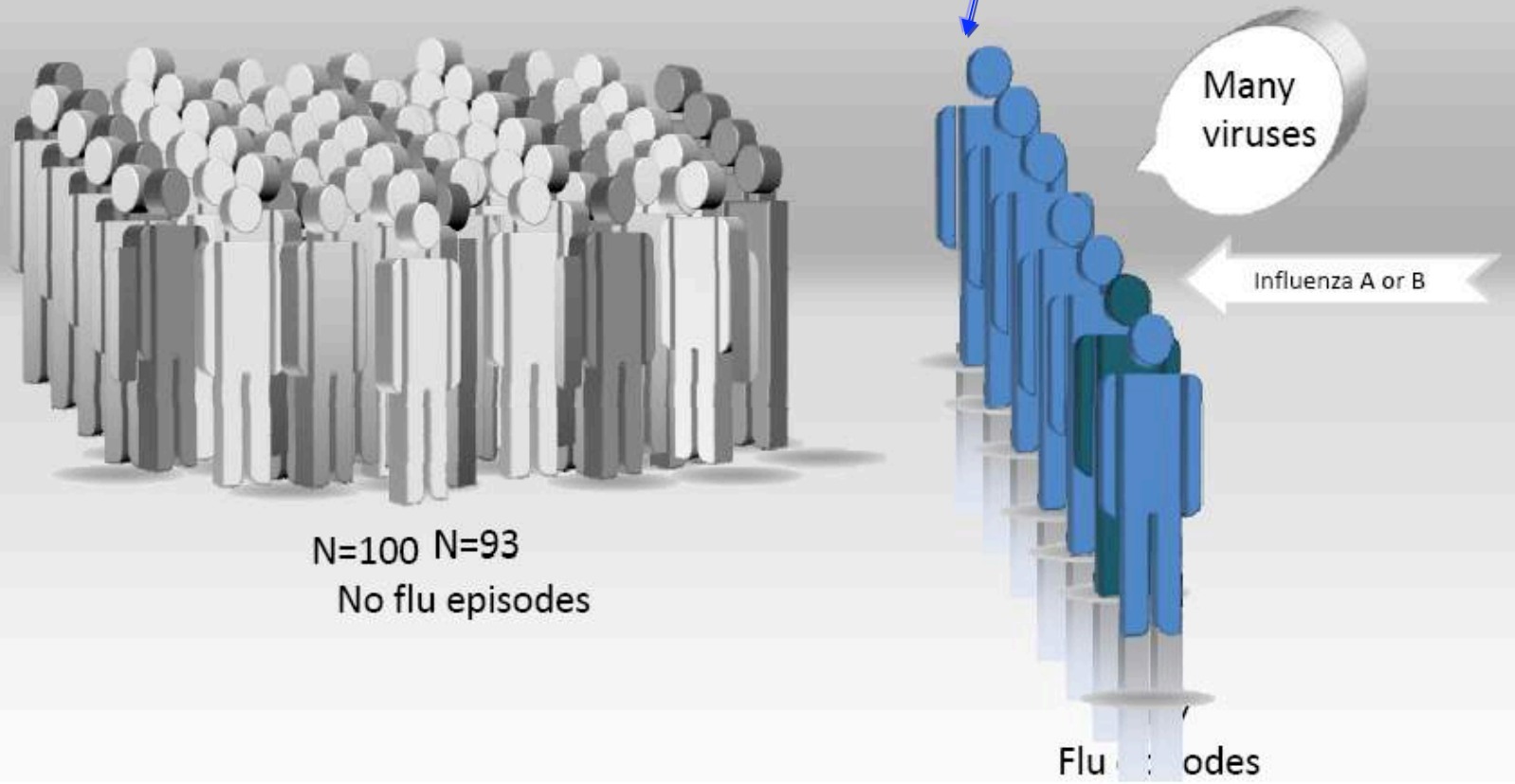
3

Dr Tom Jefferson Influenzae Reviewer of the Cochrane Vaccines Field..said

.. Influenza and influenza-like illness are not the same thing..

- **Influenza and influenza-like illness are not the same thing**
- …what most people are not told is that **the influenza viruses only account for a minority (7-15%) of these episodes.** Instead**, the world seems to believe that all flu is influenza and ignores the role of some 200 other agents**.
- The starting point is that **few (if any) national and international surveillance systems make the distinction between influenza and influenza-like illness**
- So we **have no idea how much ILI/flu there is and as consequence we cannot say for certain how much influenza is circulating** as influenza is an unknown proportion of an unknown whole (influenza-like illness/flu).
- In conclusion **the currently available evidence does not allow us to know** in a reliable way **how many cases of influenza there are, nor its impact in terms of death and disability with any degree of certainty**…
- **if we cannot describe the ordinary (i.e. the seasonal)** in any satisfactory way, **we certainly cannot describe the extraordinary (i.e. pandemic)…**

How many flu episodes/year
How many are influenza?



Based on 274 influenza vaccines and 28 epi studies 1966-2007 (> 3 M observations)

On one hundred people in a year **seven will have a FLU**.. **One is caused by an influenza A or B virus**.
This is an exaggeration as well, because many of these BLUE GUYS are infected by more than one bug..

The definition before May 4 2009 (which has since disappeared from the WHO website) was as follows
"**An influenza pandemic occurs when a new influenza virus appears against which the human population has no immunity…. resulting in epidemics worldwide with enormous numbers of deaths** and illness

Paris, 29.03.2010

Change of pandemic influenza definition (around 1 May 09)

"…resulting in epidemics worldwide with **enormous numbers of deaths and illness"** vanishes

"Current" definition emphasis on new virus and spread

Why change? "It was a mistake, and we apologize for the confusion."

"(That definition) was put up a while ago and paints a rather bleak picture and could be very scary." The correct definition is that "pandemic" indicates outbreaks in at least two of the regions into which WHO divides the world, but has nothing to do with the severity of the illnesses or the number of deaths" (Natalie Boudou 4th of May 2009)

WHO spokeswoman *Natalie Boudou* justified the change by saying that **the "old" definition was in "error"**

- And: "We wrote that definition [i.e. the one pre-dating the 4th of May 2009] with avian flu in mind" (Dr Hartl 7 Feb 2010)

- Strange mistake since all WHO pandemic docs (20004-2009) report the pre-4th of May 09 definition and it makes no mention of avian influenza

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Council of Europe

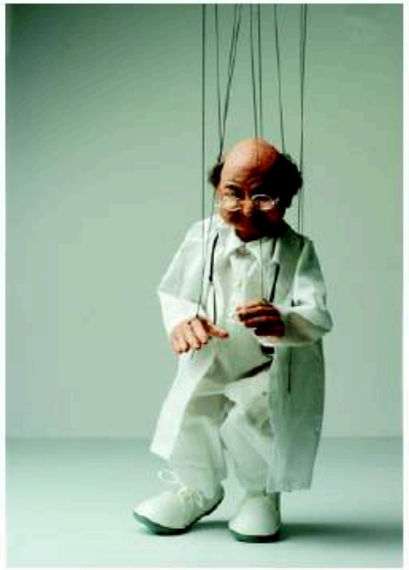
Paris, 29.03.2010

..too many *experts* have been parsimonious with declaring their interests and their role as members of lobbying organizations which are financed by industry…

- **Much has been said about the role of experts in advising policy makers** on both seasonal and pandemic influenza.
- We know that **some of them have been parsimonious with declaring their interests and their role as members of lobbying organizations which are financed by industry and some did not think it important to disclose pretty hefty industry funding of their institutions.**
- We know that **transparency is probably not taken very seriously by WHO.**
- However, few people realize that **even experts with no ties to industry** or government civil servants **have career motivations, especially if they make policy and evaluate its effects**…

Key opinion leaders

(Czech puppet picture courtesy of the BMJ)



"We are supposed to be prepared for a pandemic of some kind of influenza Because the flu watchers, the people who make a living out of studying the virus and who need to attract continued grant funding to keep studying it, must persuade the funding agencies of the urgency of fighting a coming plague." ⇐

Philip Alcabes. Dread: How Fear and Fantasy Have Fueled Epidemics from the Black Death to the Avian Flu. PublicAffairs, £15.99, pp 336 ISBN: 978-1586486181

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- I conclude that **the results of the expert system** (in which selection is on the basis of *fame* or ***sponsorship***, with *transparency* being the exception) are plain for all to see:
- **catastrophic predictions that have failed to materialize, poor science, a thriving pandemic industry and the reputation of public health structures in tatters…**
- Then we have **the *media* (whose role is plain for all to see) and the *scientific media*, the *scientific journalists*, who also had a major role to play,** as I shall demonstrate shortly.
- **The media, like everyone else, are cashing in the whole circus.**

Then we have **the *media* .. the *scientific media.*. the *scientific journalists*.. cashing in the whole circus. like everyone else**

Paris, 29.03.2010

New York Times, October 24, 2004

"This one is my own favourite…"

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Council of Europe

Paris, 29.03.2010

The **Cochrane Collaboration** has been doing **systematic reviews of the effects of vaccines and antiviral drugs against influenza since the late 1990s**.

- Vaccines and antivirals are useless against the majority of cases of influenza-like illness/flu, as one would expect.. **in fact, vaccines and antivirals have a weak or non existent evidence base against influenza**
- The **quality of influenza vaccines studies is so bad** that **our systematic review of 274 vaccines studies** which had published between 1948 and 2007 found **major discrepancies between data presented, conclusions and the recommendations** made by the authors of these studies.
- **Conclusions favourable to the use of influenza vaccines** were **associated with lower quality studies, with the authors making claims and drawing conclusions unsupported by the data they presented**. In addition, **industry funded studies were more likely to have favourable conclusions, be published in significantly higher impact factor journals (ie the more prestigious journals)** and have **higher citation rates than non-industry funded studies.** This **difference is not explained by either the size or the methodological quality of the studies.**

So, we have little reliable evidence on the effects of influenza vaccines.

What we do have is **evidence of widespread manipulation of conclusions** and **spurious notoriety of the studies.**

pace Parliamentary Assembly
Council of Europe

Paris, 29.03.2010

.. Vaccines and antivirals have a weak or non-existent scientific evidence base..

Effectiveness of influenza vaccine in healthy adults

(real world conditions)

Vaccinated n=100

THE COCHRANE COLLABORATION®

TO Jefferson, D Rivetti, C Di Pietrantonj, A Rivetti, V Demicheli. ***Vaccines for preventing influenza in healthy adults.*** *Cochrane Database of Systematic Reviews* 2007, Issue 2. Art. No.: CD001269. DOI: 10.1002/14651858.CD001269.pub3.

On average, perhaps 1 adult out of a 100 vaccinated will get influenza symptoms compared to 2 out of 100 in the unvaccinated group. To put it another way we need to vaccinate 100 healthy adults to prevent one set of symptoms. However, our Cochrane review found no credible evidence that there is an effect against complications such as pneumonia or death

Public health

Influenza vaccination: policy versus evidence

Tom Jefferson

Each year enormous effort goes into producing influenza vaccines for that specific year and delivering them to appropriate sections of the population. Is this effort justified?

.. In **children under 2 years inactivated vaccines had the same field efficacy as placebo..**

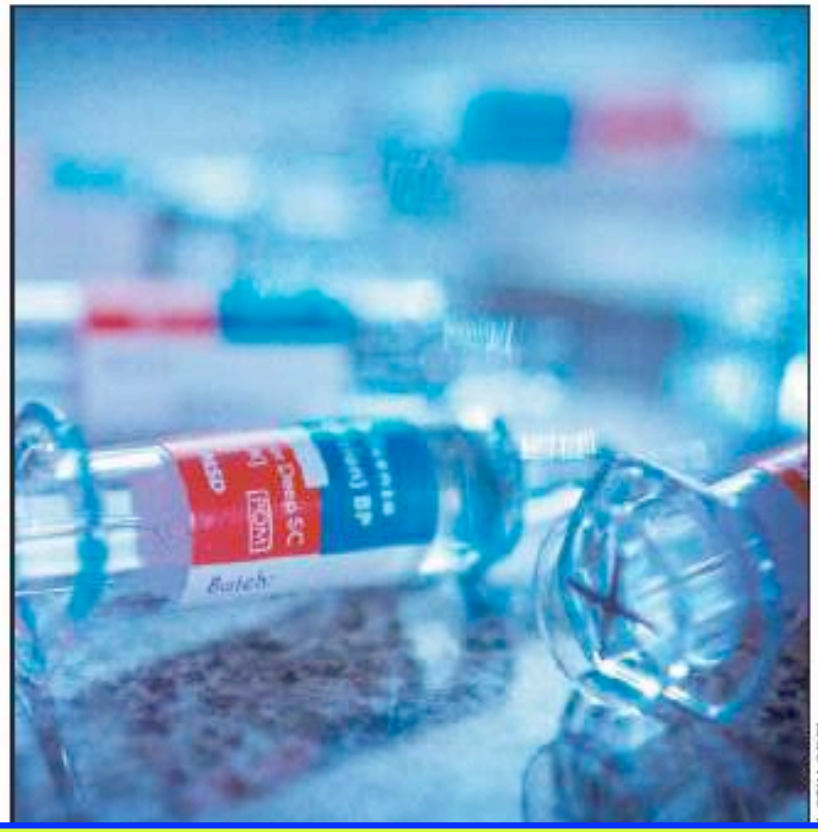
Cochrane Vaccines Field, Anguillara Sabazia, Roma 00061, Italy

Tom Jefferson
coordinator

jefferson.tom@gmail.com

BMJ 2006;333:912–5

Viral infections of the respiratory tract impose a high burden on society. In the last half of the 20th century, efforts to prevent or minimise their impact centred on the use of influenza vaccines. Each year enormous effort goes into producing that year's vaccine and delivering it to appropriate sections of the population. Here, I will discuss policies on the use of inactivated vaccines for seasonal influenza; the evidence for their efficacy, effectiveness, and safety ("effects"); and possible reasons for the gap between policy and evidence.



Policies

Every vaccination campaign has stated aims against which its effects must be measured. The US Advisory Committee on Immunisation Practices produces a regularly updated rationale for vaccination against influenza.[1] The current version identifies 11 categories of patients at high risk of complications from influenza

In **children under 2 years inactivated vaccines had the same field efficacy as placebo**, and **in healthy people under 65 vaccination did not affect hospital stay, time off work, or death from influenza and its complications.** Reviews found no evidence of an effect in patients with asthma or cystic fibrosis..

vaccination. For example, reductions in cases, admissions to hospital, mortality of elderly people in families

studies reporting data from one or two seasons are

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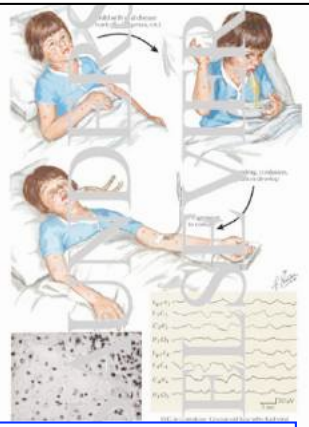


Are antiviral drugs effective ?

- Our ***Cochrane reviews*** found that **antiviral drugs** are *effective against symptoms*, but they are *toxic*, some **are *expensive* and may not prevent complications .**
- In other words, the *publicly available evidence suggests that* **drugs like aspirin may be just as good, and less dangerous,** than the drugs on which **billions of Euros** have been spent to create **stockpiles**.
- This is, of course, **not the way they have usually been portrayed in the media**. In addition it seems that **no one wants to test the performance of antivirals against antipyretic and anti inflammatory drugs and physical interventions** (such as masks or handwashing) to have a definitive answer.
- **Public health interventions such as hygiene measures and barriers have a much better evidence base than vaccines** ..They are also **cheaper and socially acceptable,** as well as being life savers in poor countries, **yet they are almost ignored**… in the most recent 62-page guidance document on ***planning for pandemic influenza from the WHO…*** **handwashing and masks were mentioned only twice** and gloves and gowns once each, but **vaccines and antivirals appeared 24 and 18 times, respectively**

***As a matter of fact Aspirin* has been linked with *Reye's syndrome:* we should use caution when giving *aspirin* to children or teenagers**

Paris, 29.03.2010

…If the ***complex interplay of poor science, .. media business, pharma business.. is not interrupted…***

- **In conclusion**, I cannot predict the future but if it repeats the past it will be full of continuous alarms and possible declarations of pandemics.
- If the **complex interplay of poor science, "*opinion leaders*", *media business*, pharma business, pandemic business and unaccountable decision-making is not interrupted, we will have many more similar episodes**.
- **Scientific evidence, systematically and independently assembled and weighted by its quality**, needs to be centre-stage and not simply a "*pretty maiden*" whose services are called upon on demand

OXFORD JOURNALS CONTACT US MY BASKET MY ACCOUNT

Health Policy and Planning

Health Policy and Planning Advance Access originally published online on July 1, 2
Health Policy and Planning 2009 24(6):407-417; doi:10.1093/heapol/czp026

Global health funding: how much, where it comes from and where it goes

David McCoy[1,*], Sudeep Chand[1] and Devi Sridhar[2]

[1] University College London, Centre for International Health and Development, Lond United Kingdom.
[2] University of Oxford, Department of Politics and International Relations, All Souls C Oxford, United Kingdom.

Global health funding has increased in recent years. This has been accompanied by a proliferation in the number of global health actors and initiatives. This paper describes the state of global heath finance, taking into account government and private sources of finance, and raises and discusses a number of policy issues related to global health governance. A schematic describing the different actors and three global health finance functions is used to organize the data presented, most of which are secondary data from the published literature and annual reports of relevant actors. In two cases, we also refer to currently unpublished primary data that have been collected by authors of [illegible] that the volume of official development assis and that data on private sources of global he indicate a large and important role of private complicated, messy and inadequately tracke requires immediate attention. In particular it global health finance that is channelled by and through private sources, and to critically examine who benefits from the rise in global health spending.

Among the findings are that **the volume of official development assistance for health is frequently inflated**; and that **data on private sources of global health finance** are **inadequate** but indicate a large and **important role of private actors**.

The **fragmented, complicated, messy and inadequately tracked state of global health finance** requires immediate attention. In particular **it is necessary to track and monitor global health finance that is channelled by and through private sources,** and to critically examine **who benefits from the rise in global health spending.**

Inter-governmental organizations such as WHO and UNICEF tend to be mainly government-funded. However, private foundations are not a negligible source of funding for the WHO. In 2006, the Gates Foundation was the third equal largest funder of the WHO (Global Health Watch 2008).

The ***S-OIV/2009 Flu Pandemic*** **probably was a a false alarm** or even a ***hoax..*** All these **interviews seem quite reassuring**.. but they do not help us in clarifying th**e real situation in the perpetually changing world of *orthomyxoviruses...*** After the **emerging of H5N1** (in 1997) virologists signaled many other **avian strains** that, having acquired some mutations, have "jumped" into human beings, causing **concern**..

The single greatest threat to man's continued existence on earth is the virus.
Joshua Lederberg, Nobel Laureate

The extent of infection into host organism is determined by *Hemagglutinin* (HA).

HAs of **H5.. H7.. (H9) pantropic avian viruses** subtypes can be cleaved by furin and subtilisin-type enzymes, allowing the virus to **grow in other organs than lungs** (→*systemic diseases*)

How should we orient ourselves between *scaremongers* and *deniers ?*

NATURE | VOL 430 | 8 JULY 2004 p 242-9

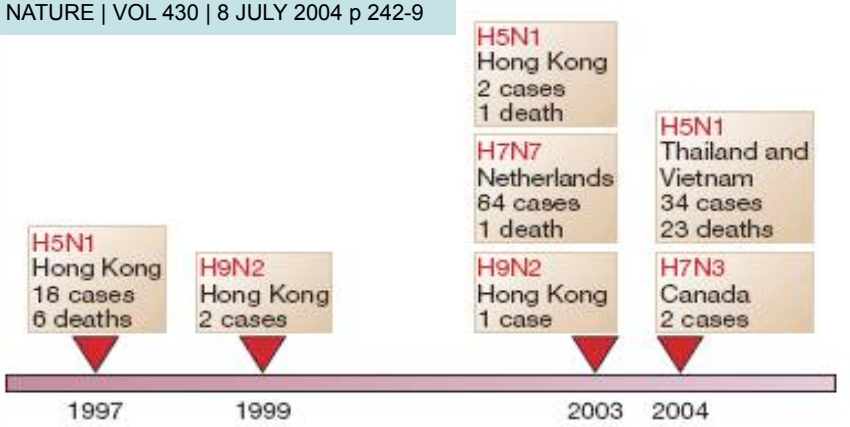
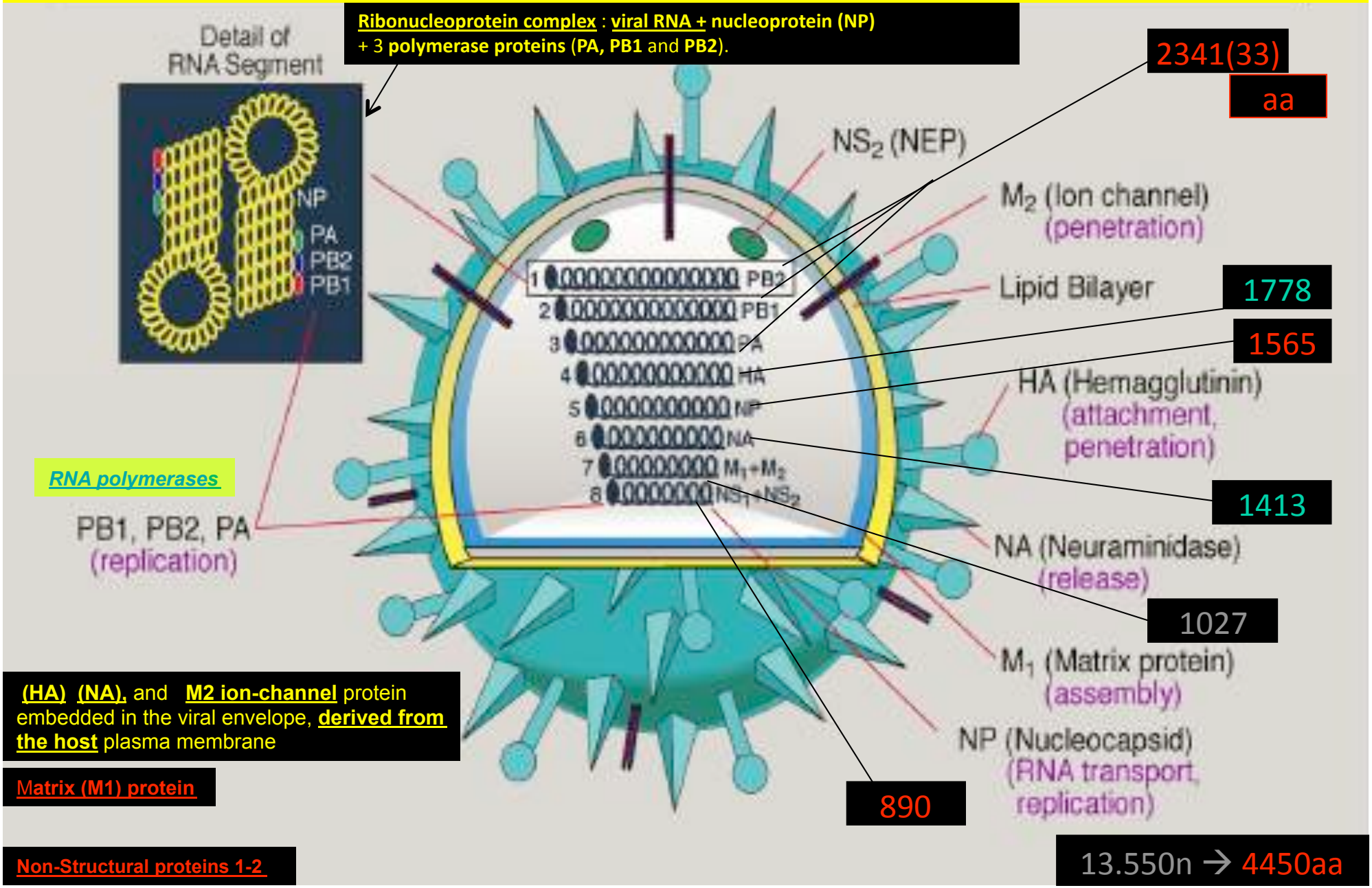
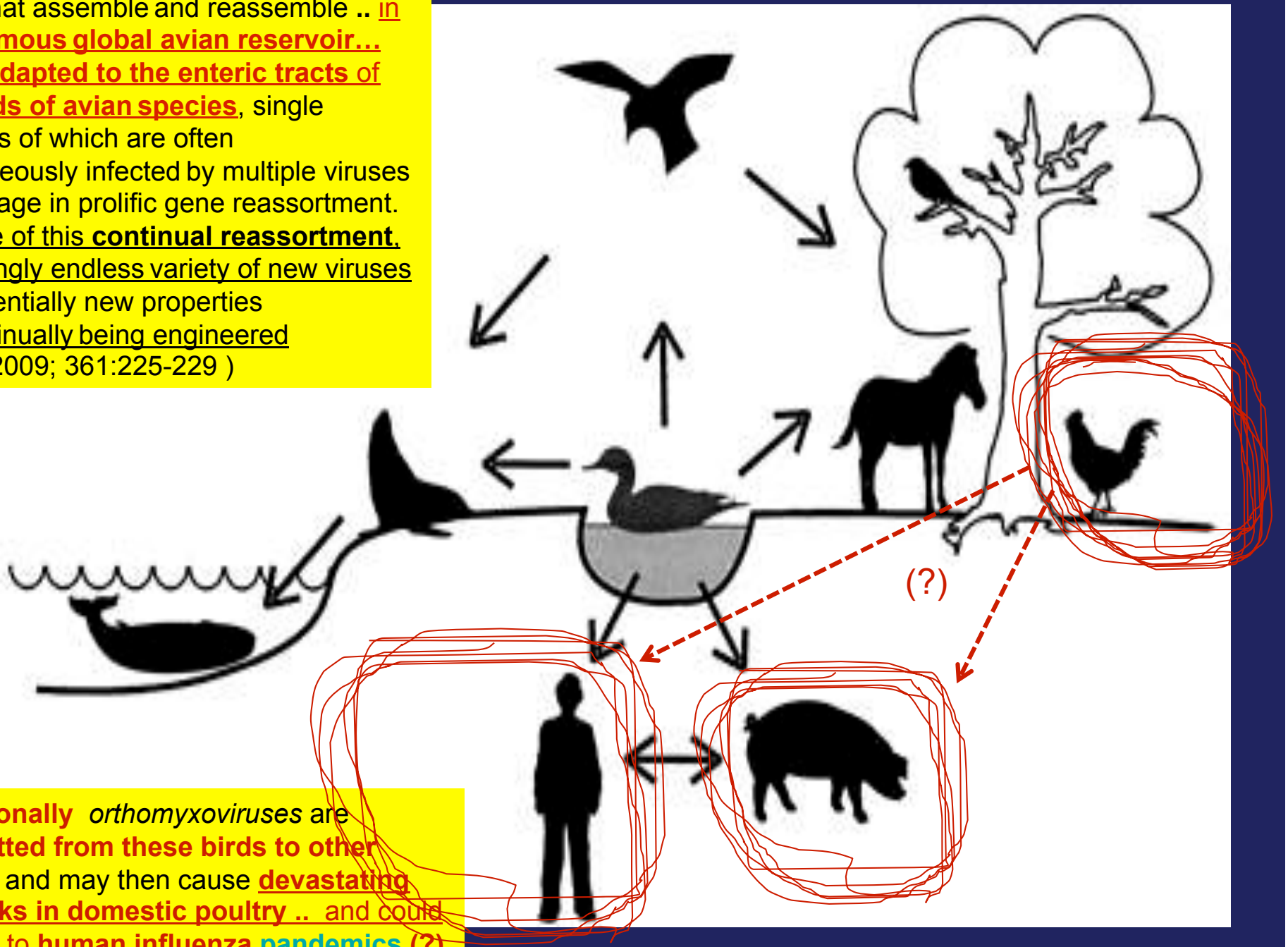


Figure 4 Documented human infections with avian influenza viruses, 1997–2004. Sporadic cases of mild human illness associated with avian influenza viruses were reported before 1997. See http://www.who.int/csr/disease/influenza/en and ref. 76.

The Influenza A virus **genome is contained on eight single** (non-paired) **RNA strands that code for eleven proteins** (**HA**, **NA**, NP, M1, M2, NS1, NEP, PA, PB1, PB1-F2, PB2). The total genome size is 13,588 bases
The **segmented nature of the genome allows for the exchange of entire genes between different viral strains during cellular cohabitation**

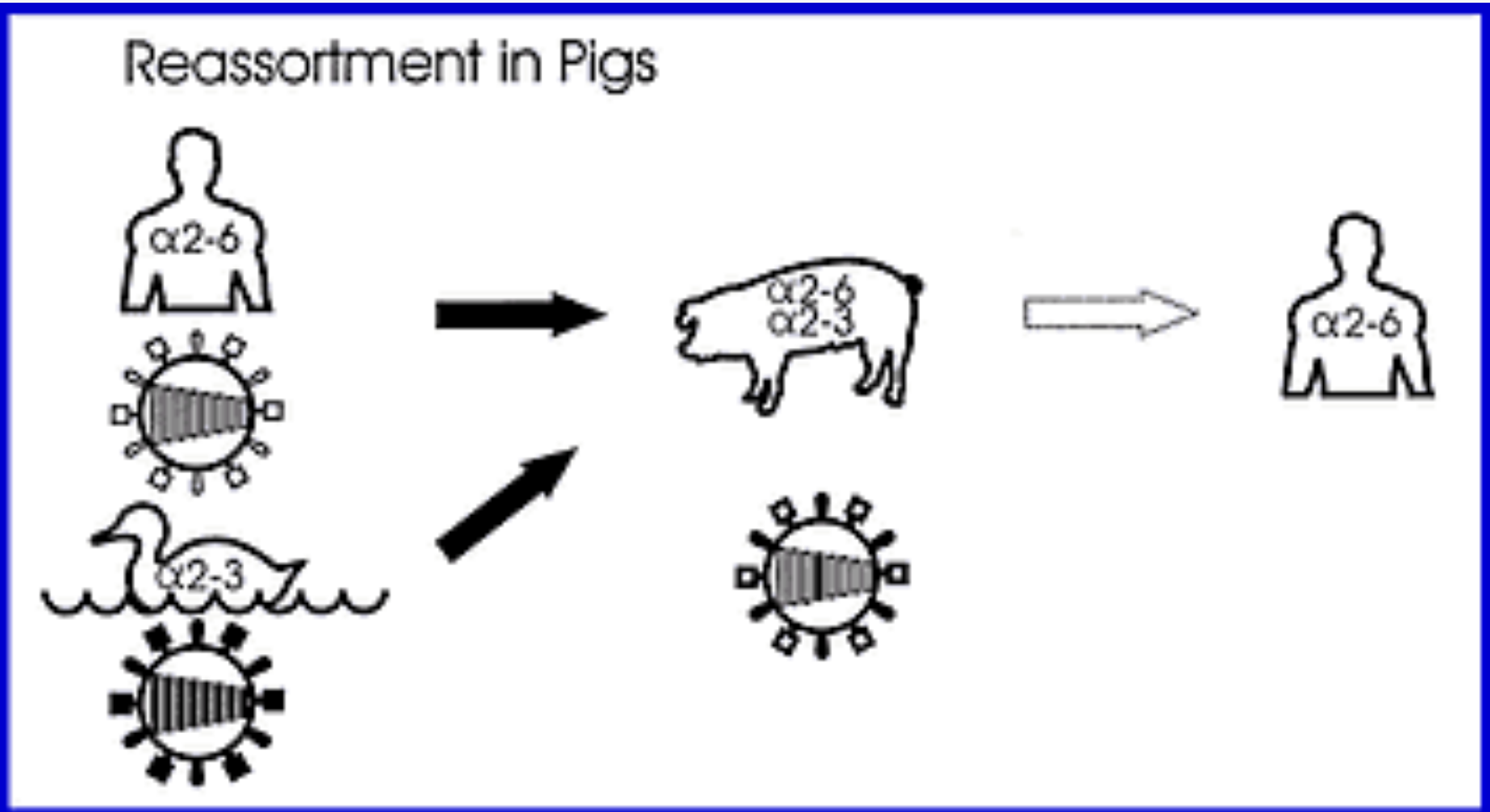


In nature, **avian influenza A viruses** seem to exist as transient complexes of eight genes that assemble and reassemble .. in an **enormous global avian reservoir… stably adapted to the enteric tracts** of **hundreds of avian species**, single members of which are often simultaneously infected by multiple viruses that engage in prolific gene reassortment. Because of this **continual reassortment**, a seemingly endless variety of new viruses with potentially new properties are continually being engineered (NEJM 2009; 361:225-229)



Occasionally *orthomyxoviruses* are **transmitted from these birds to other species** and may then cause **devastating outbreaks in domestic poultry ..** and could give rise to **human influenza pandemics (?)**

Human trachea expresses **sialyl 2-6 Gal** significantly, while **duck** intestinal mucosa express **2-3**. In contrast, **pig trachea expresses both 2-3** and **2-6** linkages.
Due to their ability to support replication of both avian and human influenza viruses, **pigs** have been implicated as **intermediate hosts**, serving as **mixing vessels** for **avian** and **human viruses (**since **1957**, asian flu pandemics)



In the classical genetic reassortment model, avian and human viruses bind their respective receptors in the pig tracheal epithelium.

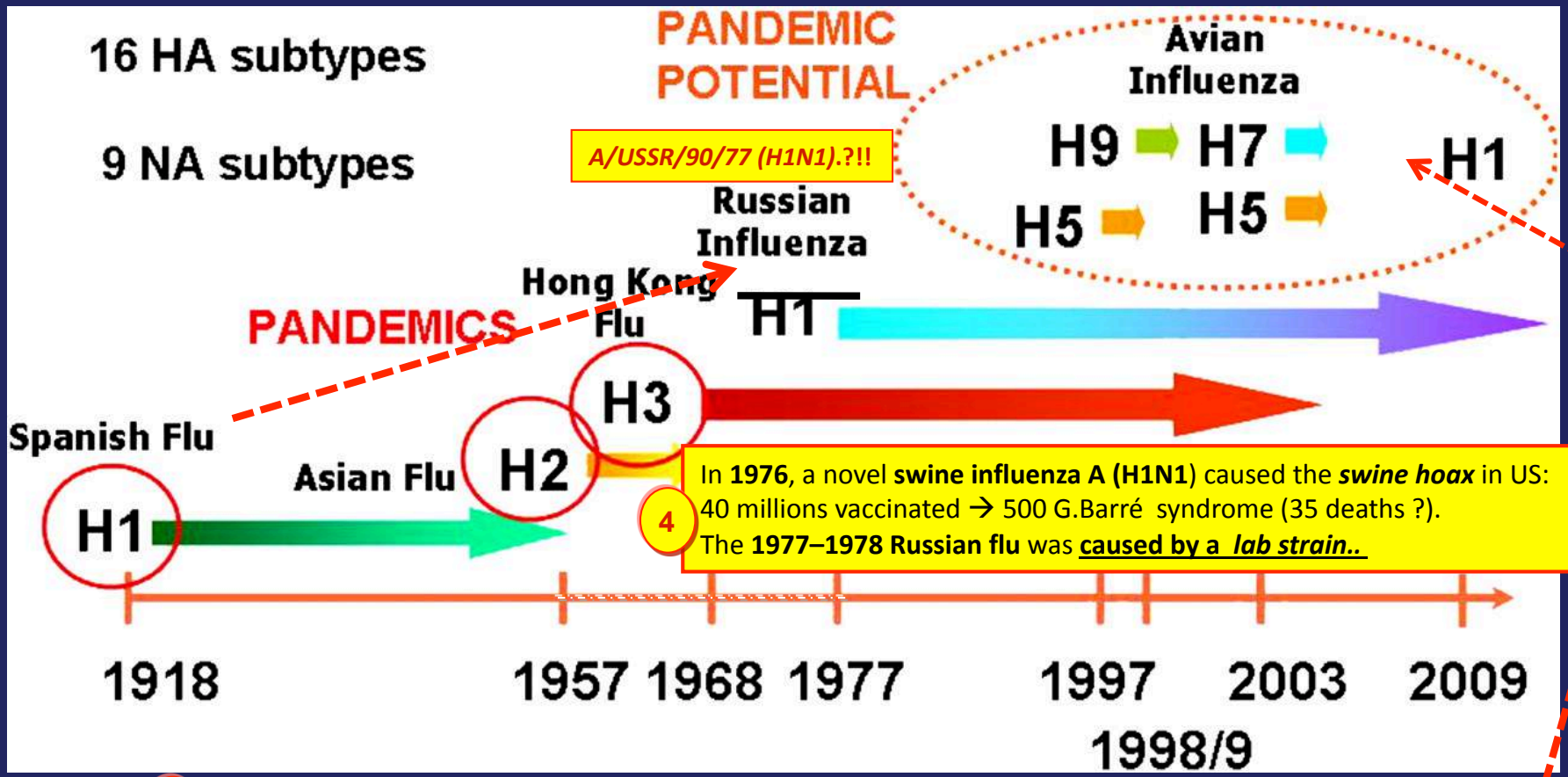
Horimoto T, Kawaoka Y. *Clin Microbiol Rev.* 2001;14:129-149.

AMERICAN JOURNAL OF
Respiratory Cell and
Molecular Biology®

1 **1918 H1N1** was responsible for the **Spanish flu** pandemic and **<u>became adapted to mammals</u>**

2 The **Asian Flu** was a pandemic outbreak of **H2N2** avian-human virus influenza that originated in China in **1957**

3 **H3N2** evolved from **H2N2** by antigenic ***shift*** and caused the **Hong Kong** Flu pandemicis 1968-69. It is **<u>currently endemic</u>** in both human (since 1968) and pig populations (since 1997-8).



4 In **1976**, a novel **swine influenza A (H1N1**) caused the ***swine hoax*** in US: 40 millions vaccinated → 500 G.Barré syndrome (35 deaths ?).
The **1977–1978 Russian flu** was **<u>caused by a *lab strain..*</u>**

5 In the last 13 years many **<u>H5.. H7.. H9 pantropic avian viruses</u>** **emerged from avian reservoirs** and provoked **some *clusters* of human flu which cause <u>concern</u>…**

Timeline of emergence of Influenza A viruses in humans. The viruses isolated from pandemics in the last century are indicated by time of origin and subtype. **<u>Virus subtypes with pandemic potential are *circled*</u>**.

The NEW ENGLAND JOURNAL of MEDICINE

This is perhaps the most important paper on swine-flu published last year. The author was Jeffrey *Taubenberger*, one of the most famous experts in the field, having **sequenced the H1N1 virus of the 1918 Spanish Flu**

PERSPECTIVE

Volume 361:225-229 July 16, 2009 Number 3

The Persistent Legacy of the 1918 Influenza Virus

David M. Morens, M.D., Jeffery K. Taubenberger, M.D., Ph.D., and Anthony S. Fauci, M.D.

It is not generally appreciated that descendents of the H1N1 influenza A virus that caused the catastrophic and historic pandemic of 1918–1919 have persisted in humans for more than 90 years and have continued to contribute their genes to new viruses, causing new pandemics, epidemics, and epizootics (see table). The current international pandemic caused by a novel influenza A (H1N1) virus derived from two unrelated swine viruses, one of them a derivative of the 1918 human virus,[3] adds to the complexity surrounding this persistent progenitor virus, its descendants, and its several lineages (see diagram).

A useful way to think about influenza A events of the past 91 years is to recognize that we are living in a pandemic era that began around 1918.[4] At that time, a presumably new founding virus, containing novel set of eight influenza genes and probably derived from an unidentified avian-like precursor virus, became adapted to mammals; the molecular and virologic events responsible for that adaptation rem unclear. This virus caused an explosive and historic pandemic, during which humans also transmitted the virus to pigs, in which it remains in circulation. Ever since 1918, this tenacious virus has drawn on a of evolutionary tricks to survive in one form or another, in both humans and pigs, and to spawn a host of novel progeny viruses with novel gene constellations, through the periodic importation or exportati viral genes (see Zimmer and Burke, pages 279–285). The 2009 H1N1 pandemic virus represents yet another genetic product in the still-growing family tree of this remarkable 1918 virus.

.. **we are living in a pandemic era that began around 1918…** At that time, **a presumably "new virus" ..probably derived from an unidentified avian-like precursor virus, became adapted to mammals..** causing an **explosive and historic pandemic,** during which **humans also transmitted the virus to pigs, in which it remains in circulation**. Ever since 1918, **this tenacious virus has survived .. in both humans and pigs**..

The **2009 H1N1 pandemic virus represents yet another genetic product** in the still-growing family tree of this remarkable 1918 virus. To understand what has been happening since 1918, **it is helpful to think of influenza viruses not as distinct entities but as eight-member "gene teams" that work together**

Mortality Associated with Influenza Pandemics and Selected Seasonal Epidemic Events, 1918–2009.*

Years	Circulating Virus (Genetic Mechanism)	Excess Deaths from Any Cause *no. per 100,000 persons/yr*
1918–1919	H1N1 (viral introduction), pandemic	598.0
1928–1929	H1N1 (drift)	96.7
1934–1936	H1N1 (drift)	52.0
1947–1948	H1N1 A′ (intrasubtypic reassortment)	8.9
1951–1953	H1N1 (intrasubtypic reassortment)	34.1
1957–1958	H2N2 (antigenic shift), pandemic	40.6
1968–1969	H3N2 (antigenic shift), pandemic	16.9
1972–1973	H3N2 A Port Chalmers (drift)	11.8
1975–1976	H3N2 (drift) and H1N1 ("swine flu" outbreak)	12.4
1977–1978	H3N2 (drift) and H1N1 (viral return)	21.0
1997–1999	H3N2 A Sydney (intrasubtypic reassortment) and H1N1 (drift)	49.5
2003–2004	H3N2 A Fujian (intrasubtypic reassortment) and H1N1 (drift)	17.1
2009	H3N2 and H1N1 (drift) and swine-origin H1N1 (viral introduction), pandemic	?

* Mortality data include deaths associated with all influenza A and B viruses combined. Many of these data have been calculated with the use of differing methods and may not be strictly comparable.[1,2] The 1934, 1951, and 1997 data span 2 years.

Once new human influenza viruses appear and cause pandemics, population immunity to their HA and NA proteins increases quickly. The powerful counterforce of population immunity is met by the remarkable ability of influenza virus to evolve by means of mutation (drift) or acquisition through reassortment either of different HA subtypes (shift) or through intrasubtypic reassortment with variant HAs of the same subtype or of other genes of cocirculating viruses.[5] Direct descendants of the 1918 virus caused "shift pandemics" in 1957 (H2N2) and 1968 (H3N2); they also caused "pandemic-like events" associated with intrasubtypic reassortment in 1947 (H1N1), 1951 (H1N1), 1997 (H3N2), and 2003 (H3N2). By convention, the term "pandemic" influenza has been reserved for global influenza epidemics caused by viruses with new HA subtypes.

In his paper ***Taubenberger*** showed that the theory of **3(4) pandemics (due to antigenic shift)** in the twentieth century is an **oversimplification**. … sometimes a **simple drift** (last time in **1997-99**) caused **a large number of deaths**

It seems that ***orthomyxoviruses* are expanding their *range* of infection.. *H5N1*** has been shown to be transmitted to **tigers, leopards**, and **domestic cats** that were fed uncooked chickens with the virus

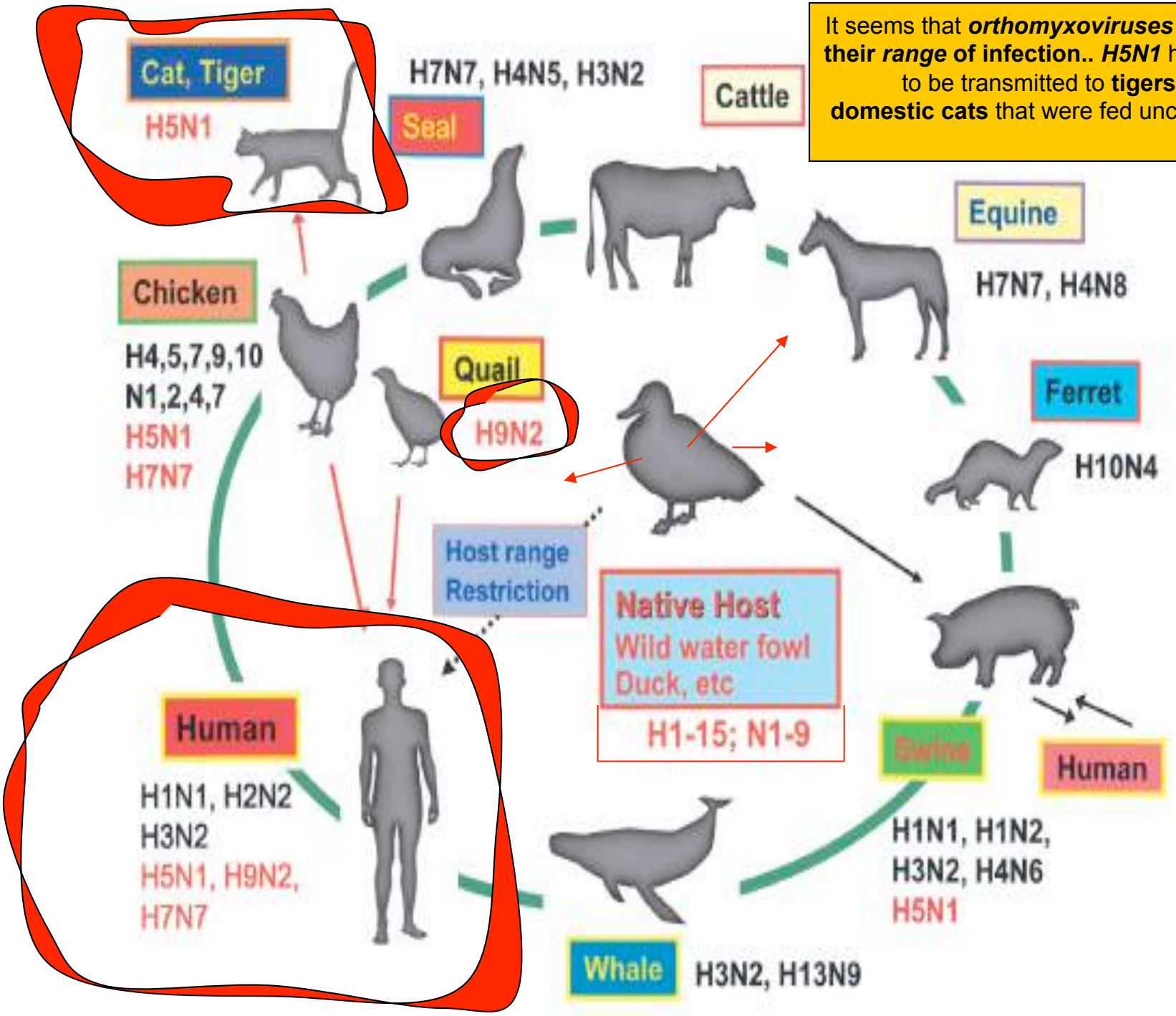
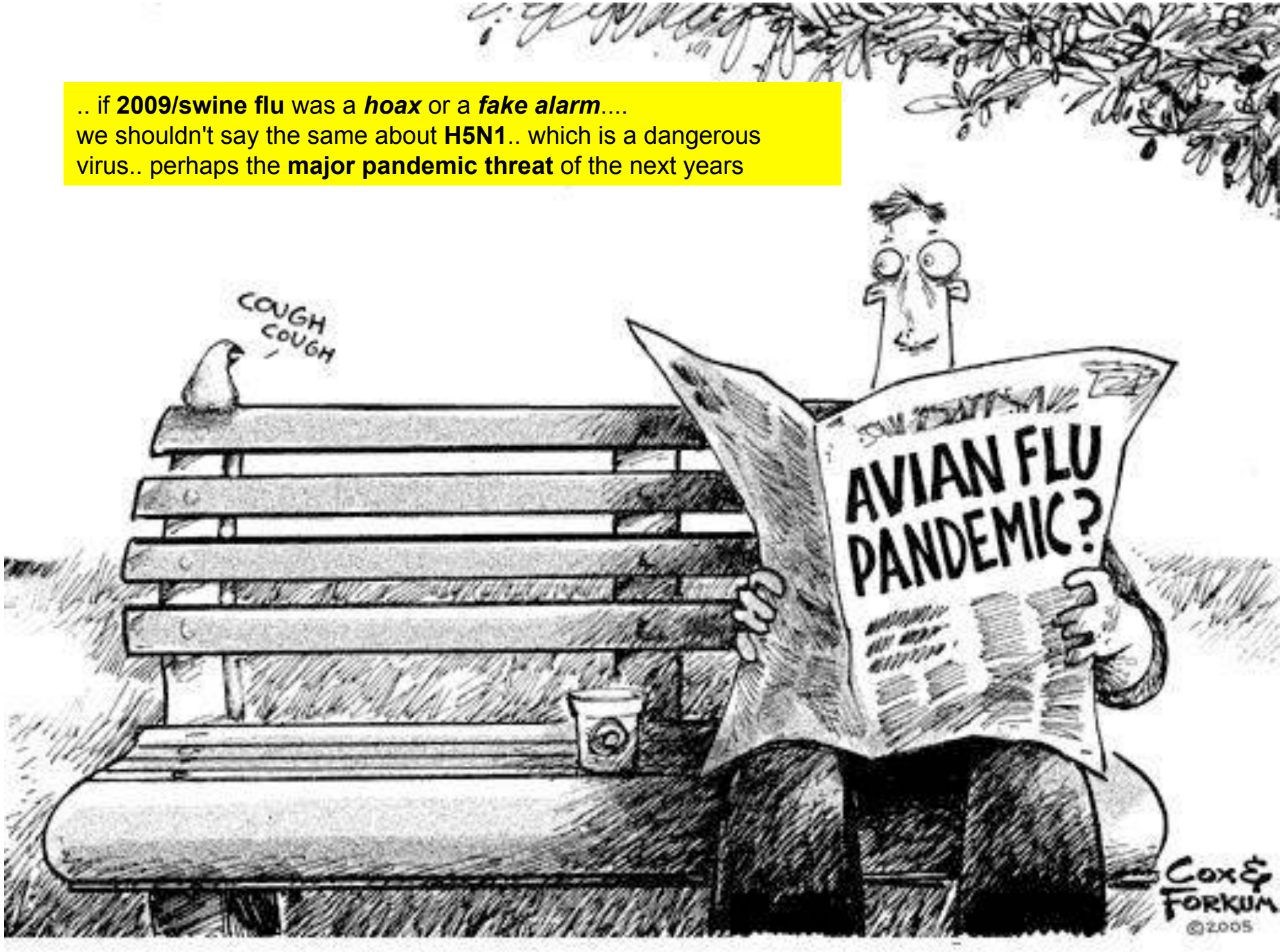
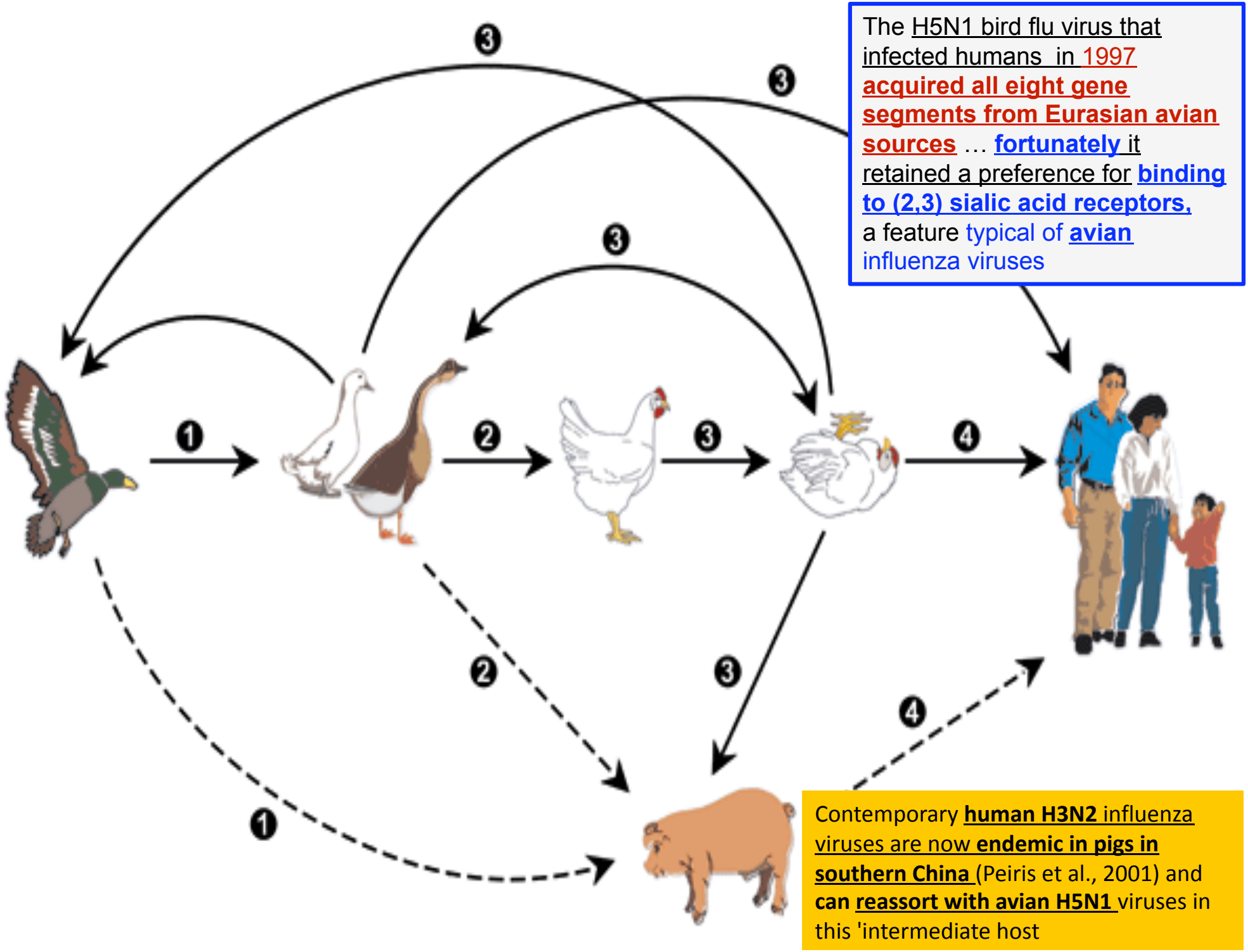


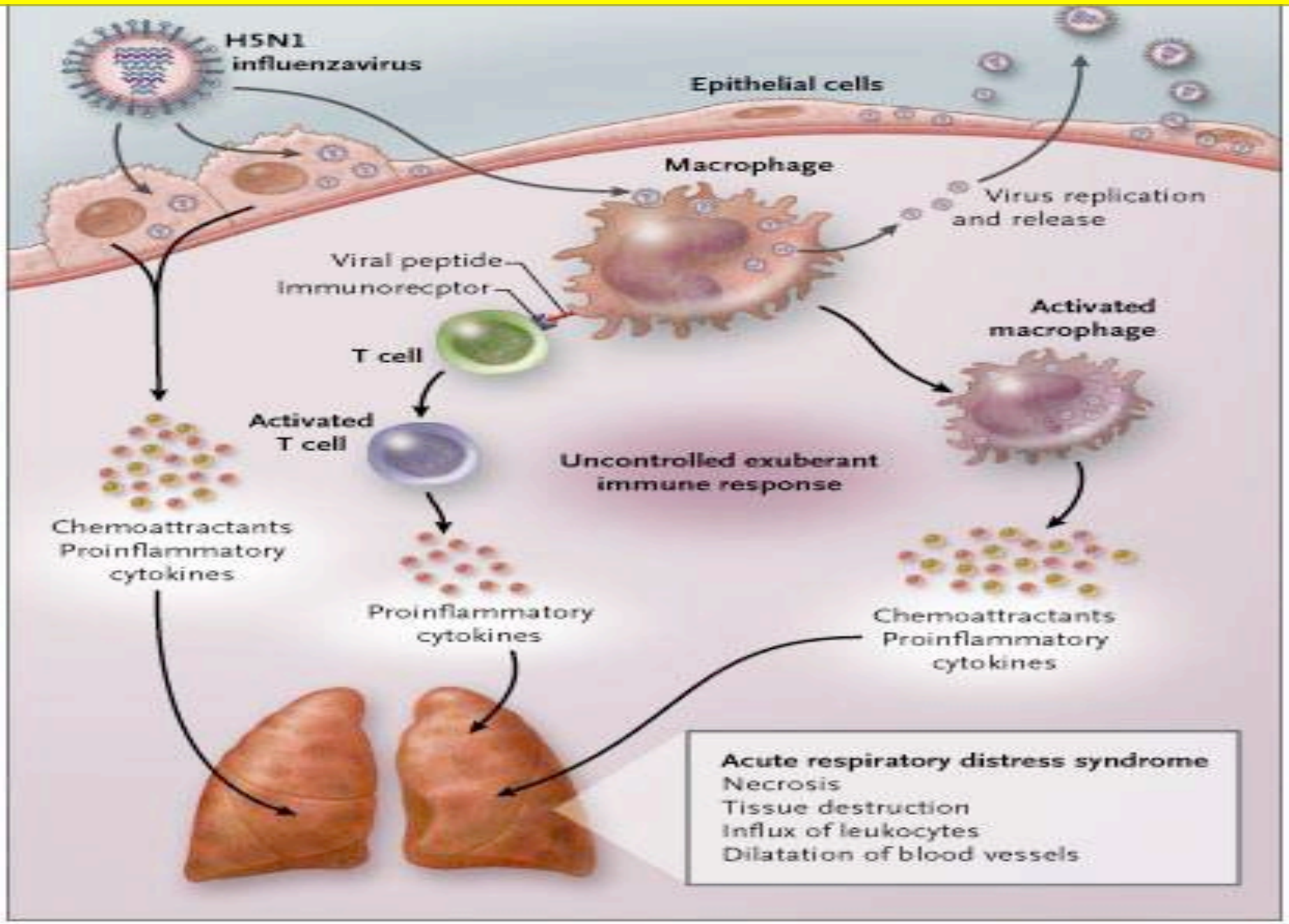
Fig. 1. Host Range of Influenza Viruses

.. if **2009/swine flu** was a ***hoax*** or a ***fake alarm***....
we shouldn't say the same about **H5N1**.. which is a dangerous virus.. perhaps the **major pandemic threat** of the next years




The H5N1 bird flu virus that infected humans in 1997 acquired all eight gene segments from Eurasian avian sources … fortunately it retained a preference for binding to (2,3) sialic acid receptors, a feature typical of avian influenza viruses
Contemporary human H3N2 influenza viruses are now endemic in pigs in southern China (Peiris et al., 2001) and can reassort with avian H5N1 viruses in this 'intermediate host

In fact the **"pandemic strains" (as HPAI viruses in birds)** kill through an **indirect mechanism, triggering an inflammatory, systemic response: the so called *cytokine-storm***



Osterholm, M. T. N Engl J Med 2005;352:1839-1842

This paper, for example, shows a **"*typical cluster*" of H5N1 cases**..

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 MARCH 18, 2004 VOL. 350 NO. 12

Avian Influenza A (H5N1) in 10 Patients in Vietnam

Tran Tinh Hien, M.D., Nguyen Thanh Liem, M.D., Nguyen Thi Dung, M.D., Luong Thi San, M.D., Pham Phuong Mai, M.D., Nguyen van Vinh Chau, M.D., Pham Thi Suu, M.D., Vo Cong Dong, M.D., Le Thi Quynh Mai, M.D., Ph.D., Ngo Thi Thi, M.D., Dao Bach Khoa, M.D., Le Phuc Phat, M.D., Nguyen Thanh Truong, M.D., Hoang Thuy Long, M.D., Ph.D., Cao Viet Tung, M.D., Le Truong Giang, M.D., Ph.D., Nguyen Dac Tho, M.D., Le Hong Nga, M.D., Nguyen Thi Kim Tien, M.D., Ph.D., Le Hoang San, M.D., Le Van Tuan, M.P.H., Christiane Dolecek, M.D., Tran Tan Thanh, B.Sc., Menno de Jong, M.D., Ph.D., Constance Schultsz, M.D., Ph.D., Peter Cheng, M.Sc., Wilina Lim, M.B., B.S., Peter Horby, M.B., B.S., for the World Health Organization International Avian Influenza Investigative Team,* and Jeremy Farrar, F.R.C.P., D.Phil.

Influenza A (H5N1) infection, characterized by fever, respiratory symptoms, and lymphopenia, carries a high risk of death. Although in all 10 cases the infection appears to have been acquired directly from infected poultry, the potential exists for genetic reassortment with human influenzaviruses and the evolution of human-to-human transmission. Containment of influenza A (H5N1) in poultry throughout Asia is therefore urgently required.

Table 2. Clinical Characteristics of the Patients on Admission.

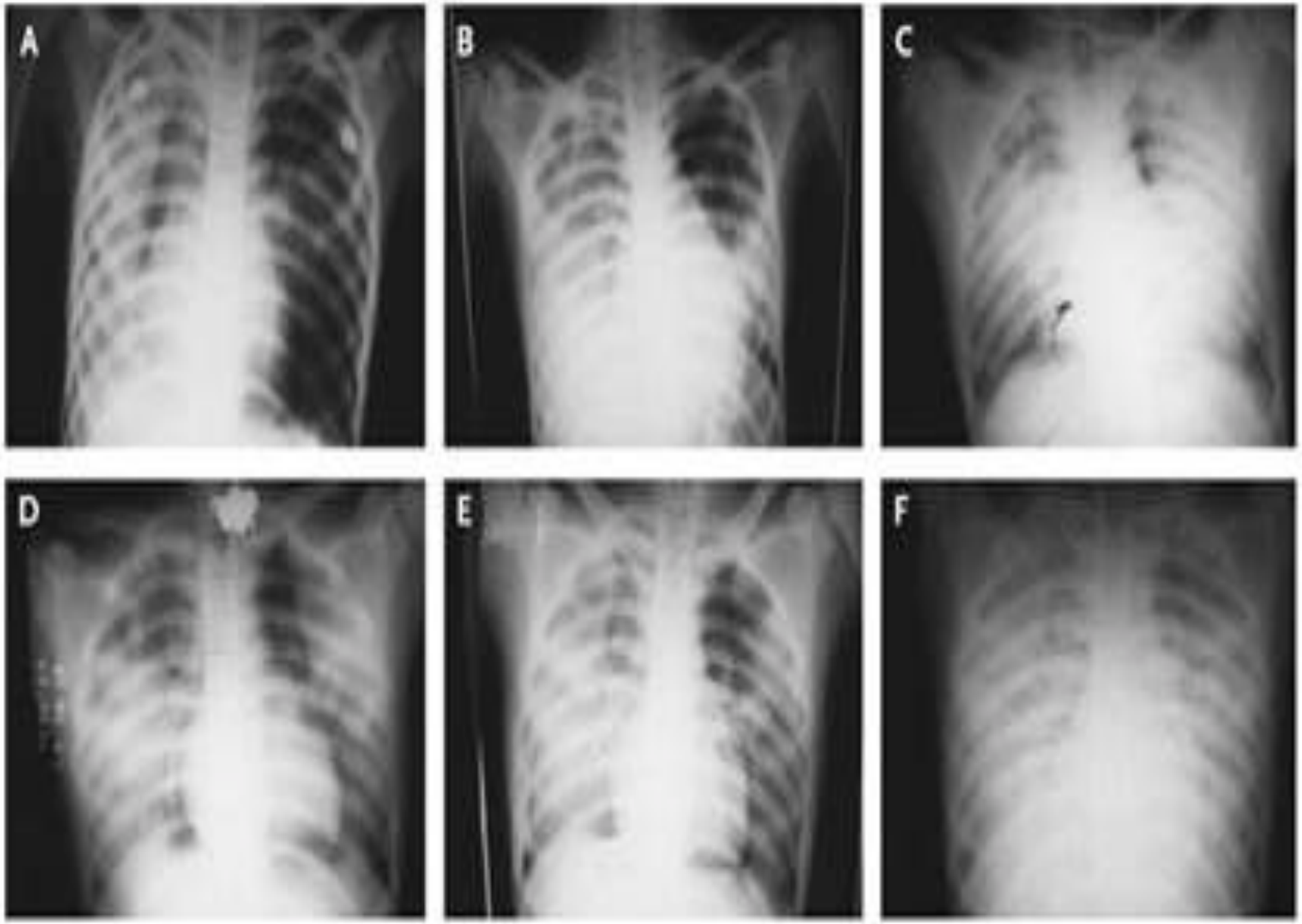
Variable	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7	Patient 8	Patient 9	Patient 10
Days between exposure to poultry and onset of illness	—	—	—	—	3	2	3	4	3	3
Days since onset of illness	3	7	7	5	8	6	5	6	5	7
Sex	Female	Male	Male	Female	Female	Male	Female	Male	Male	Male
Age (yr)	12	5	10	8	8	13	16	18	24	23
Cough	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dyspnea	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sputum	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes
Diarrhea	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Rash	No	No	No	No	No	No	No	No	No	No
Myalgia	No	No	No	No	No	No	No	No	No	No
Conjunctivitis	No	No	No	No	No	No	No	No	No	No
Fever	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Temperature (°C)	39.5	38.8	39.0	38.5	38.5	39.6	40.0	40.0	39.5	38.7
Blood pressure (mm Hg)	90/60	112/54	105/80	80/40	104/64	110/70	110/60	100/60	110/60	120/80
Respiratory rate (breaths/min)	65	70	64	60	40	40	40	60	50	28
Crackles	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Wheeze	No	No	No	No	No	Yes	No	No	No	No
Other	Enlarged liver	—	—	Bleeding gums	—	—	—	—	—	—

All patients were young another typical feature of potentially pandemic strains

…8 patients out of 10 died from a **severe *haemorragic viral-pneumonia***

Variable	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7	Patient 8	Patient 9	Patient 10
Hemoglobin (g/dl)	13.4	12.6	12.4	12.3	11.3	13.4	11.9	14.5	15.8	17.6
Leukocyte count (per mm³)	2,100	3,400	2,800	1,900	1,200	2,700	3,000	1,700	1,900	2,100
Lymphocyte count (per mm³)	1,100	710	860	250	300	900	500	500	800	700
Neutrophil count (per mm³)	850	2,410	1,900	780	700	1,300	2,500	1,100	1,100	1,300
Platelet count (per mm³)	45,000	174,000	135,000	91,000	117,000	81,000	70,000	69,000	62,000	62,000
CD4:CD8 ratio	NA	NA	NA	NA	0.71	NA	0.62	0.75	0.59	1.08
ALT level (U/liter)	53.7	NA	NA	265	354	254	47	NA	NA	89
AST level (U/liter)	278	NA	NA	1,217	320	1,058	20	NA	NA	110
Serum creatinine (μmol/liter)	50	64	NA	27	34	14	71	89	43	121
Serum glucose (mmol/liter)	NA	NA	NA	NA	NA	NA	19.0	13.5	11.7	4.9
Oxygen saturation during receipt of 40% oxygen (%)	50	70	86	50	95	85	67	81	80	90
Day of illness on which PCR for H5N1 performed	5	7	9	6	12	6	5	6	5	7
Viral culture	+	+	NA	NA	Pending	Pending	Pending	Pending	Pending	Pending
Influenza antigens	NA	NA	NA	NA	+	–	–	+	–	–
Blood culture	–	–	–	–	–	–		–	–	–
Outcome	Died (day 6)	Died (day 17)	Died (day 14)	Died (day 7)	Recovered	Died (day 9)	Died (day 14)	Died (day 9)	Died (day 6)	Recovering

* Normal ranges are as follows: hemoglobin concentration, 13 to 18 g per deciliter; leukocyte count, 4000 to 11,000 per cubic millimeter; neutrophil count, 2200 to 8250 per cubic millimeter; lymphocyte count, 1500 to 4000 per cubic millimeter; CD4:CD8 ratio, 1.4 to 2.0; platelet count, 150,000 to 400,000 per cubic millimeter; alanine aminotransferase (ALT) level, below 37 U per liter; aspartate aminotransferase (AST) level, below 40 U per liter; serum creatinine concentration, 82 to 106 μmol per liter; and serum glucose concentration, 3.9 to 6.4 mmol per liter. NA denotes not available, a plus sign positive, and a minus sign negative. To convert the values for creatinine to milligrams per deciliter, divide by 88.4. To convert the values for glucose to milligrams per deciliter, divide by 0.05551.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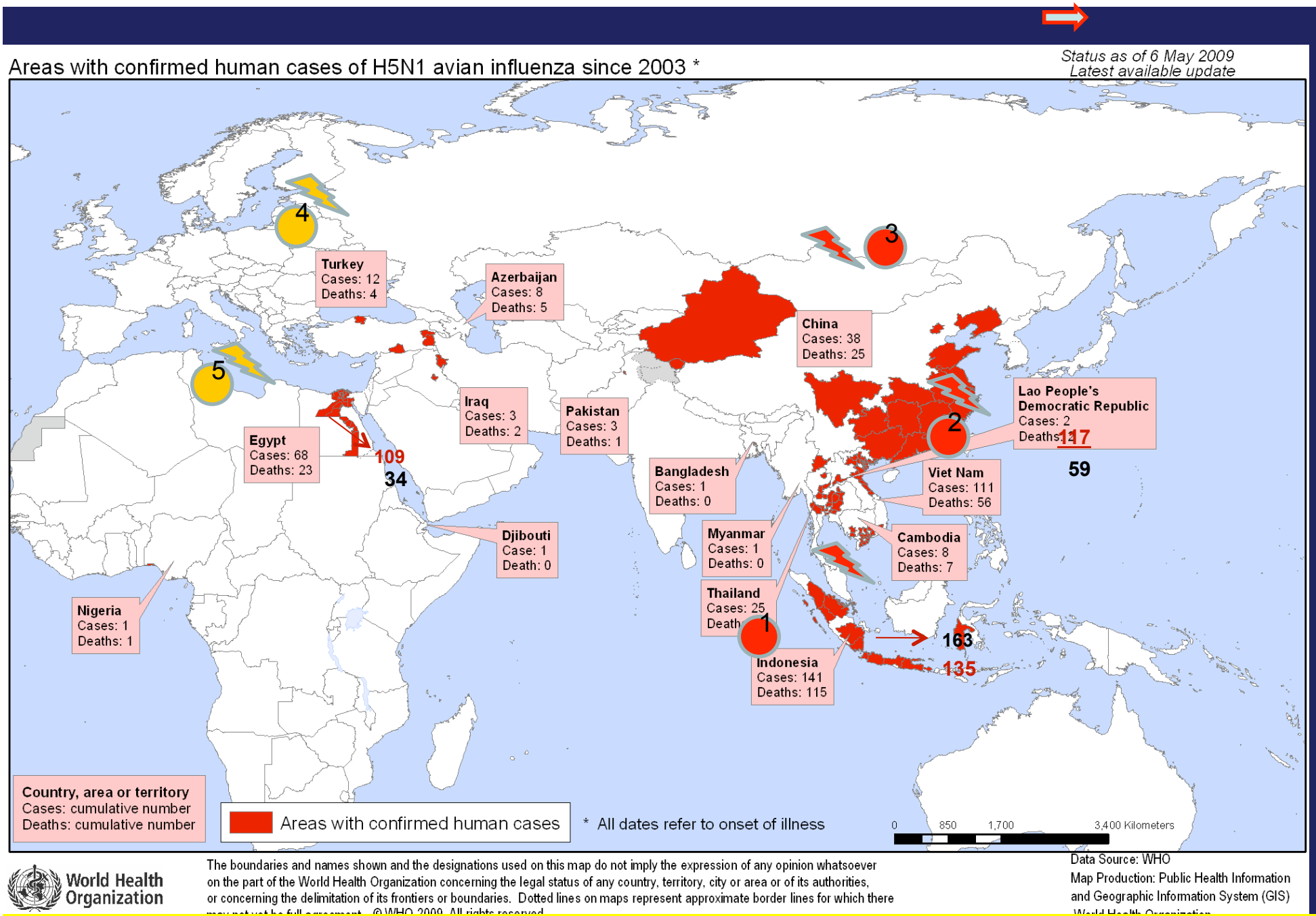
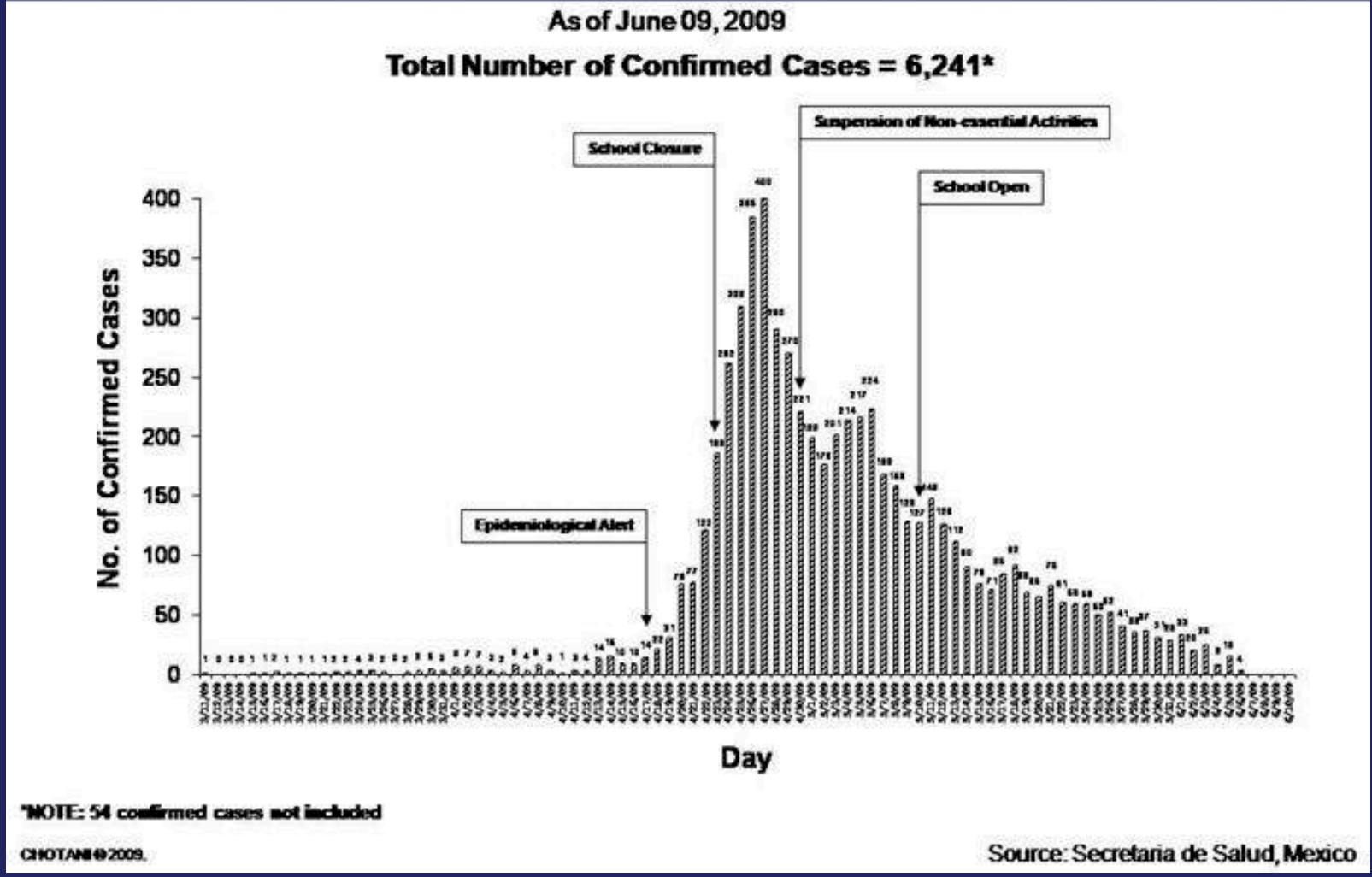


By 10 April 2010, there had been **493 confirmed clinical cases of H5N1 influenza of which 292 had been fatal (WHO, 2010).** So, **even if few cases have been "Lab-Certified". H5N1** should be **considered cautiously**

Swine Influenza A(H1N1)

Mexico Epidemic Curve Confirmed, by Day



The history of the "***swine flu pandemic"*** looks ***quite*** different… The **outbreak** in Mexico started in **March 2009** or perhaps even **earlier**, **peaked during the last week of April** and seems to have quickly **burned out !!** Epidemic curves in **other countries** all over the world are not very different

nature Vol 459|25 June 2009|doi:10.1038/nature08182

LETTERS

But the true **problem** is:**where did the S-OIV/2009 come from ?**

Origins and evolutionary genomics of the 2009 swine-origin H1N1 influenza A epidemic

Gavin J. D. Smith[1], Dhanasekaran Vijaykrishna[1], Justin Bahl[1], Samantha J. Lycett[2], Michael Worobey[3], Oliver G. Pybus[4], Siu Kit Ma[1], Chung Lam Cheung[1], Jayna Raghwani[2], Samir Bhatt[4], J. S. Malik Peiris[1], Yi Guan[1] & Andrew Rambaut[2]

Origins and evolutionary genomics of the 2009 swine-origin H1N1 influenza A epidemic

Nature **459, 1122-1125 (25 June 2009) |**
doi:10.1038/nature08182; Received 24 May 2009; Accepted 4 June 2009; Published online 11 June 2009

In March and early April 2009, a new swine-origin influenza A (H1N1) virus (S-OIV) emerged in Mexico and the United States[1]. During the first few weeks of surveillance, the virus spread worldwide to 30 countries (as of May 11) by human-to-human transmission, causing the World Health Organization to raise its pandemic alert to level 5 of 6. This virus has the potential to develop into the first influenza pandemic of the twenty-first century.

Here we use **evolutionary analysis to estimate the timescale of the origins and the early development of the S-OIV epidemic**. We show that it **was derived from several viruses circulating in swine, and that the initial transmission to humans occurred several months before recognition of the outbreak**. A phylogenetic estimate of the gaps in genetic surveillance indicates a **long period of unsampled ancestry before the S-OIV outbreak**, suggesting that the **reassortment of swine lineages may have occurred years before emergence in humans**, and that the multiple genetic ancestry of S-OIV is not indicative of an artificial origin.

Furthermore, the unsampled history of the epidemic means that **the nature and location of the genetically closest swine viruses reveal little about the immediate origin of the epidemic, despite the fact that we included a panel of closely related and previously unpublished swine influenza isolates**. Our results highlight the need for systematic surveillance of influenza in swine, and provide evidence that **the mixing of new genetic elements in swine can result in the emergence of viruses with pandemic potential** in humans[2].

Pfizer Animal Health

Technical Bulletin

August 2008

What's New With Swine Flu?

Michael Kuhn, DVM
Pfizer Animal Health
New York, NY 10017

Except for the **classical swine H1N1 virus**, most of **these contemporary H1 and H3 strains are triple reassortant viruses**, containing **genes of avian, human**, and **swine** flu-virus origin.

Key Points

- The mechanisms of influenza virus evolution—antigenic drift and antigenic shift—rest within the fundamental properties of the virus itself.
- The respiratory tract of swine possesses both avian and human receptors for influenza viruses.
- Genetic reassortments can occur within swine cells co-infected with two or more influenza viruses.
- Currently four clusters of H1 and four clusters of H3 swine influenza viruses (SIVs) have been identified in the US swine population.[1]
- The genetic diversity of SIVs sets the stage for the emergence of additional viruses that potentially could make diagnosis and successful vaccination problematic.

From when it was first isolated in **1930** until **1998**, the **classical H1N1 (cH1N1) subtype** of **SIV** was essentially **the only SIV lineage circulating in the US swine population**. **Genetically and antigenically, the cH1N1 SIV and the human influenza virus implicated in the 1918 Spanish Flu pandemic are similar**.

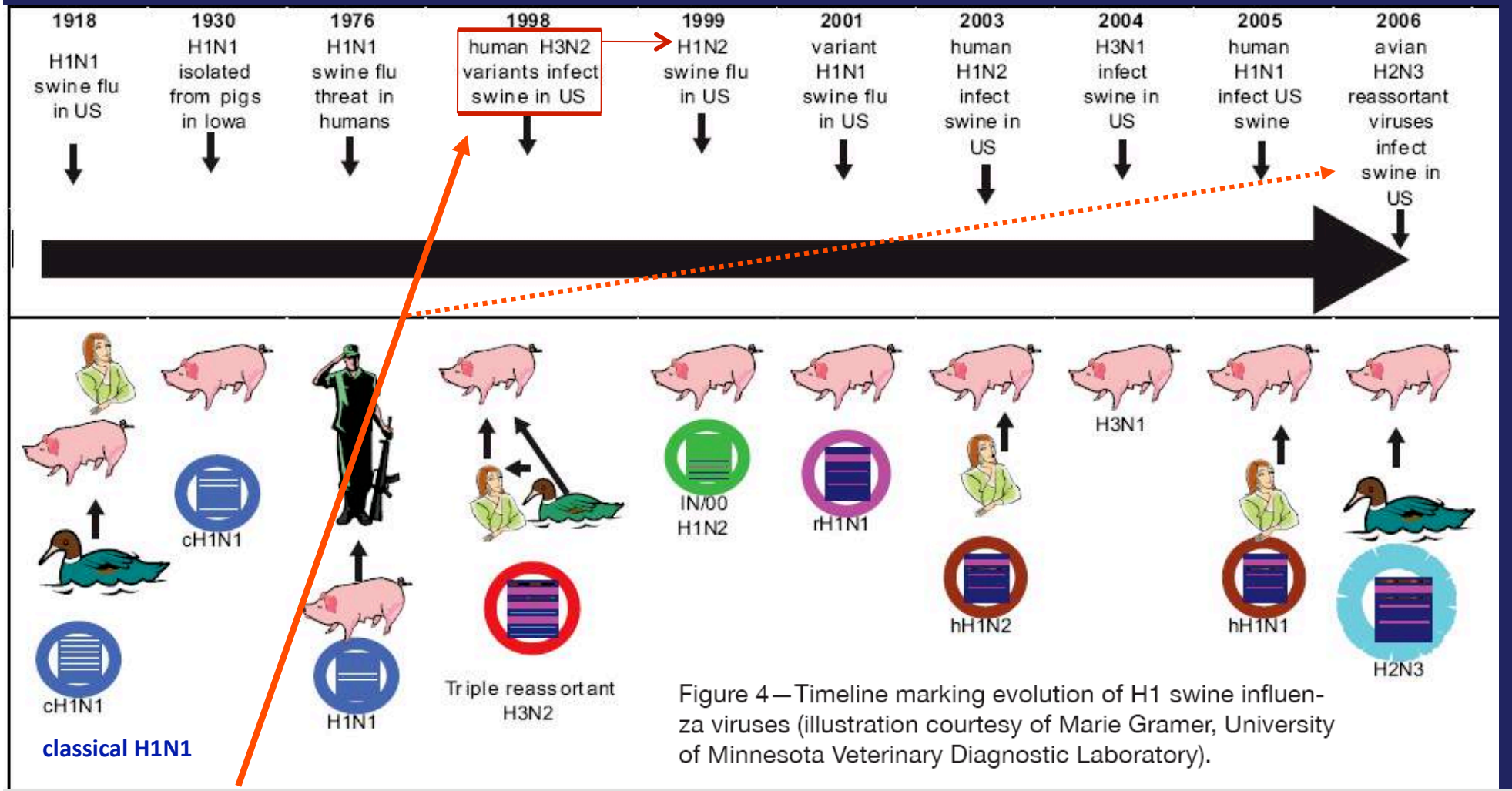


Figure 4—Timeline marking evolution of H1 swine influenza viruses (illustration courtesy of Marie Gramer, University of Minnesota Veterinary Diagnostic Laboratory).

Beginning in **1998**, however, **clinical disease caused by H3N2 subtypes** was recognized in a few states and soon spread throughout the entire country. Described as **reassortant viruses, the original H3N2 strain had three genes from a human H3N2** influenza virus that circulated in the human population during 1995, as well as **five genes from the cH1N1 SIV**. The initial outbreak of influenza attributed to H3N2 occurred during August of 1998 in a North Carolina pig farm

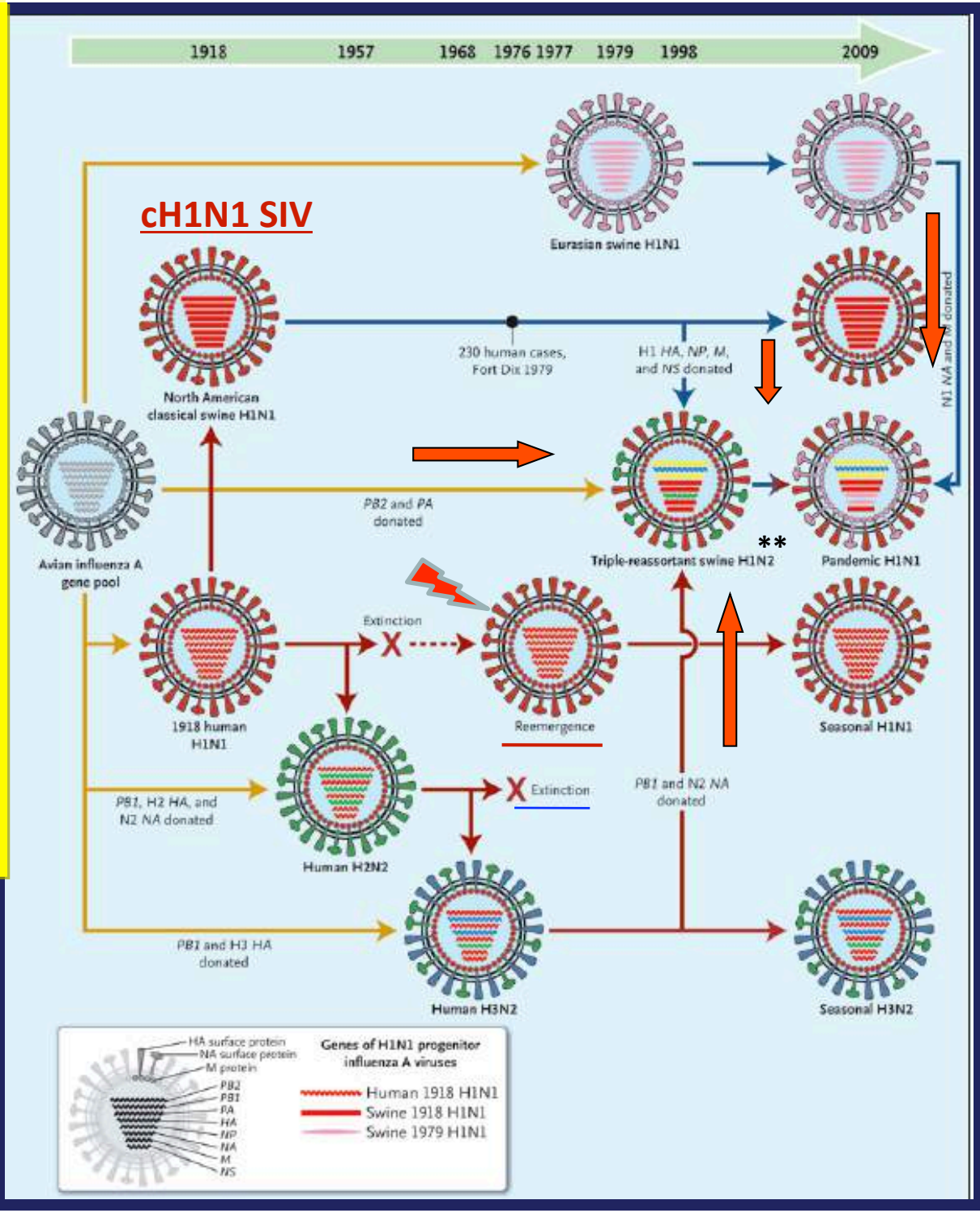
Subsequent to the emergence of the H3N2 viruses, **genetic changes in both H1 and H3 SIV subtypes were detected with increasing frequency** in the US. The dynamics of clinical disease and prevention of outbreaks also **changed dramatically**. **Reassortant H1N1 viruses** (reassortants contain **genes from swine, avian, and/or human influenza viruses**), for example, were **reported to infect and cause disease in herds that had been routinely vaccinated with commercial vaccines containing cH1N1 SIV**.
Such findings **raised concerns among some investigators that vaccines in swine may need to be continually updated** as in human medicine

Antigenic and genetic studies conducted with SIV field isolates **since the dramatic appearance of the H3N2 subtype in 1998** have confirmed that **the H1N1 subtype, which had remained essentially stable in US swine for 80 years**, was **now evolving through antigenic drift and reassortment**.

As the timeline in Figure 4 illustrates, **four new variant H1 strains emerged in rapid succession in the US during the years 1999-2003**.

In this ***diagram*** the **genetic evolution** of the H1N1 virus is well represented.
We can see (on the left) the **1918/H1N1** which is the **common ancestor** of all the human (and swine) flu-viruses of the last century..
Then we can see how, through some mutations, the ***triple reassortants*** were created (1998-2009)..

The **real question** is the **origin** of the ***new genes***...



.. it is significant that one of the **North American H1N2 ** 'triple reassortants' closest to S-OIV** is probably used **in commercial multivalent pig vaccines in North America**

Possible origin of current influenza A H1N1 viruses

	PB2	PB1	PA	HA	NP	NA	M1	NS1
A/California/07/2009 (H1N1)	100	99	100	99	99	100	100	100
A/California/06/2009 (H1N1)	99	99	99	99	99	99	100	99
A/Mexico/InDRE4487/2009(H1N1)	99	99	99	99	100	99	100	100
A/Canada-ON/RV1527/2009(H1N1)	99	99	99	99	99	99	99	99
A/New York/18/2009 (H1N1)	99	99	99	99	99	99	99	99
A/Texas/04/2009 (H1N1)	99	99	99	99	100	99	99	99
A/Swine/Indiana/P12439/00 (H1N2)	96	96	96	95	97	..	88	95
A/Swine/North Carolina/93523/01 (H1N2)	96	96	96	94	96	..	87	96
A/Swine/Illinois/100085A/01 (H1N2)	96	96	96	95	96	..	87	95
A/Swine/Illinois/100084/01 (H1N2)	96	96	96	95	96	..	87	96
A/Swine/Indiana/9K035/99 (H1N2)	96	96	95	95	96	..	88	96
A/Swine/Minnesota/55551/00 (H1N2)	96	96	96	91	96	..	87	96
A/Swine/Ohio/891/01 (H1N2)	96	96	95	95	97	..	87	96
A/Swine/North Carolina/98225/01 (H1N2)	96	96	96	91	95	..	87	96
A/Swine/Minnesota/593/99 (H3N2)	96	96	96	..	96	..	88	96
A/Swine/Iowa/569/99 (H3N2)	96	96	96	..	97	..	88	95
A/Swine/Iowa/533/99 (H3N2)	96	96	96	..	97	..	88	96
A/Swine/Nebraska/209/98 (H3N2)	96	96	96	..	95	..	88	96
A/Swine/Korea/CY05/2007 (H3N2)	96	96	96	..	97	..	88	91
A/Swine/Spain/WVL6/1991 (H1N1)	..	..	..	..	..	94	96	..
A/Swine/England/WVL10/1993 (H1N1)	..	..	..	..	..	94	97	..
A/Swine/England/WVL16/1998 (H1N1)	..	..	..	..	..	93	96	..
A/Swine/Germany/Vi5698/95 (H1N1)	..	..	..	..	..	94	96	..
A/Swine/Belgium/1/1998 (H1N1)	..	..	..	..	..	93	96	..
A/Swine/France/WVL4/1985 (H1N1)	..	..	..	..	..	93	95	..
A/T								

Data

Tabl

[redacted] six gene segments (PB2, PB1, PA, HA, NP, and NS1) of circulating H1N1 viruses probably came from swine influenza H1N2 viruses circulating in the USA from 1999 to 2001 and two gene segments (NA and M1) possibly originated from swine influenza H1N1 viruses circulating in Europe from 1985–98. Important questions are when, where, and how the swine influenza viruses circulating in the USA 8 years ago were mixed with the swine influenza viruses circulating in Europe 11 years ago and mutated to form the current reassortant H1N1 viruses? These events established that the future pandemic influenza could potentially come from reassortant viruses originating from birds, animals, or people in different areas of the world.

[redacted]. No one can accurately predict the timing and severity of the next influenza pandemic, but severe pandemics in the past have resulted in tens of millions of deaths. The prevention and control of the worldwide spread of pandemic influenza will need improved of

responses, and the development of universal vaccines

What is really striking in the genetic sequences published by ***Lancet*** in Aug 2009 is the **reappearance of the *Neuramidase* gene after many years** (in these cases the main possibilities are that these genes come from a virus **kept in a laboratory**, or **employed in some animal vaccines**

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In fact the **frequent use of vaccines in swine farming is striking**. And noone seems to take into account the **possible dangers of this practice**

Humans May Give Swine Flu To Pigs In New Twist To Pandemic

ScienceDaily (July 10, 2009) — The strain of influenza, A/H1N1, that is currently pandemic in humans has been shown to be infectious to pigs and to spread rapidly in a trial pig population.

In research published July 9 in *Journal of General Virology*, Dr Thomas Vahlenkamp and a team of virologists from the Friedrich-Loeffler-Institut in Greifswald-Insel Riems, Germany, experimentally infected five pigs with the strain of swine flu that is causing the current human pandemic. Within four days the virus had spread to three uninfected pigs housed with the infected ones and all pigs were showing clinical signs of swine flu.

"Although in the early stages swine flu pandemic there we worries that humans would c virus from pigs, this has so f been documented and pigs a animals have not been involved in the current spread of

See Also:

Health & Medicine
- Influenza
- Bird Flu
- Swine Flu

Plants & Animals
- Bird Flu Research
- Virology
- Cows, Sheep, Pigs

Reference
- Flu vaccine
- Avian flu
- Pandemic
- Pig

Experiments are underway to determine whether currently available **vaccines may be able to provide pigs with a certain immunity to stop a potential spread** of the virus

Biochemical and Biophysical Research Communications 385 (2009) 402–407

Contents lists available at ScienceDirect

Biochemical and Biophysical Research Communications

And I am not alone in **supposing that using human flu vaccines in animals is a possible cause of immune pressure-driven cross-species transmission**

High genetic and antigenic similarity between a swine H3N2 influenza A virus and a prior human influenza vaccine virus: A possible immune pressure-driven cross-species transmission

Chungen Pan [a], Guiping Wang [b], Ming Liao [c], Gui-Hong Zhang [c], Shibo Jiang [a,*]

[a] Lindsley F. Kimball Research Institute, The New York Blood Center, New York, NY 10065, USA
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Influenza A virus
H3N2
H1N1
Genetic similarity
Antigen drift
Immune pressure
Cross-species transmission

ABSTRACT

In late April of 2009, a global outbreak of human influenza was reported. The causative agent is a highly unusual reassortant H1N1 influenza virus carrying genetic segments derived from swine, human and avian influenza viruses. In this study, we compared the HA, NA and other gene segments of a swine H3N2 influenza A virus, A/Swine/Guangdong/z5/2003, which was isolated from pigs in 2003 in Guangdong Province, China, to the predominant human and swine H3N2 viruses. We found that the similarity

…the similarity of gene segments of A/Swine/Guangdong/z5/2003 was closer to Moscow/99-like human H3N2 virus than Europe swine H3N2 viruses during 1999–2002. These results suggest that **A/Swine/Guangdong/z5/2003 may be porcine in origin, possibly being driven by human immune pressure induced by either natural H3N2 virus infection or use of A/Moscow/10/99 (H3N2)-based human influenza vaccine.**

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Novel H3N1 Swine Influenza Virus Identified In Pigs In Korea

ScienceDaily (Nov. 20, 2006) — For the first time, researchers from the U.S. and abroad have identified the H3N1 swine influenza virus in domestic pigs in Korea. They report their findings in the November 2006 issue of the Journal of Clinical Microbiology.

See Also:

Plants & Animals
- Bird Flu Research
- Virology
- Microbes and More
- Veterinary Medicine
- Animals
- Cows, Sheep, Pigs

Reference
- Avian flu
- Transmission (medicine)

A highly infectious respiratory pathogen, the H3N1 influenza A virus is a new genetic reassortment of influenza viruses first identified in pigs in the U.S. in 2004. The virus can be found in birds and mammals (including humans and pigs), but is not generally transmissible between birds and humans. Pigs are believed to be susceptible to both origins resulting in them being deemed "mixing vessels" for the virus and ultimately reinforcing concerns of zoonosis and pandemic outbreaks.

Given the evidence that **pigs can support the reassortment of influenza viruses from humans and other species**,
it is prudent that we enhance **surveillance for atypical influenza viruses in pigs as part of overall pandemic preparedness efforts**."

(J.Y. Shin, M.S. Song, E.H. Lee, Y.M. Lee, S.Y. Kim, H.K. Kim, J.K. Choi, C.J. Kim, R.J. Webby, Y.K. Choi. **2006.** ***Isolation and characterization of novel H3N1 swine influenza viruses from pigs with respiratory diseases in Korea.*** Journal of Clinical Microbiology, 44. 11: 3923-392

Related Stories

Veterinary Microbiology 138 (2009) 361–367

Contents lists available at ScienceDirect

Veterinary Microbiology

journal homepage: www.elsevier.com/locate/vetmic

The **first isolation and characterization of the novel subtype H3N1 in Europe** was described.

Short communication

Novel swine influenza virus subtype H3N1 in Italy

Ana Moreno *, Ilaria Barbieri, Enrica Sozzi, Andrea Luppi, Davide Lelli, Guerino Lombardi, Maria Grazia Zanoni, Paolo Cordioli

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ABSTRACT

To date, three subtypes of swine influenza viruses, H1N1, H1N2, and H3N2 have been isolated in Italy. In 2006, a novel swine influenza virus subtype (H3N1) was isolated from coughing pigs. RT-PCR performed on lung tissues, experimental infection in pigs with the novel isolate, and cloning the virus by plaque assay confirmed this unique H and N combination. The novel isolate was also antigenically and genetically characterized.

The complete **HA gene presented the highest identity to three Italian H3N2 SIVs isolated in 2001 and 2004, whereas the NA gene was instead closely related to three Italian H1N1 SIVs isolated in 2004**. The deduced aa sequence of the HA gene showed the **aa residues (L226 and S228) responsible for the receptor specificity typical of swine and human influenza** viruses… This suggested that the **novel SIV was a reassortant between the H3N2 and H1N1 SIVs circulating in Italy.**

The Royal Society of Medicine Press Limited

JRSM Journal of The Royal Society of Medicine

J R Soc Med 2003;96:345-346
doi:10.1258/jrsm.96.7.345

This is an interesting article.. citing papers that *Tom Jefferson* and the *Cochrane* colleagues would probably put in the category "***scientific junk"***… One of the authors is a **very particular** figure..

Special Articles

Influenza as a bioweapon

Mohammad Madjid MD [3,4] Scott Lillibridge MD [1] Parsa Mirhaji MD [2]
Ward Casscells MD [2,3,4]

- Two years ago, we published a case–control study with the **surprising finding that influenza immunization *reduced the risk of recurrent myocardial infarction by 66%.*** Simultaneously, Siscovick and colleagues reported that influenza immunization was associated **with a *49% reduction in the risk of sudden cardiac death*.** A subsequent report described ***a 50% reduction in risk of stroke*** in association with influenza immunization, and later a randomized control trial pointed to a ***50–75% reduction in the risk of adverse endpoints and cardiovascular death***. Furthermore, an ecological study suggests that the ***1918 influenza pandemic may have contributed to the epidemic of coronary heart disease mortality*** registered in the 20th century

1

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[3] School of Medicine, Texas Heart Institute, Houston, Texas, USA
[4] School of Medicine, President Bush Center for Cardiovascular Health, Memorial Hermann Hospital, Houston, Texas, USA

2

Casscells was a director of the Volcano Corporation, Lifeline Systems (now **Philips**) and Spectracell, Inc, and an **advisor** to GE Healthcare, **Roche, Pfizer, Lilly,** Claritas, RediClincs,**Glaxo**

The Royal Society of Medicine Press Limited

JRSM Journal of The Royal Society of Medicine

After 9/11 Casscells led forums for thoughtful **bio/chem/nuclear defense**. As a US Army reservist, he developed the **Army's pandemic plan**

3

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Influenza as a bioweapon

Mohammad Madjid MD [3,4] Scott Lillibridge MD [1] Parsa Mirhaji MD [2]
Ward Casscells MD [2,3,4]

….These data caused us to **re-examine the usual estimate that, in the USA, influenza kills 20 000 a year.** From more recent studies of all-cause mortality, **we suspect that the total is closer to 90 000.**

The **Spanish flu epidemic in 1918 killed 20–40 million people**. Less severe epidemics were the **Asian flu** in 1957, **Russian flu** in 1977, and ***Hong Kong flu*** *in 1978 (?)*

In addition to such spontaneous mutations, **we must, since the terrorist attacks of September and October 2001, consider the possibility of malicious genetic engineering to create more virulent strains..**

Recently, the possibility of **synthesizing an infectious agent solely by following instructions from a written sequence has moved from theory to practice.**. **Sequencing of the genome of the 1918 Spanish influenza virus is nearly complete**; once it is published, **unscrupulous scientists could presumably utilize candidate virulence sequences**.

Recently, the possibility of **synthesizing an infectious agent solely by following instructions from a written sequence has moved from theory to practice..**

President G.W. Bush announced on February 22, 2007 his intention to **nominate S. Ward Casscells III, M.D.** (vice president for **biotechnology** at The University of Texas Health Science Center at Houston) to be **Assistant Secretary of Defense (Health Affairs)…** Sworn in on 16 April, 2007, Secretary Casscells **administered the $45 billion** Military Health System (MHS) and was principal advisor to the United States Secretary of Defense for **health issues**

4

smh.com.au
The Sydney Morning Herald

Indonesia accuses US of bird flu plot

Mark Forbes Herald Correspondent in Jakarta
February 20, 2008

THE Indonesian Health Minister has said the United States and the World Health Organisation are part of a global conspiracy to profit from the spread of bird flu and the US may use samples to produce biological weapons.

The views of Dr Siti Fadilah Supari, outlined in her new book, threaten to undermine efforts to control the spread of avian influenza. With 104 deaths, nearly half the world total, Indonesia is the new hotspot for the virus.

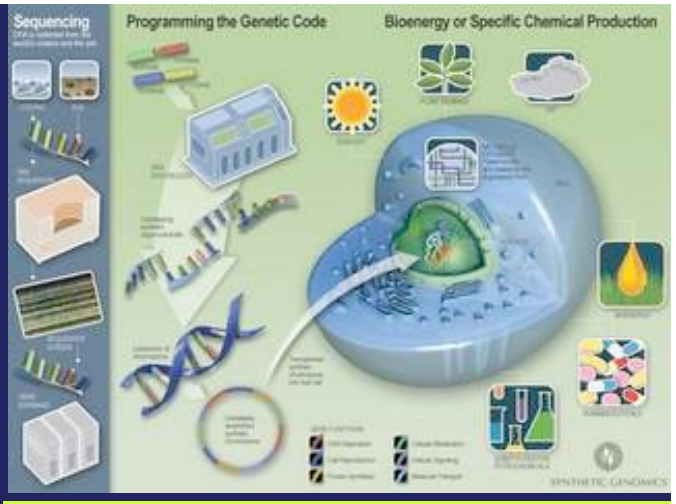
Despite claims by the minister that she has agreed to share virus samples and allow all nations access to resulting vaccines, Indonesia is still blocking sharing samples from human victims.

Applications to send more than 200 samples from chickens to an Australian laboratory had also been refused, inquiries by the *Herald* have revealed.

The **Indonesian Health Minister has said the US and the WHO are part of a global conspiracy to profit from the spread of bird flu and use samples to produce biological weapons**.
The views of Dr Siti Fadilah Supari.. threaten to undermine efforts to control the spread of avian flu
With **104 deaths, nearly half the world total, Indonesia is the new hotspot for the virus**.
Despite claims by the minister that she has agreed to share virus samples and allow all nations accessto resulting vaccines, **Indonesia is still blocking sharing samples** from human victims.

The current state of Synthetic Biology raises concern

The **current alliances around *Synthetic Biology*** involve **energy companies, chemical companies, drugs companies and biotech and IT companies**....
today, in hundreds of labs worldwide, it is also **possible to transform common intestinal microbes into killers**. Or to **make deadly strains even more lethal**. **Or to resurrect bygone killers, such the 1918 influenza**. Or to manipulate a person's hormones by switching genes on or off.
Or **to craft cheap, efficient delivery systems that can infect large numbers of people**



Synthetic Genomics [http://www.syntheticgenomics.com]
J.Craig Venter Institute [http://www.jcvi.org]

Finally I want to touch on concentration, meaning **corporate concentration**. With the development of synthetic chemicals we saw the chemical industry begin to play a major role in agriculture and agricultural policy. **With transgenic genetic engineering agrochemical companies joined up with the biotech industry and even pharmaceutical companies** so that even larger corporate entities - **so called life sciences companies** - were born casting disproportionate influence over farming, food and health policy all at once. **With synthetic biology that concentration will get far worse**. The **current alliances around Synthetic biology involve energy companies, chemical companies, drugs companies and biotech and IT companies.** This is an embryonic industry that already involves not only the likes of *Syngenta* (no 1 in pesticides), *Cargill* (no1 in grains) and *DuPont* (no1 in seeds and 2 in chemicals) but also *Microsoft* (no1 in software), *Shell* (no2 in oil) and *Pfizer* (no 1 in pharma). **Imagine if all those monopolies became joined in one godawful corporate alliance.** I don't what we would call it: *Microsyncargilldushellzersoftpont* or something? I do know it would be **a formidable corporate oligopoly with unprecedented power and yet in effect that is exactly what is coming** into being around synthetic biology and it will dictating the terms of agriculture as we move into this next phase.
Jim Thomas, ETC Group (Montreal) Jim@etcgroup.org

pace Parliamentary Assembly
Council of Europe

Paris, 29.03.2010

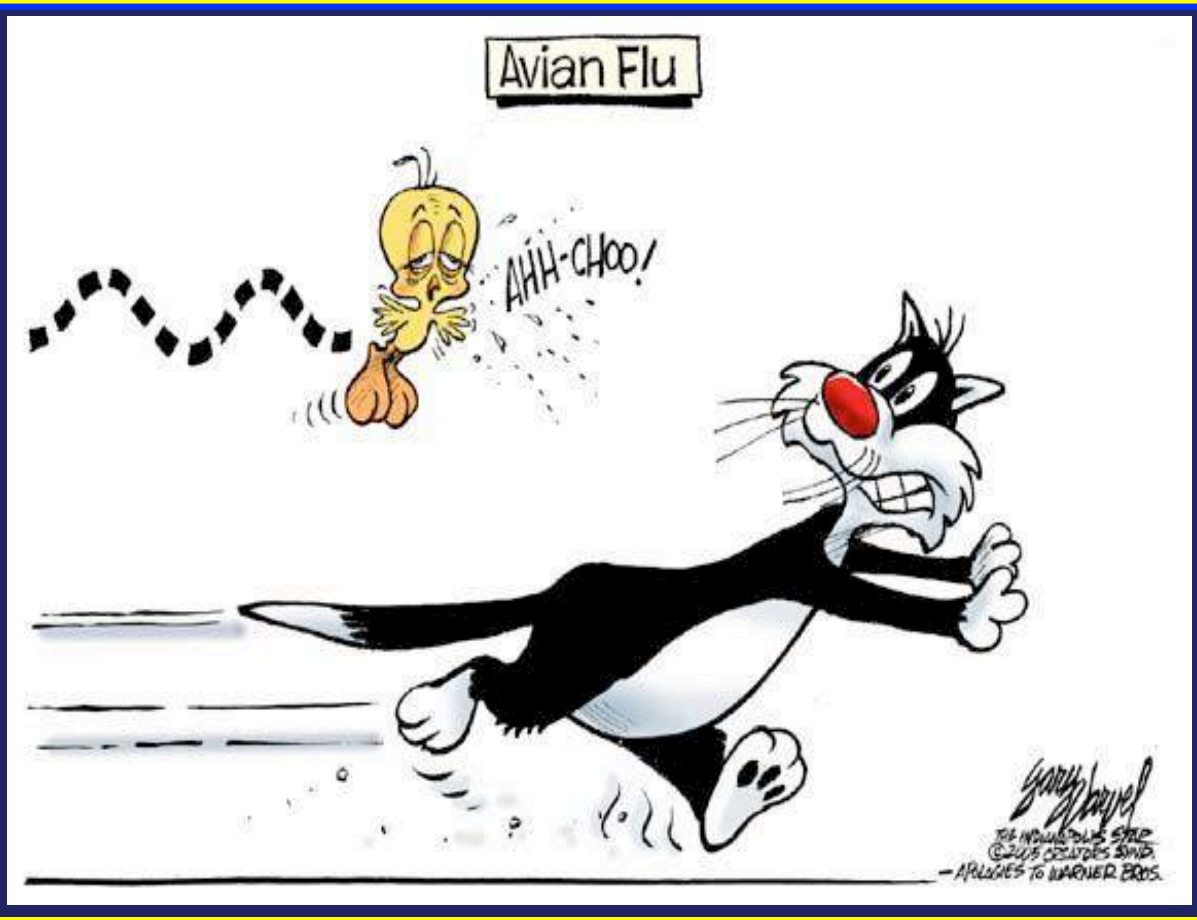
So I think <u>we can safely conclude that no one has now any firm idea of how to define an influenza pandemic</u> (Tom Jeffereson)

Conclusion

An influenza pandemic is whatever WHO decides it is

At this point a final thought is quite obvious: **it is "normal" (and perhaps <u>inevitable) that *Big Pharma*</u>** <u>is ***lobbying***</u> to address the problem according to its economic advantages, even to the point, as some say, **to influence major political and international health institutions** (the **<u>changed definition of a pandemic</u>** <u>on the official WHO-site in conjunction with the S-OIV/2009 pandemic alert is, for many, a **clear evidence of this conditioning**</u>)…

A risk we run is that **crying "wolf.. wolf "** if the **wolf really comes** people will **not** believe us ..
But perhaps the greatest risk we must face comes from **Someone's project to use such alarms for a large *mass experimentation***



But it is important that we move towards strengthening the supervision and strict hygiene regulations upstream: in ***Asian wet markets***, where birds, mammals and people live in unacceptable degree of promiscuity, in ***large avian flocks*** (where for several years the avian epidemics have multiplied), in ***industrial pig farms*** , **because, in fact, it is in these places that emerge the new strains, potentially dangerous to humans… probably due to the artificial selection pressure generated by the use of experimental drugs and vaccines (a very dangerous habit to be avoided, as preventive use of antibiotics).. as** some recent studies show that ***the "new sequences" of the S-OIV/2009 were not entirely new… one of the possible hypotheses is that these come from weakened viruses employed in veterinary immuno-prophylaxis…***

NATURE|Vol 451|21 February 2008

We **should neither even forget** that most reports of **emerging-disease** events come from **developed countries**.. nor that **many EID** are ***zoonoses…***

EPIDEMIOLOGY

Emerging diseases go global

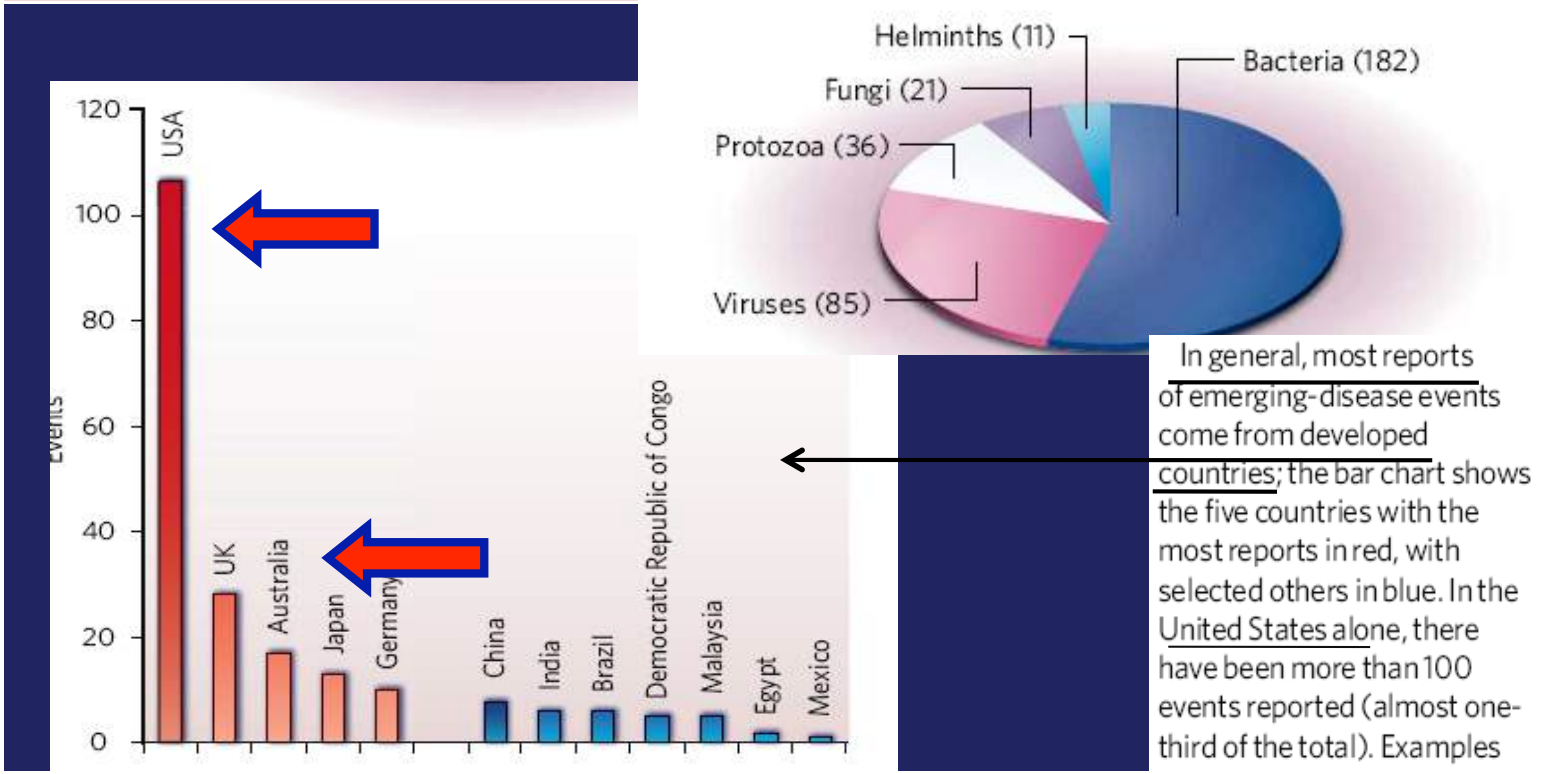
Mark E. J. Woolhouse

Novel human infections continue to appear all over the world, but the risk is higher in some regions than others. Identification of emerging-disease 'hotspots' will help target surveillance work.

In the work discussed here, Jones *et al.*[4] identified 335 emerging-disease 'events' reported worldwide between 1940 and 2004. The pathogens involved could be novel species or strains, including drug-resistant strains, of known species. Just over half of the events were associated with bacteria, as shown in the pie chart.

An example is *Escherichia coli* serotype O157:H7, first reported in the 1970s. This strain of the usually benign *E. coli* group is a food-borne pathogen that can cause fatal renal illness in the young and the elderly. It turned out to be just one type of verocytotoxigenic *E. coli* (VTEC): other VTECs have since been reported in the United States, the United Kingdom, Japan and other, mostly industrialized, countries.

Box 1 | Emerging diseases: the pathogens and the places

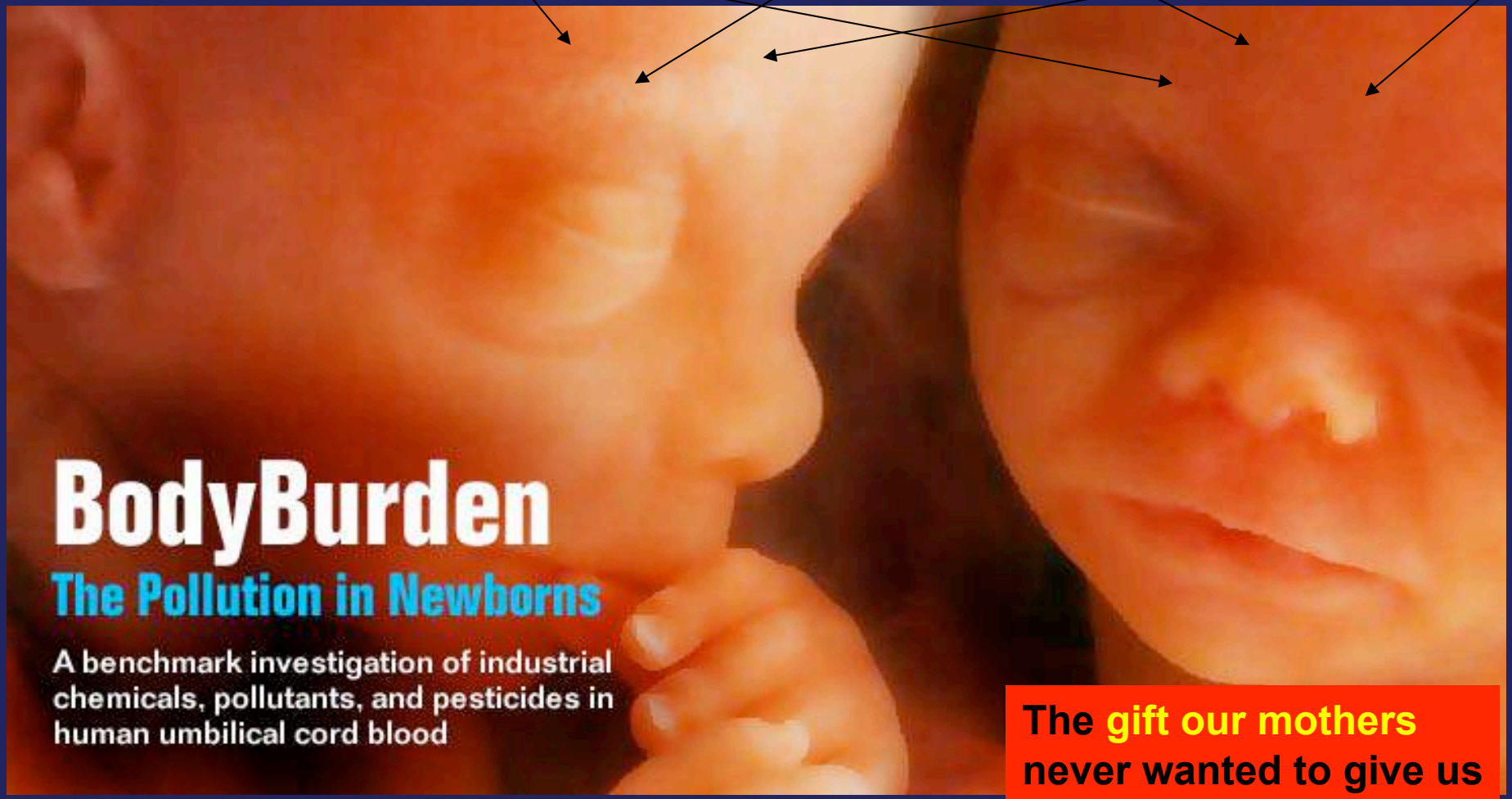


In general, most reports of emerging-disease events come from developed countries; the bar chart shows the five countries with the most reports in red, with selected others in blue. In the United States alone, there have been more than 100 events reported (almost one-third of the total). Examples

POST SCRIPTUM

Perhaps **a reason why we talked so much about PANDEMIC FLU**
In the last few years is because **SOMEONE does not want people talking**
about a SILENT PANDEMIC that threatens millions of children

1. **EDCs (Dioxines like molecules), PCBs, Bisphenol A, Phtalates**
2. **Heavy Metals**
3. **UParticles**



The gift our mothers never wanted to give us

CHEMICAL FALL OUT

http://www.ewg.org/reports/generations/

A Silent Pandemic

Industrial Chemicals Are Impairing The Brain Development of Children Worldwide

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Developmental neurotoxicity of industrial chemicals

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Neurodevelopmental disorders such as autism, attention deficit disorder, mental retardation, and cerebral palsy are common, costly, and can cause lifelong disability. Their causes are mostly unknown. A few industrial chemicals (eg, lead, methylmercury, polychlorinated biphenyls [PCBs], arsenic, and toluene) are recognised causes of neurodevelopmental disorders and subclinical brain dysfunction. Exposure to these chemicals during early fetal development can cause brain injury at doses much lower than those affecting adult brain function. Recognition of these risks has led to evidence-based programmes of prevention, such as elimination of lead additives in petrol. Although these prevention campaigns are highly successful, most were initiated only after substantial delays. Another 200 chemicals are known to cause clinical neurotoxic effects in adults. Despite an absence of systematic testing, many additional chemicals have been shown to be neurotoxic in laboratory models. The toxic effects of such chemicals in the developing human brain are not known and they are not regulated to protect children. The two main impediments to prevention of neurodevelopmental deficits of chemical origin are the great gaps in testing chemicals for developmental neurotoxicity and the high level of proof required for regulation. New, precautionary approaches that recognise the unique vulnerability of the developing brain are needed for testing and control of chemicals.

A few industrial chemicals (eg, **lead, methylmercury, polychlorinated biphenyls [PCBs], arsenic**, and **toluene**) are recognised causes of neurodevelopmental disorders and subclinical brain dysfunction.

Exposure to these chemicals during early fetal development can cause brain injury at doses much lower than those affecting adult brain function

Another 200 chemicals are known to cause clinical neurotoxic effects in adults…
The **toxic effects of such chemicals in the developing human brain are not known and they are not regulated to protect children**

Maybe next time
we could speak about
this **very real** threat

Trasformazioni ambientali, climatiche, epidemiche

La "pandemia silenziosa"

Ernesto Burgio

Pediatra e Vicepresidente comitato scientifico ISDE Italia

Arezzo, 29 novembre 2007

SOMMARIO

Nel corso dell'ultimo secolo e soprattutto negli ultimi decenni (un tempo infinitesimo in relazione ai tempi propri della bio-evoluzione e quindi dell'adattamento co-evolutivo dei vari organismi all'ambiente), l'uomo ha prodotto e immesso nella biosfera una quantità immensa di molecole artificiali (alcuni autori anglosassoni hanno parlato, a questo proposito, di *fall out* chimico), trasformato interi ecosistemi (micro) biologici e virali, ampliato la gamma delle fonti e forme di energia radiante. Parlare di ambiente e salute significa *in primis* cercare di valutare quali potrebbero essere gli effetti bio-molecolari di questa trasformazione drammatica e complessa, che da alcuni decenni mette sotto pressione l'intera biosfera e in particolare l'assetto genetico ed epigenetico degli organismi superiori. Sarebbe importante riconoscere che per valutare correttamente l'impatto biologico (e quindi sanitario) dell'attuale modello di sviluppo non si può prescindere da una cornice bio-evolutiva di lungo periodo e da una riflessione più complessiva sul rapporto, in via di vertiginosa trasformazione, tra uomo e ambiente. La stessa Rivoluzione Epidemica del XX secolo, consistente in una drammatica riduzione delle patologie acute da cause esogene e in un altrettanto significativo incremento delle patologie cronico-degenerative da cause endogene (immunomediate, neoplastiche, neuro-degenerative, endocrino-metaboliche, cardiocircolatorie) appare sempre più chiaramente correlata alla repentina alterazione dell'ambiente prodotta dall'uomo ed alle (conseguenti) trasformazioni (epi)genomiche che avvengono nelle prime fasi dello sviluppo del feto e del bambino (*Barker Hypothesis/Hygiene Hypothesis*). In questo contesto si colloca e comprende meglio l'allarme concernente le alterazioni dello sviluppo neurologico infantile secondarie alla diffusione in ambiente di metalli pesanti, distruttori endocrini e altre molecole mimetiche, lanciato ormai da decenni dai ricercatori di tutto il mondo e recentemente ripreso dalla *Harvard School of Public Health* e da «The Lancet» con la definizione, allarmata e allarmante, di *pandemia silenziosa*, che abbiamo deciso di scegliere quale titolo della nostra pubblicazione.

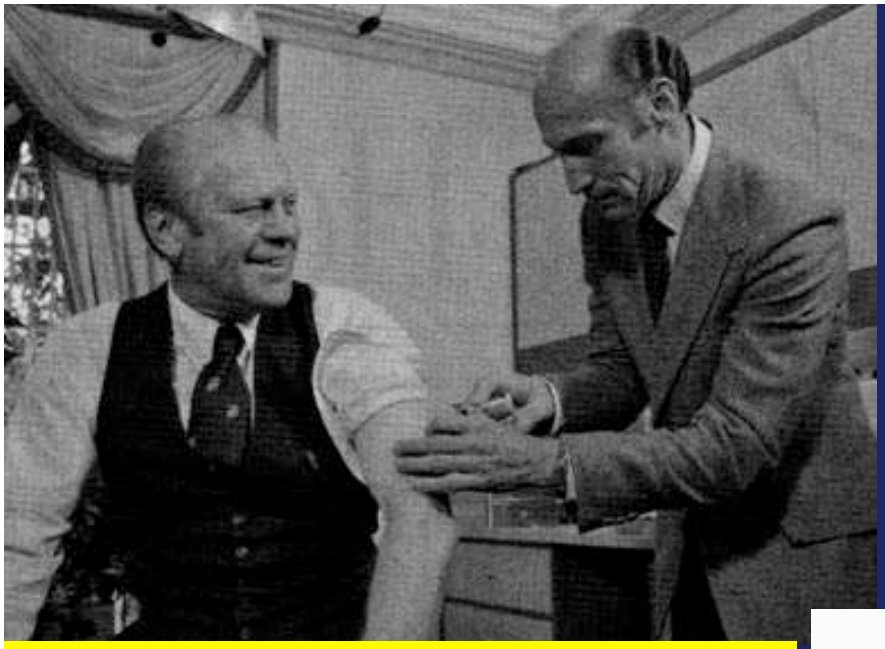
Industrial chemicals are responsible for.. a **silent pandemic** that has caused **impaired brain development in millions of children worldwide**.It's silent because **the subclinical effects of individual toxic chemicals are not apparent in available health statistics**… **..**

To adopt the *precautionary* and the *responsibility* principles also means

- **to accept a duty to inform**
- **to prevent the concealment of information about possible health risks**
- **to prevent anyone who continues to regard the whole human species as a group of guinea pigs to *test* everything *technological progress* is capable of inventing**

(*Lorenzo Tomatis* *)

* Former Director of ***IARC-International Agency for Research on Cancer*** *(1982-1993);* Past President *of* ***ISDE- International Society of Doctors for Environment*** *(1990-2007).*



The 1976 swine flu scare: President Gerald Ford setting the example by getting a swine flu inoculation

Thank you very much for your attention

http://www.isap.org/2003/Workshop-Glasgow/Odenholt/sld052.htm