



La leadership italiana nella aspetti di sanità pubblica relativi alle crisi internazionali da virus influenzali di origine animale

Ilaria Capua

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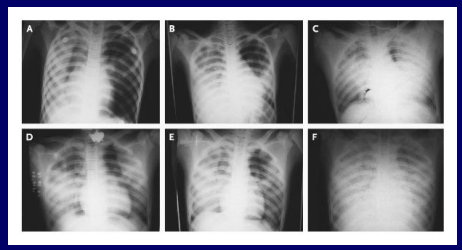




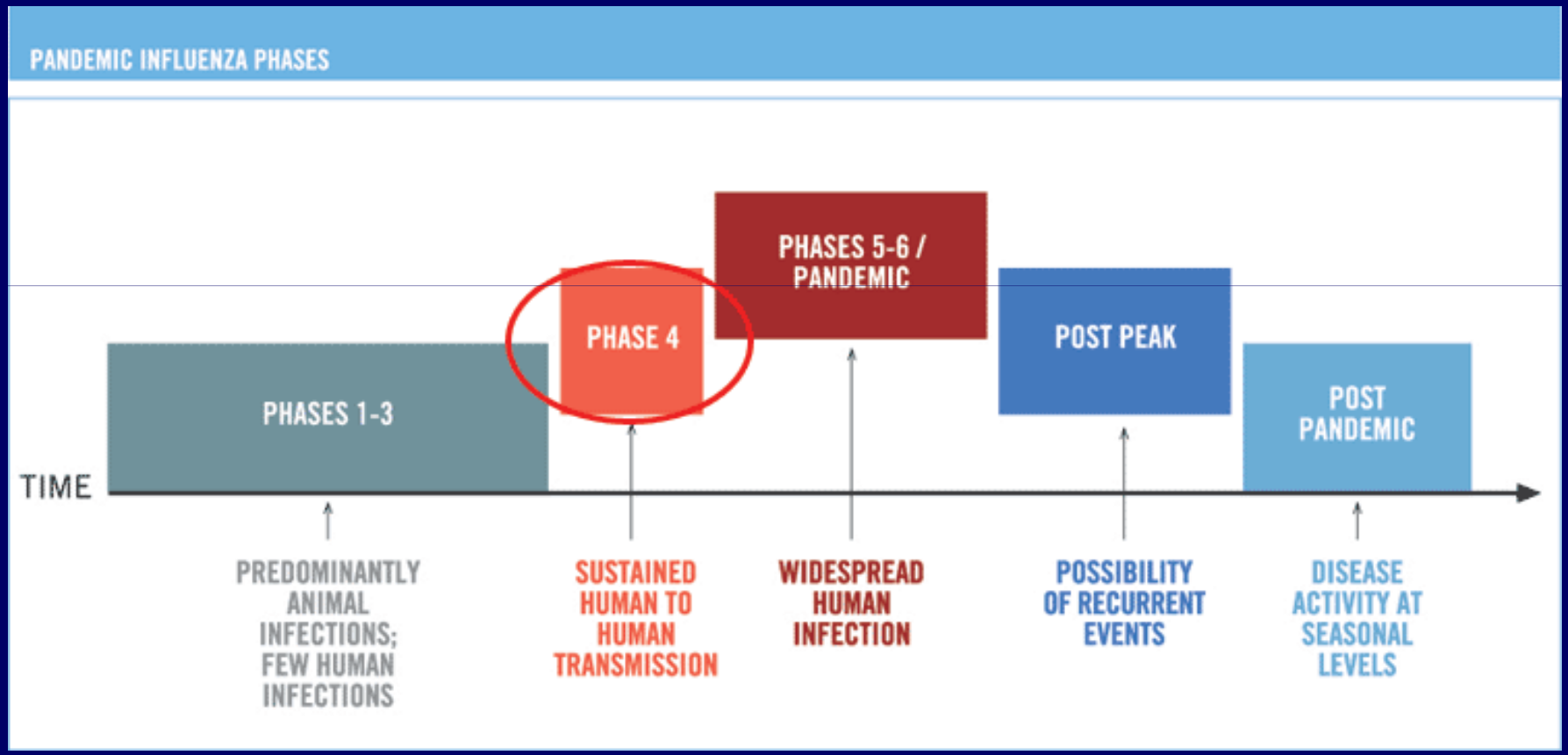







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Fasi Pandemiche





Highly Pathogenic Avian Influenza, Italy 1999-2000





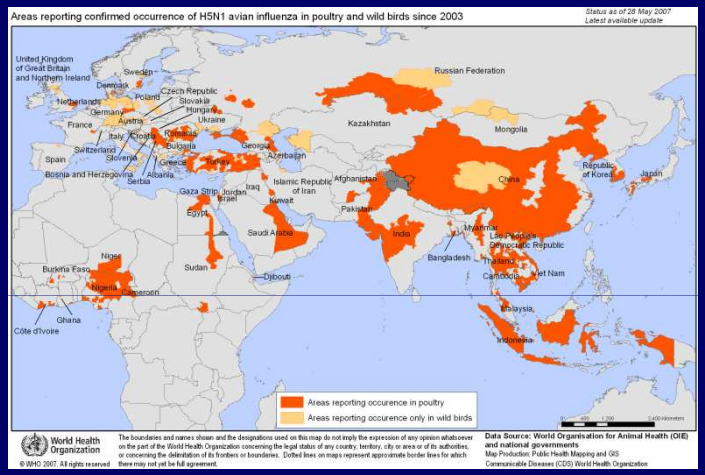
Spanish influenza 1918-1919

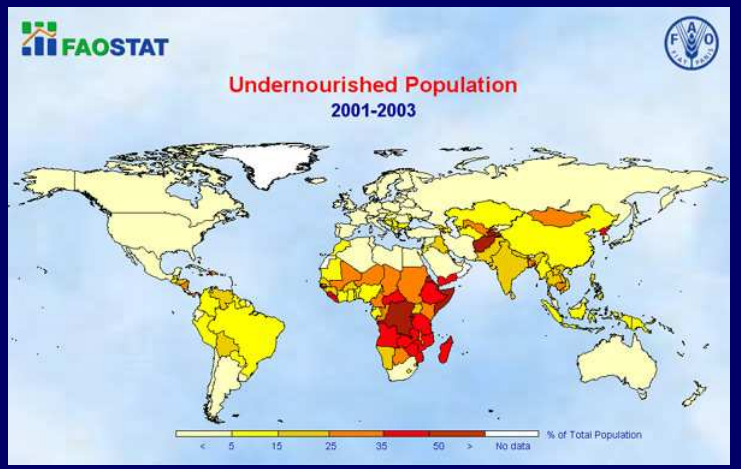
20-40 million dead



Panzoozia H5N1- rilevanza mondiale

- H5N1 è endemica in diversi paesi (aree) del mondo
- Il virus è in grado di infettare circa 50 specie di volatili e oltre 10 specie di mammiferi
- Il virus contiene mutazioni simili al virus della "Spagnola"
- H5N1 sta riducendo la fonte di proteine animali in alcuni paesi in via di sviluppo













Raw duck blood pudding- Vietnam



Panzoozia H5N1

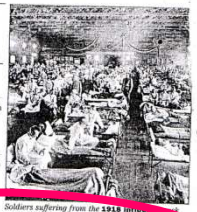
- Ad oggi ancora confinata agli animali con eventi di trasmissione interumana sporadici
- Letalità di circa il 50% in @480 persone infette
- Infezioni umane molto frequenti in Indonesia ed in Egitto, particolarmente nei bambini (recettori?)

Technology, Management & Market

Awaiting the Next Big One

The 20th century's flu pandemics

YEAR	COMMON NAME/SUBTYPE	POSSIBLE SOURCE	DEATHS
1918	Spanish flu/H1N1	Pig or bird host of mutated H1N1 virus	40 million
1957	Asian flu/H2N2	Mixed infection of animal virus, human H1N1 and avian H2N2 strain in Asia	2 million
1968	Hong Kong flu/H3N2	Mixed infection of animal virus, human H2N2 and avian virus	2 million



Soldiers suffering from the 1918 influ... an emergency hospital at Fort Riley in Kansas.

One WHO Expert on SARS Finds Flu More Frightening

Doctor Deems World Unprepared for Long-Awaited Pandemic That Could Cause Hundreds of Millions of Deaths

By Gautam Naik

AS AN EXPERT on SARS, Klaus Stohr works 16-hour days, sometimes in virtually the same clothes as the day before, and often juggling three phone calls at once. But his chief worry isn't SARS. It's the flu.

Not any old flu, but a long-awaited influenza pandemic that could spark a massive world-wide crisis in public health. This sort of virus could circle the globe in less than six months, long before a vaccine is ready. Though antiviral drugs exist, not a single country has stockpiled them in anticipation of an outbreak. And there are glaring cracks in the flu pandemic surveillance systems of many countries, especially those in the developing world.

"We're not prepared," says Dr. Stohr, the scientist who heads the World Health Organization's influenza program and is also leading the agency's fight against severe acute respiratory syndrome. Compared with the devastation of a flu pandemic, he adds, "SARS will be something to smile about."

Influenza is one of the oldest and most common diseases known to man. But a flu pandemic would be a lot harsher than the flu bug that sickens millions of people around the world and kills tens of thousands of them each year. Annual flu outbreaks occur when the structure of the virus undergoes small changes, permitting it to evade the immunity that people have acquired from previous infections or from vaccinations. But sometimes the surface proteins of a flu virus change substantially, and nobody has immunity against such a bug. If it also acquires the ability to spread from person to person, the stage is set for a lethal pandemic.

The damage can be catastrophic. The Spanish flu pandemic of 1918 killed more than 40 million people, while those of 1957 and 1968 together felled some four million. By comparison, SARS is a lot less infectious, and it has caused fewer than 750 reported deaths so far.

Global jet travel and urban overcrowding increase the risk. The WHO projects that in developed countries alone the next pandemic could cause as many as 2.3 million hospitalizations and 650,000 deaths in less than two years. The toll in developing countries could be worse. Countries that belong to the WHO have recognized the danger only recently, passing a resolution underscoring the need to improve flu surveillance and response.

Influenza pandemics have occurred historically at 25-year intervals. Since the last one occurred 35 years ago, the conclusion is hard to avoid: We're due. "It's not a matter of if, but when, this will happen," says Albert Osterhaus, a Dutch scientist [illegible] pandemic preparedness planning in Europe. "I'm far more worried about the next pandemic than I am of SARS."

So is Dr. Stohr, who trained as a veterinarian in the former East Germany and later became an expert in diseases that jump from animals to people. He joined the WHO in 1992, and two years ago, he was named head of the WHO influenza program and was asked to revamp it.

The program then was poorly regarded. Focusing on vaccine development and reacting slowly to global outbreaks, it largely responded to flu as if it were only a problem for developed countries. Dr. Stohr discovered that he faced an uphill task when he tried to get appointments with some scientists, flu-vaccine makers and governments, and was turned down.

But thanks to his strong scientific credentials and unflappable manner, Dr. Stohr was able to persuade potential partners to let the WHO take a bigger role in coordinating the fight against the disease. The WHO's flu-monitoring network today consists of 112 labs in 83 countries. One of its jobs is to determine the composition of each year's flu vaccine, so work can begin early on vaccines. Another is to look for the Big One, Dr. Stohr's phrase for the expected flu pandemic.



Klaus Stohr

Since 1976, there have been some half-dozen outbreaks of flu deemed to be unusual, and possibly marking the start of a pandemic. Authorities feared the worst in 1997, when an avian-flu virus, known as H5N1, apparently spread from chickens to sicken 18 people in Hong Kong, killing six, and causing a health emergency. That year, when Dr. Stohr went to Hong Kong to advise health authorities, he was forced to stay in an out-of-the-way hostel to avoid dozens of news-hungry journalists.

On the WHO's recommendation, authorities in Hong Kong and southern China destroyed more than a million chickens, preventing the further spread of H5N1 to people.

The string of unusual infections in recent years, including avian flu and SARS, suggests that the Big One may not be far off. Says Dr. Stohr: "These are signals from Mother Nature. If we don't prepare for the pandemic now, complacency will be paid for in human lives."

Journal Link: *WSJ.com subscribers can see an interactive graphic tracing the path of the infected people who fueled the SARS outbreak, in the Online Journal at* **WSJ.com/SARS**.

Le Monde

www.lemonde.fr

60e ANNÉE – N° 18358 – 1,20 € – FRANCE MÉTROPOLITAINE — MARDI 3 FÉVRIER 2004 — FONDATEUR : HUBERT BE



Grippe aviaire : l'épidémie devient extrêmement dangereuse

Juppé fait face à so... la droite critique l...

SOUS LE COUP du jugement rendu ... tribunal correctionnel de Nanter... le ... à 18 mois de prison ... avec sursis, ce ... rend indigne ... pour 10 ans, Alain Jup... devrait annoncer, mardi 3 février, s... interrompt ou non sa carrière politique. ... tout au long du week-end, de nom... aux dirigeants de l'UMP. Pont-d'Arc... de ne pas renoncer. Plusieurs ministres se disent pourtant convaincus que M. Juppé est sur le point de mettre un terme, au moins provisoire, à sa carrière politique, mais dans un calendrier que lui seul connaît.

Dans le même temps, plusieurs responsables de la majorité ont émis de vives critiques contre les attendus du jugement de Nanterre. Après les affirmations des magistrats, qui se sont dits victimes d'intimidations, Jacques Chirac a ordonné une mission d'enquête. Interrogé par *Le Monde*, le procureur de Nanterre, Bernard Pagès, minimise l'importance des faits. Selon nos informations, une





Documento riservato della Casa Bianca pubblicato dal «New York Times»

Virus, rapporto segreto Usa: milioni di morti, ospedali in tilt

L'influenza aviaria in Europa: duemila tacchini colpiti in Turchia

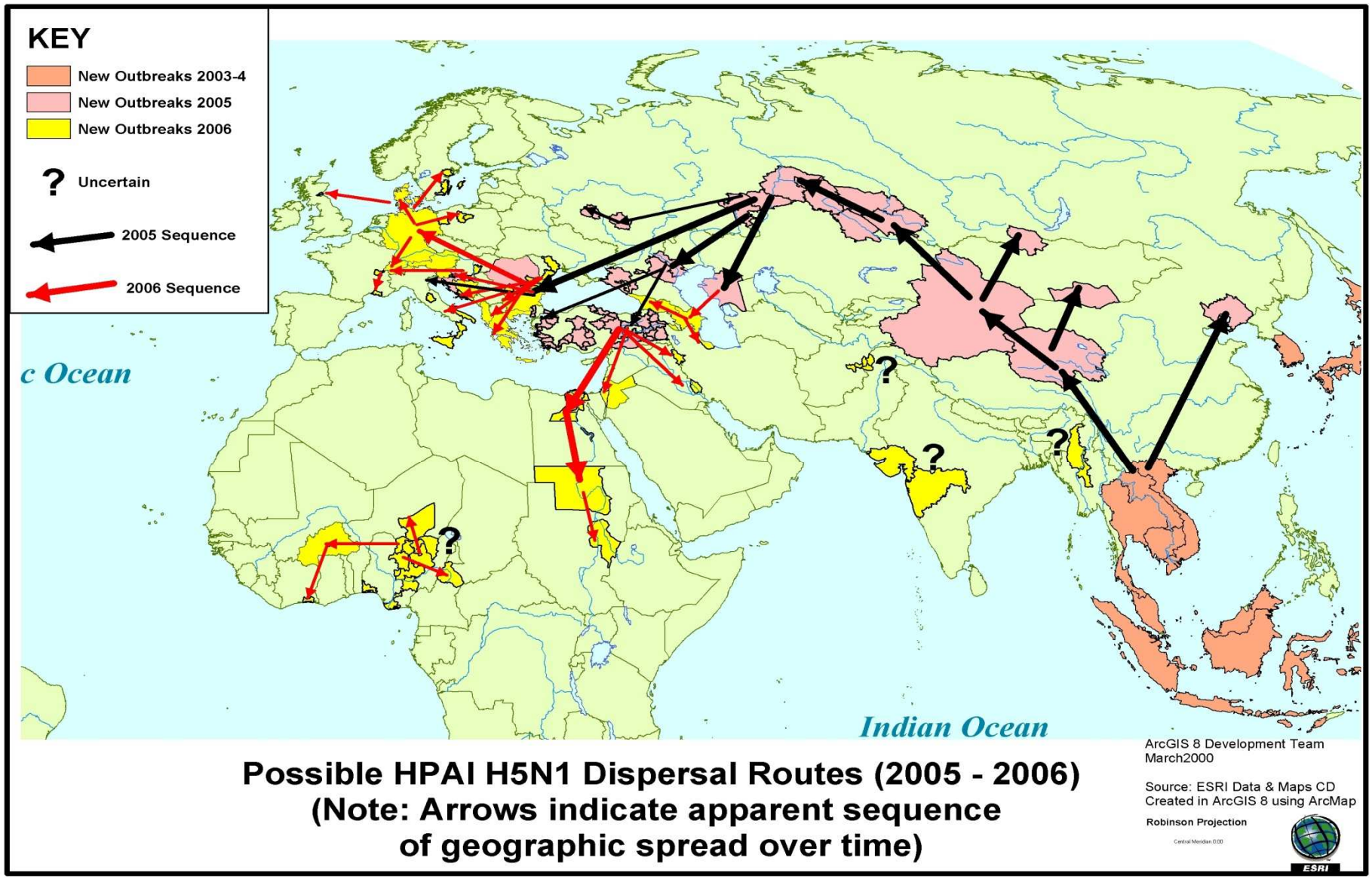




Gli esperti europei di influenza riuniti a Malta. Il nostro Paese deve aumentare le scorte di antivirali, pronto il piano di emergenza

«Il virus dei polli colpirà 16 milioni di italiani»

Crovari: epidemia inevitabile. Le previsioni: 150 mila vittime. Un commissario in ogni Asl



Inizio 2006 – H5N1 raggiunge l'Africa

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 13, No. 5, May 2007

Genome Analysis Linking Recent European and African Influenza (H5N1) Viruses

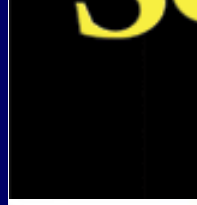
Steven L. Salzberg,* Carl Kingsford,* Giovanni Cattoli,† David J. Spiro,‡ Daniel A. Janies,§ Mona Mehrez Aly,¶ Ian H. Brown,# Emmanuel Couacy-Hymann,** Gian Mario De Mia,†† Do Huu Dung,‡‡ Annalisa Guercio,§§ Tony Joannis,¶¶ Ali Safar Maken Ali,## Azizullah Osmani,*** Iolanda Padalino,††† Magdi D. Saad,‡‡‡ Vladimir Savić,§§§ Naomi A. Sengamalay,‡ Samuel Yingst,‡‡‡ Jennifer Zaborsky,‡ Olga Zorman-Rojs,¶¶¶ Elodie Ghedin,### and Ilaria Capua†

Prima incursione H5N1 in Africa

- L'Istituto Zooprofilattico Sperimentale delle Venezie è stato il primo laboratorio al mondo a isolare il virus H5N1 africano
- Lo studio delle caratteristiche genetiche del virus potevano permettere una maggiore comprensione dell'epidemiologia e patogenicità del virus
- Abbiamo declinato l'offerta di depositare la sequenza genetica in un database ad accesso limitato (accesso a solo 15 laboratori) e abbiamo depositato l'intera sequenza in GenBank, un database pubblico


www.sfondi.org

Science
3 March 2006 | 510





Showing her cards. Ilaria Capua says she will submit H5N1 sequences from her lab to public databases immediately.

AVIAN INFLUENZA

As H5N1 Keeps Spreading, A Call to Release More Data

PARIS—An impassioned call by a prominent Italian influenza scientist has renewed the debate about how to balance global health against scientists' needs to publish and countries' demands for secrecy. On 16 February, Ilaria Capua of the Istituto Zooprofilattico

tricky from the start. WHO, FAO, and OIE encourage countries to send virus samples to specialized reference labs that can confirm the outbreak and study the virus further. Some have been reluctant to do so because they worry about intellectual-property rights or not

dozens of individual governments, Brown says.

Capua counters that just isolating and sequencing a virus that comes in the mail does not give researchers the right to sit on the data—especially not at a government lab. "Most of us are paid to protect human and animal health," she says. "If publishing one more paper becomes more important, we have our priorities messed up." Governments can often be persuaded to release the sequences, adds Capua, who repeated her call at an OIE meeting in Paris on Monday and also plans to submit it to ProMED, an e-mail list about emerging infectious diseases.

WHO agrees that in an ideal world, scientists would share their data widely and voluntarily, says Wenqing Zhang of the agency's Global Influenza Programme. But because that's not happening, the agency created a special secured section at the Influenza Sequence Database at Los Alamos National Laboratory in New Mexico in 2004. Currently, some 15 labs have passwords to access these data, says Zhang, including WHO's eight reference labs. The system is invaluable for WHO, she adds, as it helps the agency track the virus and adjust risk assessments if necessary.

Virologist Yi Guan of the University of

THE WALL STREET JOURNAL

MONDAY, MARCH 13, 2006

Scientist Rebels Against WHO Over Bird Flu

Scientists around the world, racing to discover how avian influenza is spreading and whether it is evolving toward a pandemic strain, face a dilemma: Should they share their interim findings widely, show them only to a select set of peers, or keep them to themselves until they can publish papers, often critical to their careers?

Now, a lone Italian researcher has cast a harsh spotlight on the WHO's system, suggesting that it places academic pride over public health - and snubbing it by posting prized bird-flu data in plain view.



Ilaria Capua

Ilaria Capua, a 39-year-old Italian veterinarian working on avian influenza in a government lab, last month received a sample of the virus in the mail from Nigerian health authorities. The virus had just attacked birds in Nigeria, the first confirmed case of the disease in Africa. The sample was something of a prize, a chance to study a specimen and explore how it spread from its stronghold in Asia.

Within days of isolating the virus, Dr. Capua says, she got an offer from a senior scientist at the WHO in Geneva, whom she declined to name, to enter her finding in the closed system. She could submit the virus's genetic information, or sequence, to the database. In exchange, she would be given the password to the WHO's massive stash of data. A spokesman for the WHO confirmed that the offer was made.

Instead, Dr. Capua posted the gene sequence in a public database accessible on the Internet. She also sent a letter on Feb. 16 to around 50 of her colleagues urging them to do the same with their bird-flu samples.

"If I had agreed" to the WHO's request, she said in an interview, "it would have been another secret sequence."

The New York Times

EDITORIAL

Secret Avian Flu Archive

Published: March 15, 2006

At a time when health authorities are racing to head off a possible avian flu pandemic, it is distressing to learn that the World Health Organization is operating a secret database that holds the virus's genetic information. A lone Italian scientist has challenged the system by refusing to send her own data to the password-protected archive. Instead, she released the information publicly and urged her colleagues to do the same. She is surely right. The limited-access archive should be opened or bypassed immediately to encourage research on this looming health menace.

The campaign by Ilaria Capua, an Italian veterinarian who works on avian influenza, was spotlighted in recent articles in the journal Science and The Wall Street Journal. The hidden data could be of immense value in determining how the virus is evolving and in developing effective vaccines or drugs. The possibility of breakthroughs can increase only if many more scientists can analyze the data.

washingtonpost.com

Bird Flu Fears Ignite Debate on Scientists' Sharing of Data

By David Brown
Washington Post Staff Writer
Thursday, May 25, 2006; A20

The issue gained public attention in February when Ilaria Capua, a 40-year-old virologist at the Tri-Veneto Region Experimental Animal Health Care Institute in Italy, sequenced the first H5N1 sample from Africa, isolated from a chicken farm in northern Nigeria. Someone at WHO invited her to contribute it to the Los Alamos data, but she declined and instead filed it in GenBank.

nature

EDITORIALS NATURE|Vol 441| 29 June 2006

Action stations

The time for sitting on flu data is over.

Concern about the accessibility of data on flu strains remains an acute issue, which research administrators and political leaders should step forward and address.

Indonesia has become the hot spot of avian flu, with the virus spreading quickly in animal populations, and human cases occurring more often there than elsewhere. Yet from 51 reported human cases so far — 39 of them fatal — the genetic sequence of only one flu virus strain has been deposited in GenBank, the publicly accessible database for such information.

And last week in China, researchers belatedly published details of the appearance of human-to-human transmission. In the Sumatra event, the transmission did not spread beyond the family.

Yet scientists outside the WHO networks have no access to these data. The problem last year spurred the US National Institutes of Health (NIH) to create a consortium to sequence and make public thousands of flu strains from humans and birds. Very quickly, this more open approach led to the useful discovery that viruses swap genes with each other more frequently than had been previously thought.

"H5N1 sequences should be promptly deposited in a publicly accessible database."

Some political leaders are drawing the appropriate conclusions. Dennis Kucinich (Democrat, Ohio) and Wayne Gilchrest (Republican, Maryland) are circulating a letter in the House of Representatives

nature

CORRESPONDENCE

NATURE|Vol 440|30 March 2006

Shared data are key to beating threat from flu

SIR — We fully support Ilaria Capua in her call for avian-influenza researchers to release data to the public, rather than store them in restricted databases, as reported in your Editorial "Dreams of flu data" (*Nature* 440, 255–256; 2006). Keeping sequences secret, whatever the motivation, slows down scientific progress and hinders efforts to protect public health. The influenza genome sequencing project (www.niaid.nih.gov/dmid/genomes/mscs/influenza.htm) has, in the past year, sequenced more than 1,000 complete genomes of human influenza and

nature

A global initiative on sharing avian flu data

SIR — The global spread of the H5N1 avian influenza virus has already extensively damaged economies worldwide and food safety in developing countries. The spread of infection to new ecosystems results in adaptation of the virus to new hosts, including humans, which amplifies the potential for a flu pandemic. Because it is recognized that avian influenza viruses may be the progenitors of the next human pandemic virus, their genetic evolution should be tracked in detail and promptly investigated.

The full support of the international scientific community is therefore urgently needed to understand better the spread and evolution of the virus, and the determinants of its transmissibility and pathogenicity in humans. This in turn demands that scientists with different fields of expertise have full access to comprehensive genetic-sequence, clinical and epidemiological data from both animal and human virus isolates.

Several countries and international agencies have recently taken steps to improve sharing of influenza data[1–4], following the initiative of leading veterinary virologists in the field of avian influenza. The current level of collection and sharing of data is inadequate, however, given the magnitude of the threat. We propose to expand and complement existing efforts with the creation of a global consortium — the Global Initiative on Sharing Avian Influenza Data (GISAID; http://gisaid.org) — that would foster international sharing of avian influenza isolates and data.

Scientists participating in the GISAID international panel of distinguished scientists will be formed to govern the charter and to advise the consortium.

As an international collaborative effort, GISAID offers many benefits to the world as a whole, as well as to individual scientists and to groups participating in the consortium. It would encourage valuable collaboration among researchers in industrialized countries and in the developing countries that are hit hardest by avian influenza. It would also attract international attention to the need for increased funding and technical assistance to help affected countries build comprehensive and sustained disease-surveillance programmes.

Peter Bogner*, Ilaria Capua†, Nancy J. Cox‡, David J. Lipman§ and others||

*Chief executive, the Bogner Organization, 927 Fifteenth Street, Santa Monica, California 90403, USA

†Chair, Scientific Committee of the OFFLU OIE/FAO Network, Istituto Zooprofilattico Sperimentale delle Venezie, Viale dell'Università 10, 35020 Legnaro, Padova, Italy

‡Director, Influenza Division, Centers for Disease Control and Prevention, 1600 Clifton Road, Atlanta, Georgia 30333, USA

§Director, National Center for Biotechnology Information, National Institutes of Health, 8600 Rockville Pike, Bethesda, Maryland 20894, USA

||A full list of signatories to this letter as of 23 August 2006 is available as supplementary information at http://www.nature.com/nature/journal/v442/n7106/extref/442981a-s1.pdf.

1. *Nature* **441**, 1028 (2006).
2. OFFLU Keeps its Pace on Global Sharing Virus Samples *Press Release* (OIE/FAO Network of Expertise on Avian Influenza, 21 July 2006); available at http://www.offlu.net/portals/0/pdf/Press.pdf

GISAID- Global Initiative on Sharing Avian Influenza Data

www.gisaid.org

Nature Correspondence 24 Aug, 2006
firmatari: 70 virologi medici e veterinari e 6 vincitori di premio Nobel

Database "open access" gratuito che contiene le sequenze geniche dei virus influenzali umani ed animali e protegge la proprietà intellettuale

RESOLUTION No. XXVI

Sharing of avian influenza viral material and information in support of global avian influenza prevention and control

- 1. OIE Members reporting outbreaks of avian influenza should agree to share animal avian influenza viral material and information about avian influenza viruses through OFFLU with the international scientific community.
- 2. OIE Reference Laboratories must actively encourage sharing of material and data with the international scientific community, and as a minimum **deposit genetic data within 3 months of receiving an isolate into a public database** designated by the OFFLU Steering Committee, which will manage scientific relations with the WHO.
- 3. To enhance cooperation and transparency, the actions taken by countries must be recognised in subsequent publications and other benefits arising from the use of biological material or data that they have submitted to OIE Reference Laboratories.

World Health Organization

SIXTY-SECOND WORLD HEALTH ASSEMBLY
Provisional agenda item 12.1

A62/5 Add.1
18 May 2009

Pandemic influenza preparedness: sharing of influenza viruses and access to vaccines and other benefits

Outcome of the resumed Intergovernmental Meeting

Report by the Director-General

5.2 Genetic sequence data

5.2.1 Genetic sequence data, and analyses arising from that data, relating to H5N1 and other influenza viruses with human pandemic potential should be shared in a rapid, timely and systematic manner with the originating laboratory and among [WHO Network] laboratories. (*Consensus*)

5.2.2 Recognizing that greater transparency and access concerning influenza virus genetic sequence data is important to public health and there is a movement towards the use of public-domain or public-access databases such as Genbank and GISAID respectively; and (*Consensus*)

http://apps.who.int/gb/ebwha/pdf_files/A62/A62_5Add1-en.pdf

Avian flu: global sharing of virus samples - Windows Internet Explorer

http://www.fao.org/newsroom/EN/news/2006/1000374/index.html

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Avian flu: global sharing of virus samples

Pagina | Strumenti

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Avian flu: global sharing of virus samples

Another joint FAO/OIE initiative

1 August 2006, Rome - OFFLU, the OIE/FAO joint network of expertise on avian influenza, will systematically make avian influenza virus sequences accessible to the entire scientific community. With this gesture OFFLU reiterates its call to the world's scientists, international organisations and countries for a global sharing of virus strains and sequences.

Since its launch in April 2005, OFFLU has been mainly working on promoting the key objectives "to exchange scientific data and biological materials (including virus strains) within the network, and to share such information with the wider scientific community". Under this new impetus, strains will be sent to the U.S. National Institutes of Health for sequencing and deposited in full transparency on the free-access database, GenBank.

On 14 March 2006, the Scientific Committee of OFFLU, made up of the world's leading veterinarian experts on avian influenza, revised its terms of reference to put new emphasis on the need for further collection, characterization and exchange of avian influenza viruses, and for the expansion of the genomic database for animal influenza viruses.

Critical to surveillance and control efforts

Sharing virus strains, samples and sequences is a critical part of the global work on the surveillance and control of the highly pathogenic H5N1 virus, and supports the preparation of

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Related links
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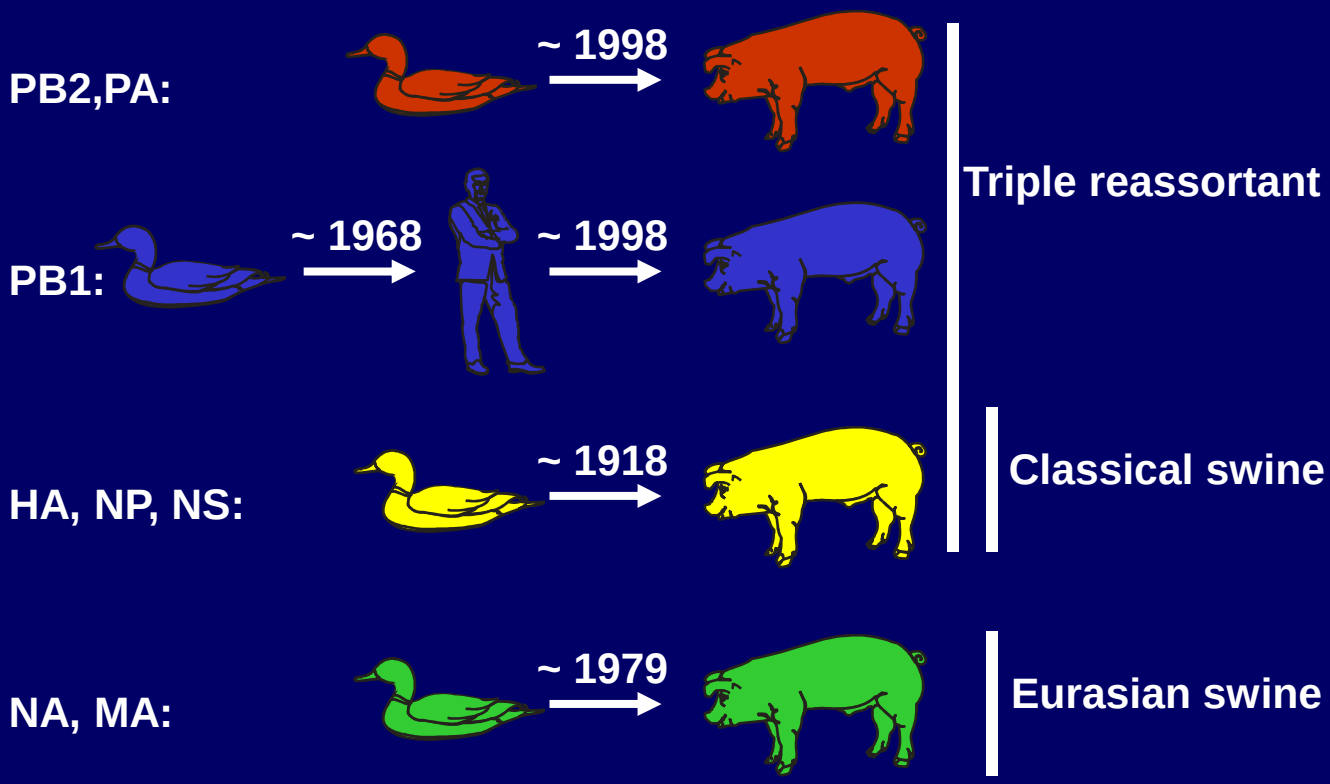
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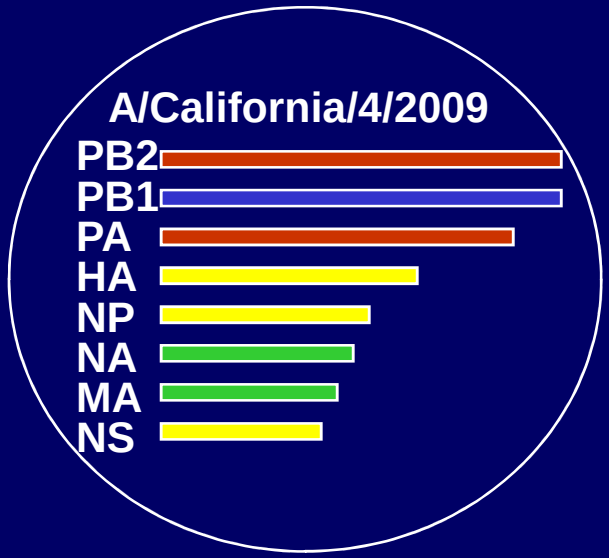
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Geni provenienti da:

- virus di 3 specie
- due emisferi



Banca dati GISAID- EpiFlu DB

E’ stata riconosciuta pubblicamente dal vice direttore dell’OMS come strumento essenziale per la tempestiva identificazione e caratterizzazione del virus pandemico A/H1N1/2009. Viene utilizzata a tutt’oggi per seguire l’evoluzione virale a livello globale.



“One Health”

L’unione fa la forza, soprattutto in sanità pubblica



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Una riflessione





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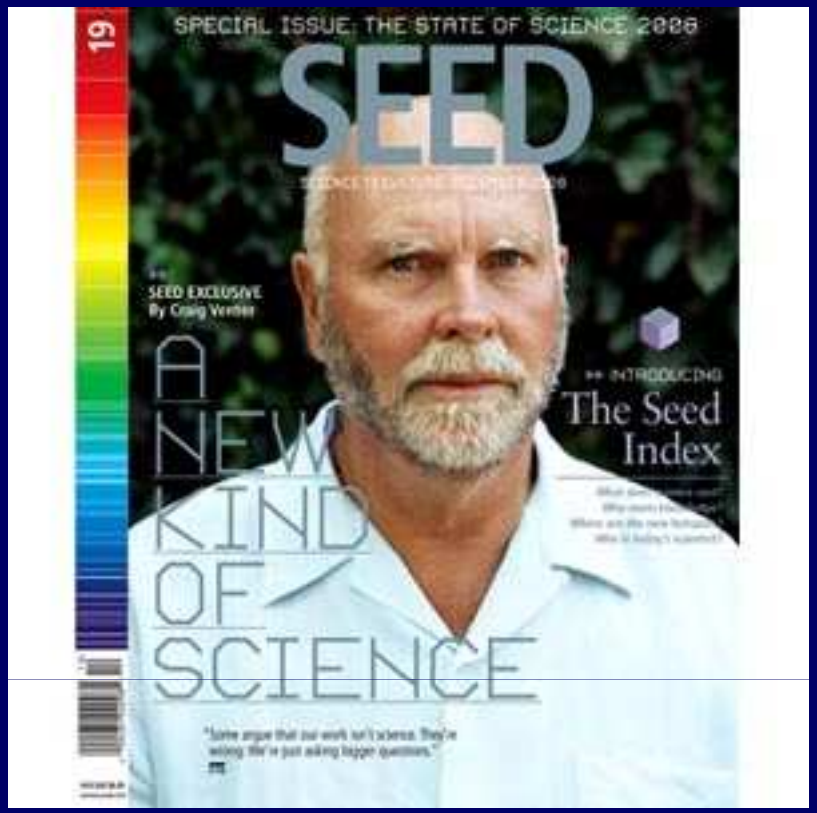
50

Premio Scientific American 50 assegnato ai 50 ricercatori migliori dell'anno

Bird Flu Research for All

Until recently, laboratories doing bird flu research often kept their findings private, with access to many avian influenza gene sequences confined to just 15 facilities globally, potentially hindering them from doing research that could provide new insight into the virus. Instead of entering her avian influenza findings into this database, Ilaria Capua of Viale University in Padua, Italy, disclosed the results of her studies in the publicly accessible GenBank and boldly rallied her colleagues to follow.

Her efforts helped to pave the way for the Global Initiative on Sharing Avian Influenza Data, a consortium through which findings can be freely shared while giving credit to researchers involved.
—Charles Q. Choi







Una delle 5 “Revolutionary Minds” della rivista americana SEED

Riconoscimento internazionale

Alla rete degli IIZZSS ed al servizio sanitario nazionale, per il loro ruolo a tutela della sanità pubblica internazionale

INFLUENZA A H1N1
Tra Dubbi e Certezze … Istruzioni per l'Uso

(Evento ECM n 9034799)

Venerdì 18 settembre 2009 ore 08.30 – 17.00

COMUNE DI ROMA
Palazzo Senatorio- Aula Giulio Cesare
P.zza del Campidoglio - Roma

LA LEADERSHIP ITALIANA SUGLI ASPETTI DI SANITA' PUBBLICA INTERNAZIONALE RELATIVI AI VIRUS INFLUENZALI DI ORIGINE ANIMALE

Dott.ssa Ilaria Capua
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La Sanità pubblica veterinaria italiana ha avuto un ruolo cardine nella gestione delle crisi internazionali causate dai virus influenzali animali, costruendo e capitalizzando sull'esperienza maturata a livello nazionale e sulle competenze degli Istituti Zooprofilattici Sperimentali (IIZZSS).

In collaborazione con il Ministero della Salute, gli IIZZSS hanno affrontato e gestito epidemie nel pollame domestico e negli uccelli selvatici a partire dal 1997. Successivamente all'epidemia di influenza aviaria ad alta patogenicità che nel 1999-2000 provocò morte di 17 milioni di volatili, gli IIZZSS hanno sviluppato progetti di ricerca nazionali ed internazionali, i cui risultati hanno contribuito all'aumento della conoscenza in ambito internazionale in questo campo.

Infatti, è stato grazie alla ricerca svolta in Italia che è stata sviluppata una strategia di vaccinazione per l'influenza aviaria approvata e condivisa dall'Unione Europea, dall'Organizzazione Mondiale per la Sanità Animale e dalla FAO, oggi proposta a livello internazionale come strumento di lotta al virus H5N1.

Inoltre, la rete degli IIZZSS italiani ha contribuito in maniera essenziale e strategica alla gestione globale delle crisi internazionali da H5N1 e da H1N1. Nel febbraio 2006, i virologi degli IIZZSS italiani non hanno esitato a depositare le sequenze genetiche dei virus H5N1 isolati in Italia in un database pubblico, permettendo a ricercatori di tutto il mondo di avere accesso ad informazioni sull'epidemiologia molecolare del virus H5N1 (1,2).

Inoltre il Centro di Referenza Nazionale, presso l'Istituto Zooprofilattico Sperimentale delle Venezie, a Legnaro, (PD), si è fatto promotore a livello internazionale dell'iniziativa GISAID sulla trasparenza dei dati sui virus influenzali, sottoscritto da 70 virologi medici e veterinari di tutto il mondo e da 6 vincitori di premio Nobel (3).

L'iniziativa GISAID si è rivelata di importanza cruciale anche nell'emergenza globale causata dal virus H1N1 di origine suina.

È, infatti, grazie a questa piattaforma informatica che è stato possibile decifrare il genoma del virus emerso dal serbatoio suino in tempo reale. La piattaforma GISAID rappresenta oggi un esempio unico di collaborazione transdisciplinare, soprattutto fra virologi medici e veterinari essenziale per la ricerca nel campo delle malattie che emergono dal serbatoio animale.

La rete degli IIZZSS è parte integrante del Servizio Sanitario Nazionale ed oltre a svolgere i compiti istituzionali, rappresenta una risorsa a supporto delle emergenze sanitarie sia a livello nazionale che internazionale.

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