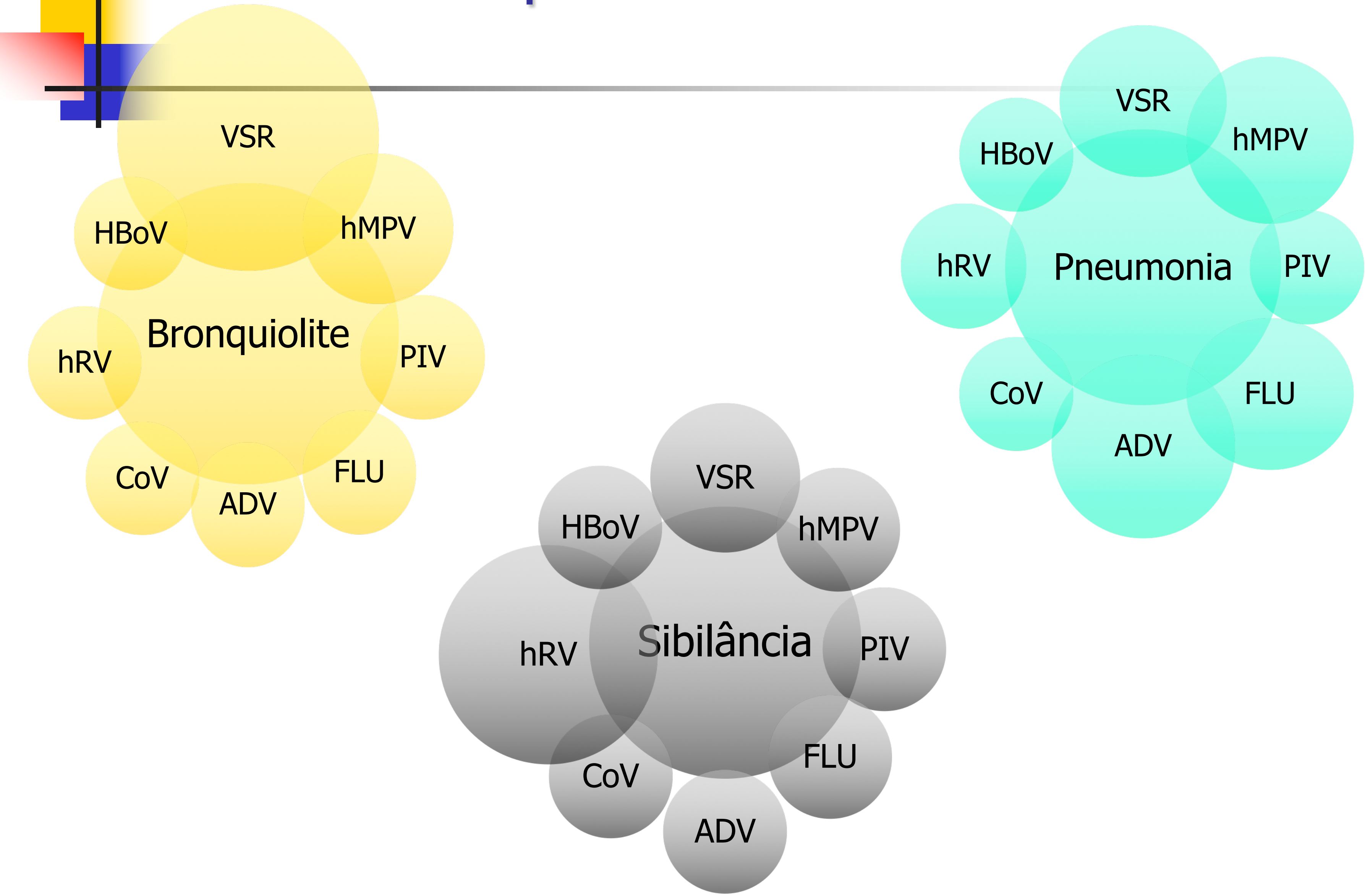
Influenza e outros Vírus do Trato Respiratório Inferior



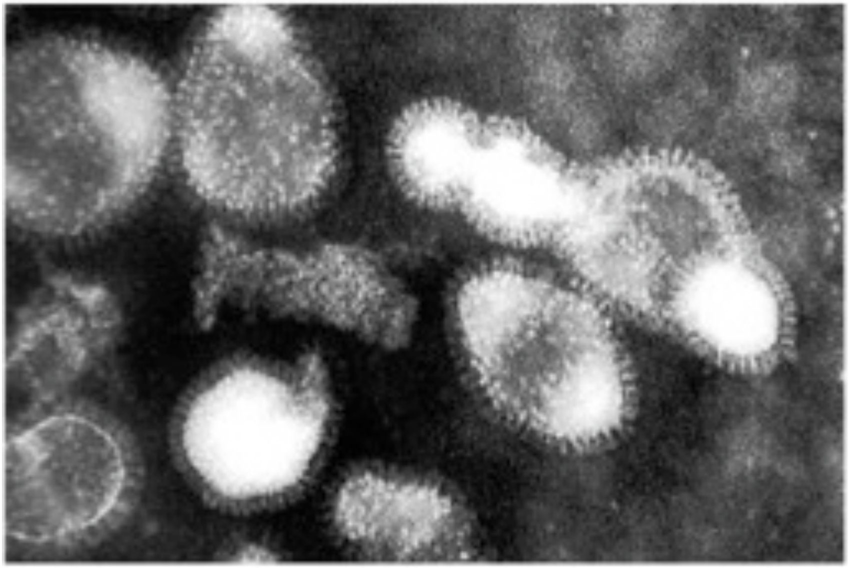
Vírus Respiratórios Comuns

Síndrome	Vírus	
	Mais freqüentes	Menos freqüentes
Infecção respiratória do trato superiores	Rinovírus Coronavírus Parainfluenza 1-3 VSR Influenza A e B	Adenovírus 1 - 7; 14, 21 Coxsackie A21, B2-5 Parainfluenza 4
Crupe (laringotraqueobronquite)	Parainfluenza 1-3 VSR Influenza A e B	Adenovírus
Bronquiolite	Parainfluenza 1-3 VSR	Influenza A
Pneumonia	Parainfluenza 1-3 VSR Influenza A	Adenovírus (3,4,7,14 e 21) Sarampo Varicela

Novos Vírus Respiratórios

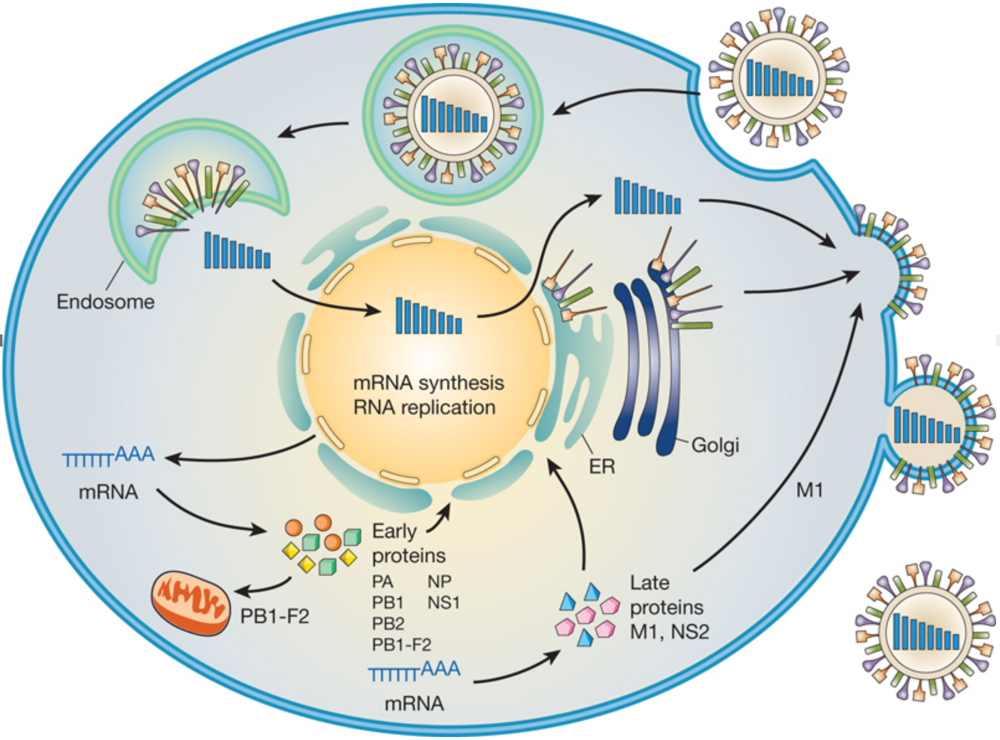
Vírus	Grupo pacientes	Prevalência	Sinais Clínicos	Referência
Metapneumovírus Humano	Crianças e idosos	3-25%	Bronquiolite, pneumonia, broncoespasmo, rinorréia, tosse, dor de garganta	van den Hoogen et al (2001)
Influenza Aviária	Todas as idades	Esporádica	Pneumonia síndrome gripal	Bridges et al (1997)
Síndrome respiratória aguda grave (SARS)	Todas idades	Esporádica	Pneumonia	Ksiazek et al (2003)
Coronavírus NL63 e HKU1	Crianças e idosos	1-10%	Bronquiolite, pneumonia, rinorréia, febre, tosse e sibilância	van der Hoek et al (2004), Woo et al (2005)
Bocavírus Humano	Crianças	1-11%	Bronquiolite, pneumonia, OMA, broncoespasmo	Allander et al (2005)
Polyomavírus KI e WU	Crianças	1-7%	Bronquiolite, pneumonia, tosse	Allander et al (2007), Gaynor at al (2007)

Influenza A Sazonal: H3N2 e H1N1
Influenza A Pandêmico: H1N1
Influenza A Aviária: H5N1
Influenza A Aviária H7N9



- Família: Orthomyxoviridae
- 3 tipos: A, B e C
- RNA segmentado (8)
- Envelopado, simetria helicoidal, 80 a 120 nm
- Várias espécies

Schematic diagram of the influenza viral life cycle.



G Neumann *et al. Nature* **459**, 931-939 (2009) doi:10.1038/nature08157

Influenza

Type of nuclear material

Hemagglutinin

Neuraminidase

A/Beijing/32/92 (H3N2)

Virus type

Geographic origin

Strain number

Year of Isolation

Virus subtype

HOSPEDEIROS RECONHECIDOS DE INFLUENZA A

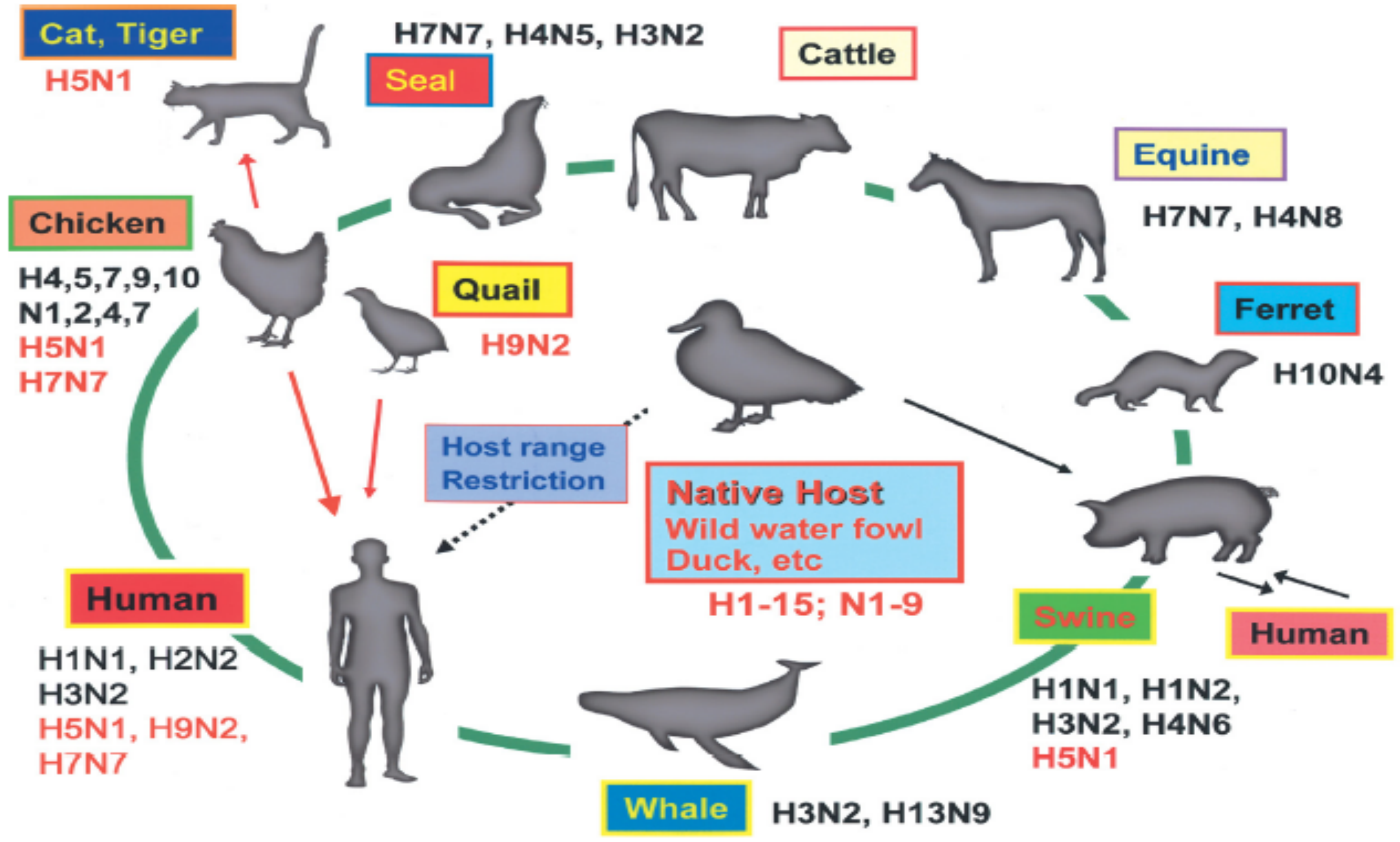
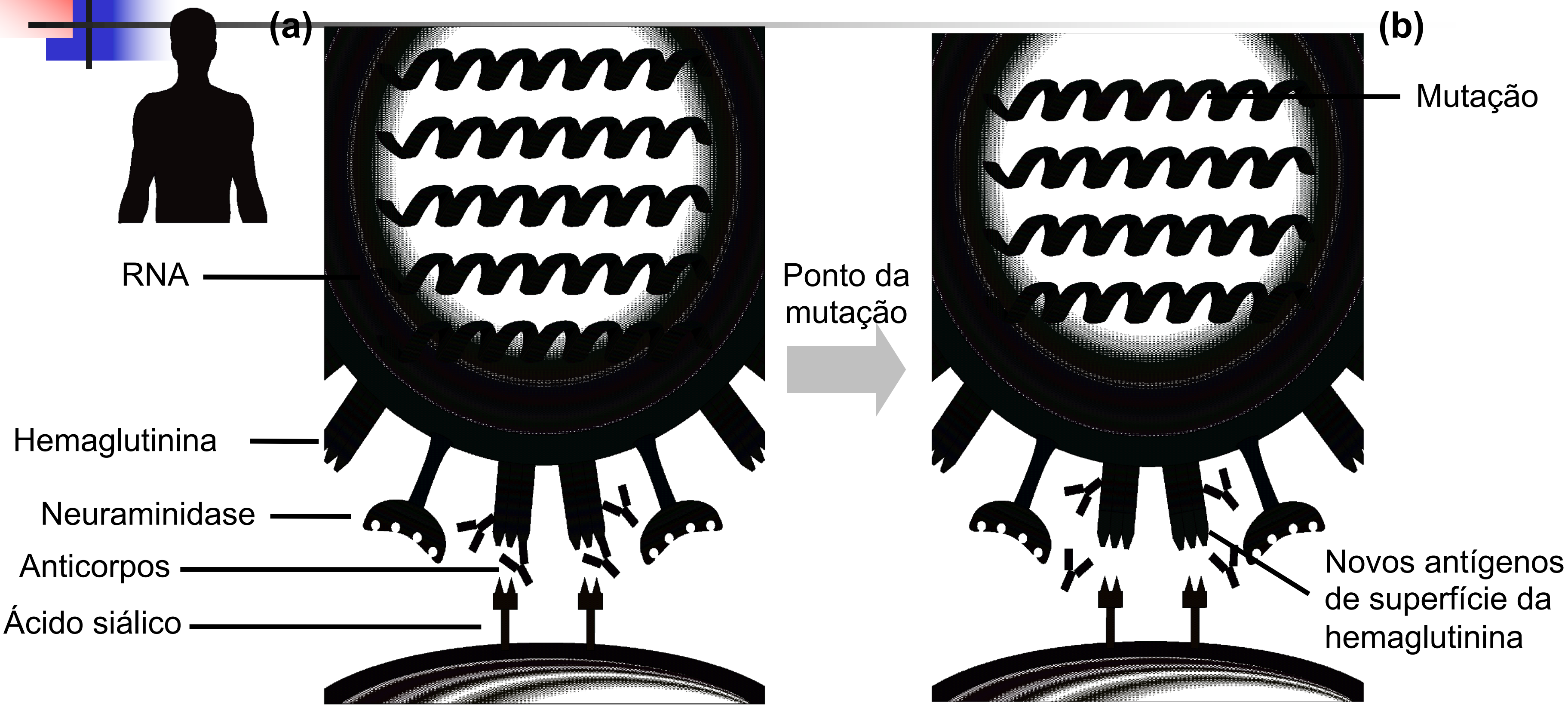


Fig. 1. Host Range of Influenza Viruses

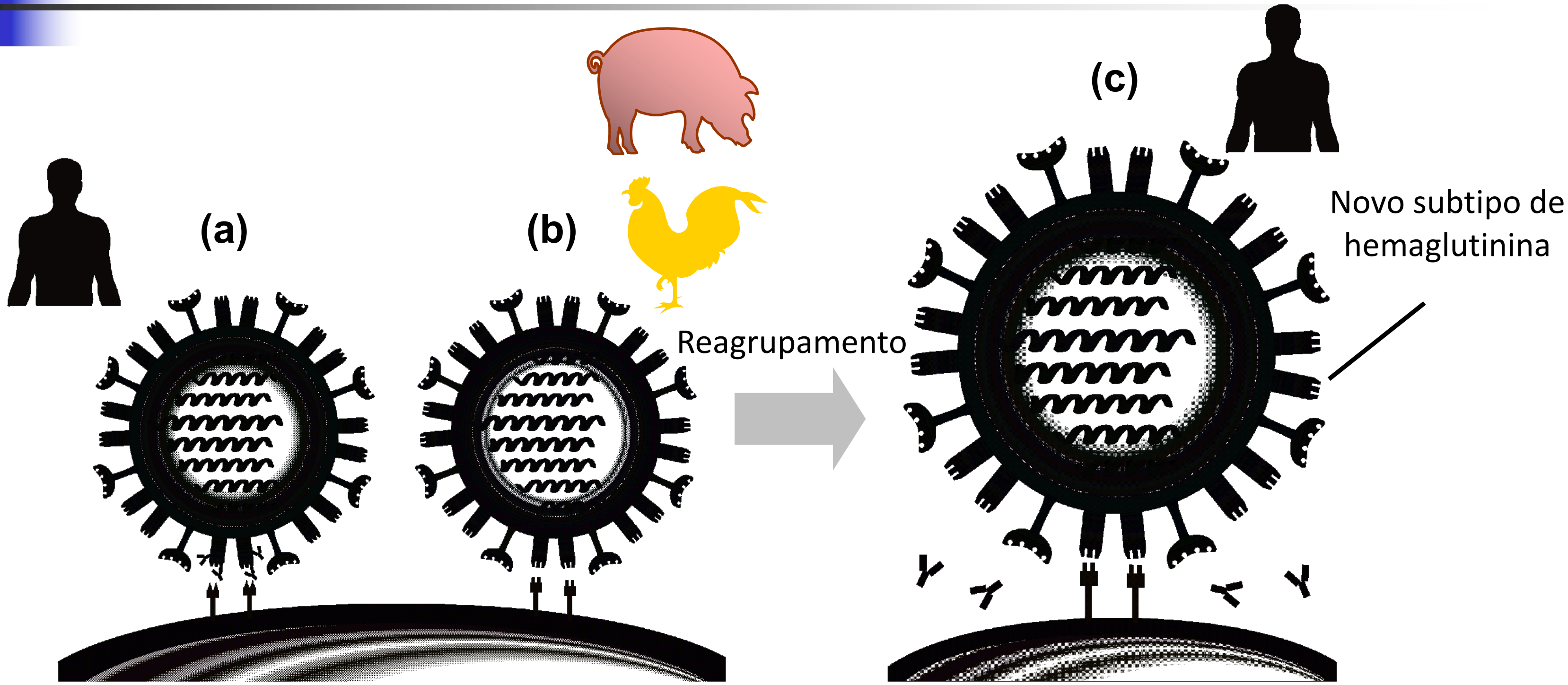
Drifts Antigênicos *(Variações Sazonais)*



O lento acúmulo de mutações no vírus circulante (a) faz surgir uma ‘nova’ cepa antigênica com novos antígenos de superfície da hemaglutinina (b) que não são reconhecidos pelos anticorpos existentes

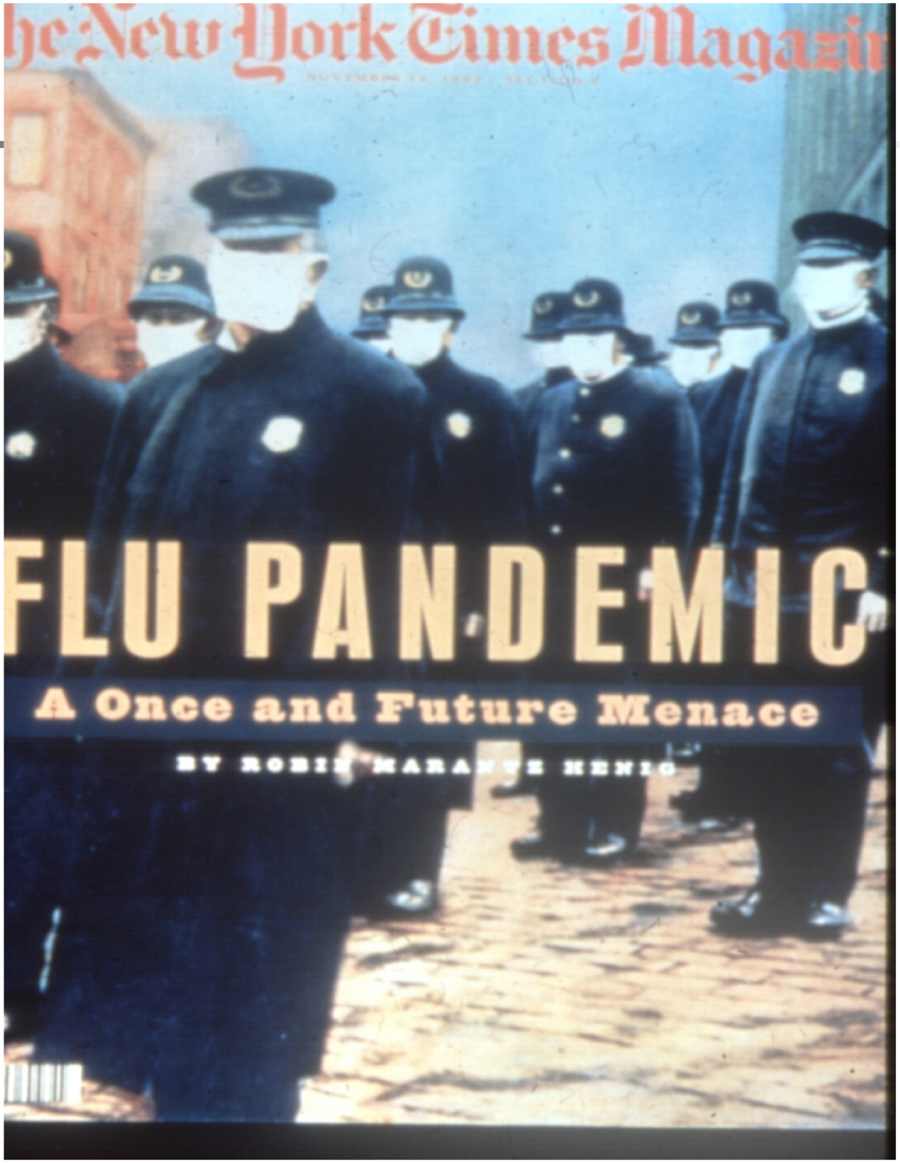
Cox and Fukuda. Infect Dis Clin North Am 1998;12:27–38. Laver et al. Sci Am 1999;280:78–87.

Shifts Antigênicos
(Candidatos Pandêmicos)



A 'mistura' de um vírus influenza que infecta humanos (a) com um vírus influenza que infecta somente outra espécie, p.ex. aves domésticas ou porco, (b) resulta em uma nova cepa (c) com um novo subtipo de hemaglutinina (ou neuraminidase) que pode levar a uma pandemia

Influenza Pandêmica 1918



he New York Times Magazin

FLU PANDEMIC

A Once and Future Menace

BY ROBIN MARANTZ HENIG

20-40 milhões pessoas

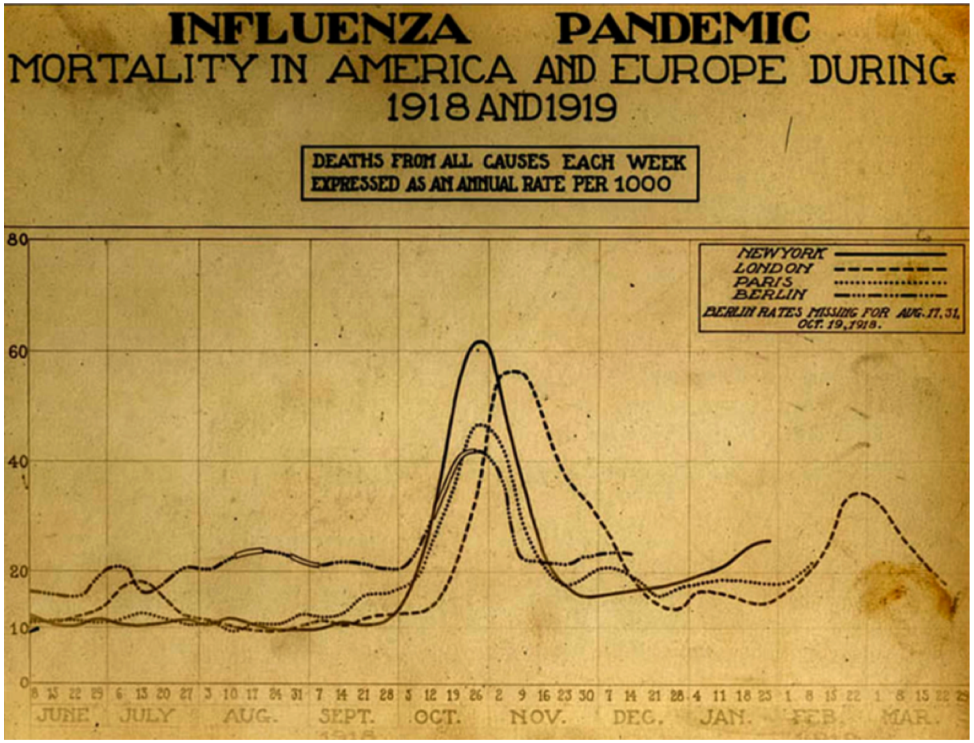
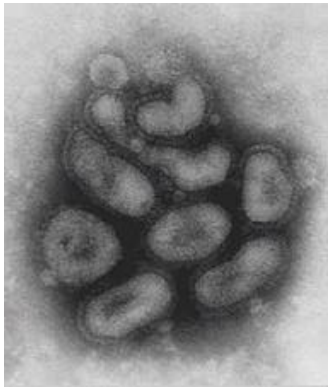


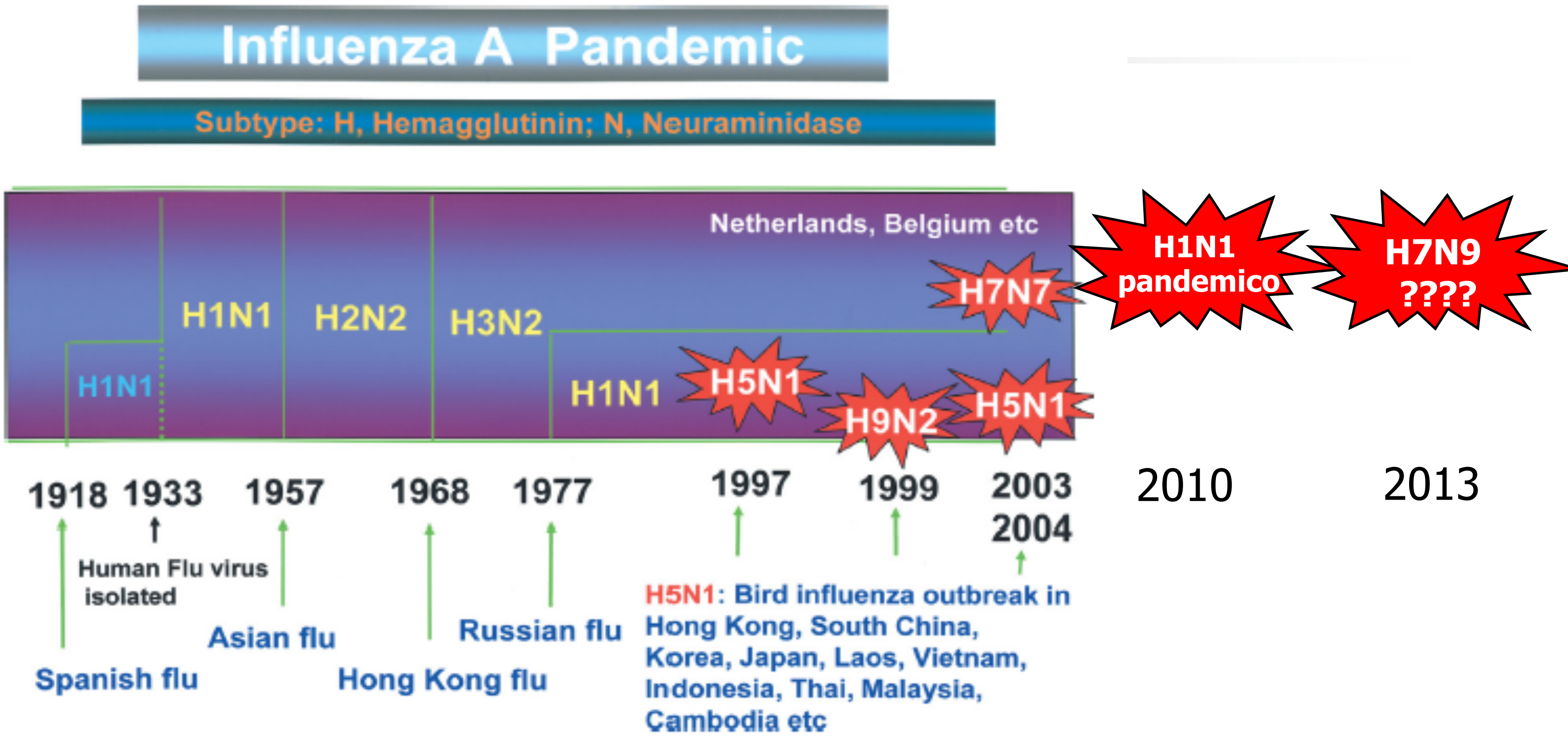
Image: courtesy of the National Museum of Health and Medicine)

Pandemic Influenza: The Inside Story. Nicholls H, PLoS Biology Vol. 4/2/2006, e50



www.ncbi.nlm.nih.gov/ICTVdb/Ictv/index.htm

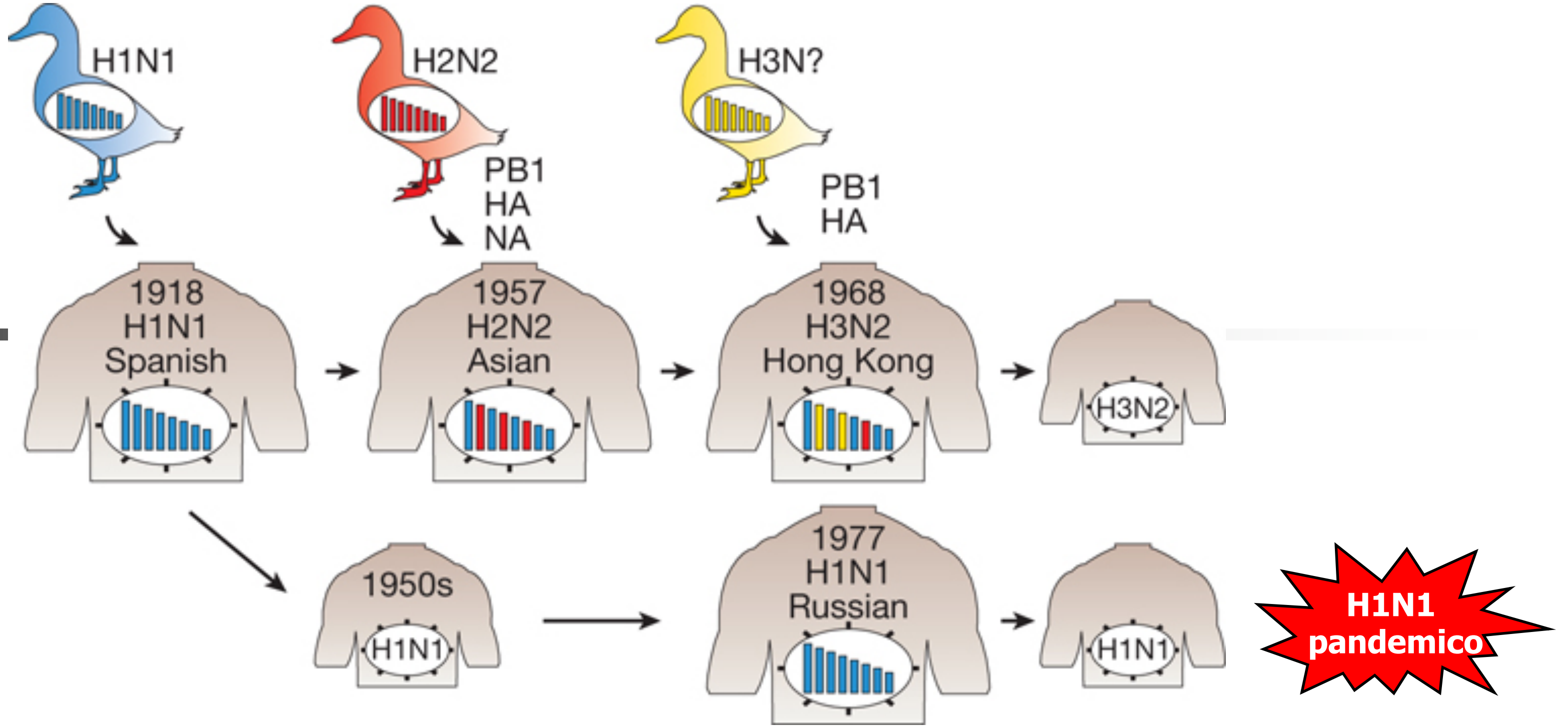
HISTÓRICO DAS PANDEMIAS:



Influenza Pandemics and Recent Outbreaks of Avian Influenza in Humans

Recentemente subtipos puramente aviários H5N1, H9N2, H7N7 e H7N9 foram distribuídos diretamente em humanos.

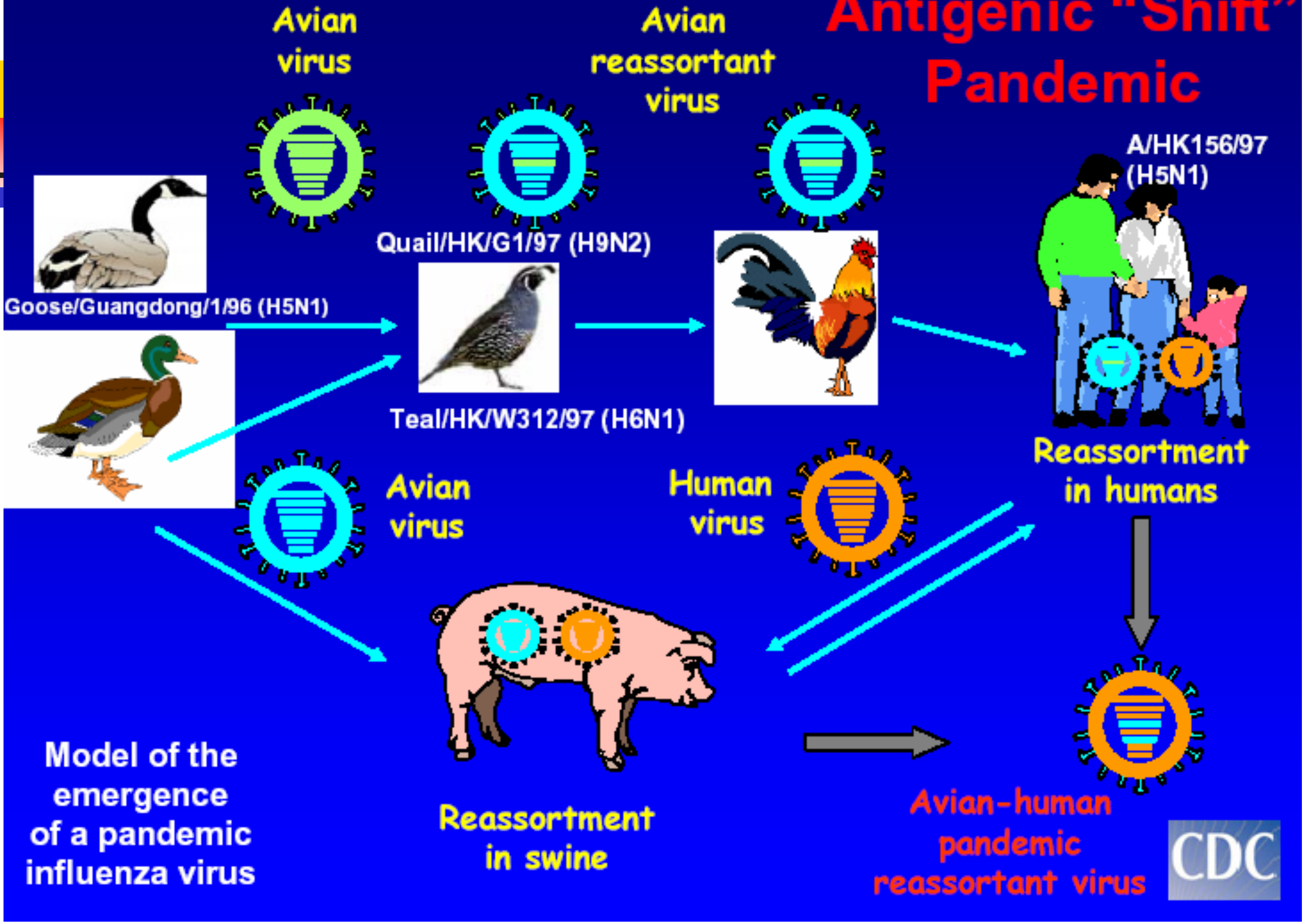
Emergence of pandemic influenza viruses.



G Neumann *et al. Nature* **000**, 1-9 (2009) doi:10.1038/nature08157

nature

Antigenic "Shift" Pandemic



Avian virus

Avian reassortant virus

A/HK156/97 (H5N1)

Quail/HK/G1/97 (H9N2)

Goose/Guangdong/1/96 (H5N1)

Teal/HK/W312/97 (H6N1)

Reassortment in humans

Avian virus

Human virus

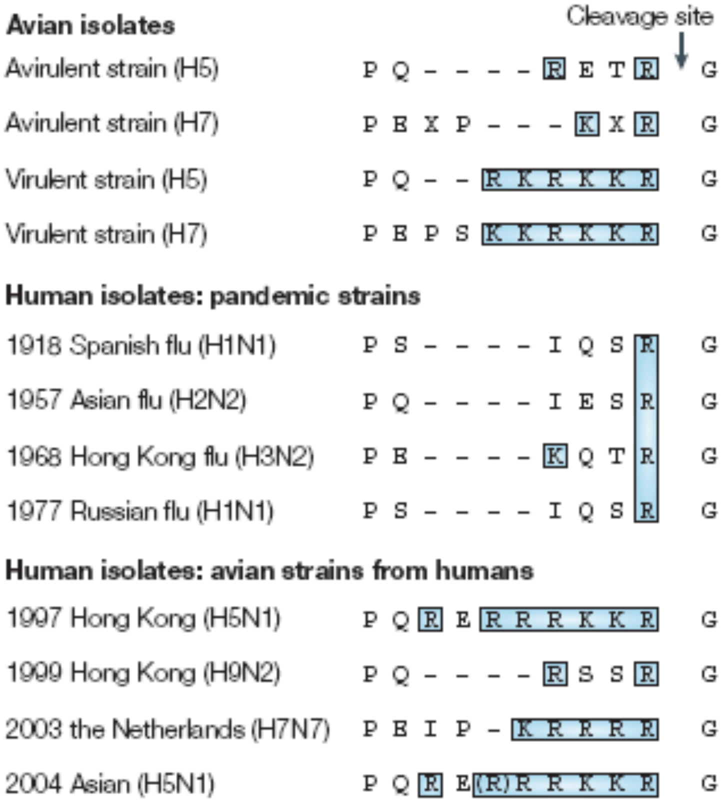
Model of the emergence of a pandemic influenza virus

Reassortment in swine

Avian-human pandemic reassortant virus

CDC

HEMAGLUTININAS E O SÍTIO DE CLIVAGEM



	Cleavage site
Avian isolates	
Avirulent strain (H5)	P Q - - - - R E T R ↓ G
Avirulent strain (H7)	P E X P - - - K X R G
Virulent strain (H5)	P Q - - R K R K K R G
Virulent strain (H7)	P E P S K K R K K R G
Human isolates: pandemic strains	
1918 Spanish flu (H1N1)	P S - - - - I Q S R G
1957 Asian flu (H2N2)	P Q - - - - I E S R G
1968 Hong Kong flu (H3N2)	P E - - - - K Q T R G
1977 Russian flu (H1N1)	P S - - - - I Q S R G
Human isolates: avian strains from humans	
1997 Hong Kong (H5N1)	P Q R E R R R K K R G
1999 Hong Kong (H9N2)	P Q - - - - R S S R G
2003 the Netherlands (H7N7)	P E I P - K R R R R G
2004 Asian (H5N1)	P Q R E (R) R R K K R G

Figure 3 | **HA cleavage site sequence of influenza A viruses.** Basic amino acids are shown in blue boxes. Dashes are for the purpose of alignment only.

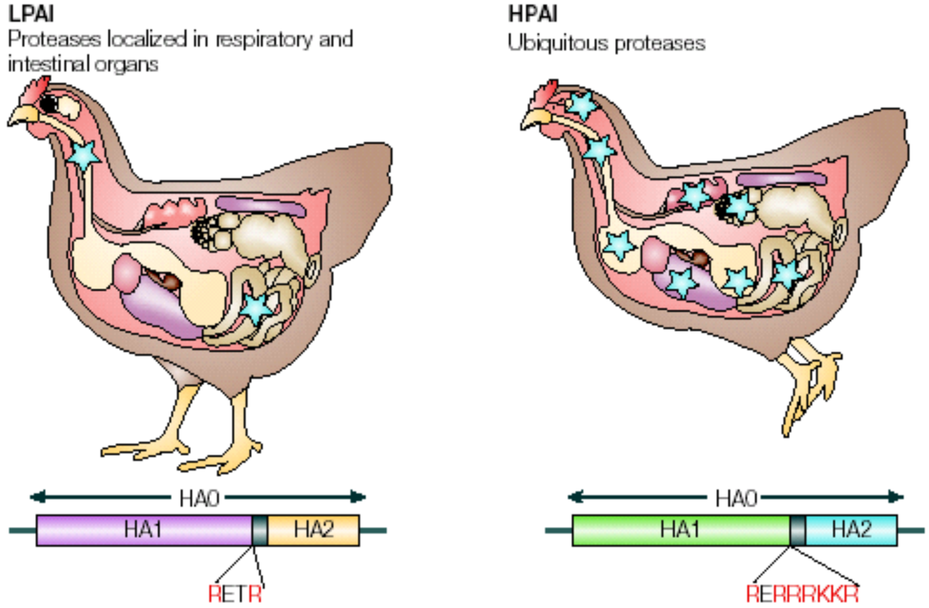
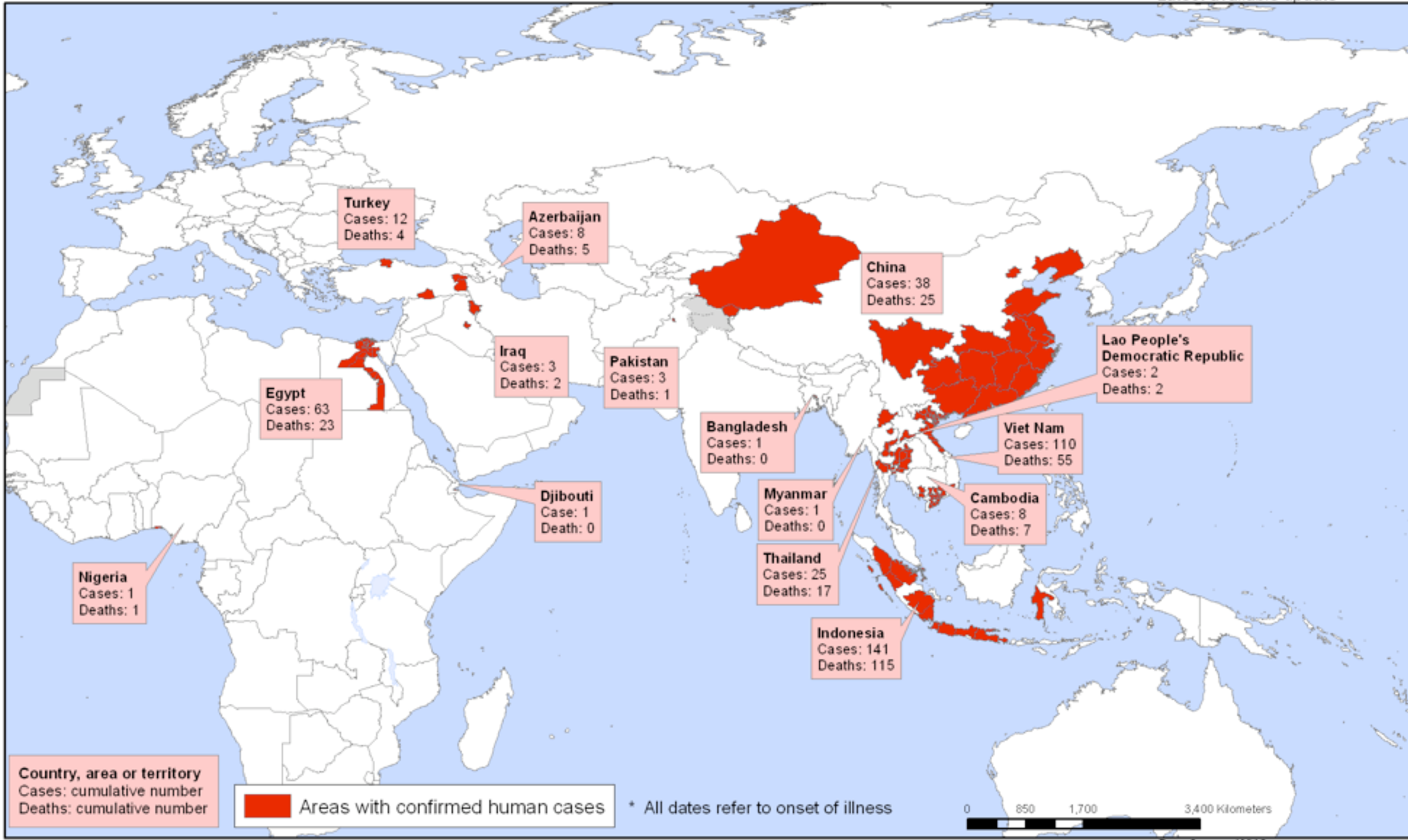


Figure 4 | **Haemagglutinin (HA) as a major determinant of the pathogenicity of avian influenza viruses in poultry.** Post-translational proteolytic cleavage of the HA precursor molecule (HA0) into HA1 and HA2 subunits by host proteases generates a fusogenic domain at the amino terminus of HA2 (shown in grey), which mediates fusion between the viral envelope and the endosomal membrane. Therefore, proteolytic activation of the HA molecule is essential for viral infectivity. The HAs of low-pathogenicity avian influenza (LPAI) viruses do not contain a series of basic amino acid (RETR) at the protease cleavage site and are cleaved by proteases that are localized in respiratory and intestinal organs, resulting in mild localized infections. By contrast, the HAs of high-pathogenicity avian influenza (HPAI) viruses possess multiple basic amino acids at the cleavage site (RERRRKKR), which are cleaved by ubiquitous proteases in a wide range of organs, resulting in lethal systemic infection.

Areas with confirmed human cases of H5N1 avian influenza since 2003 *

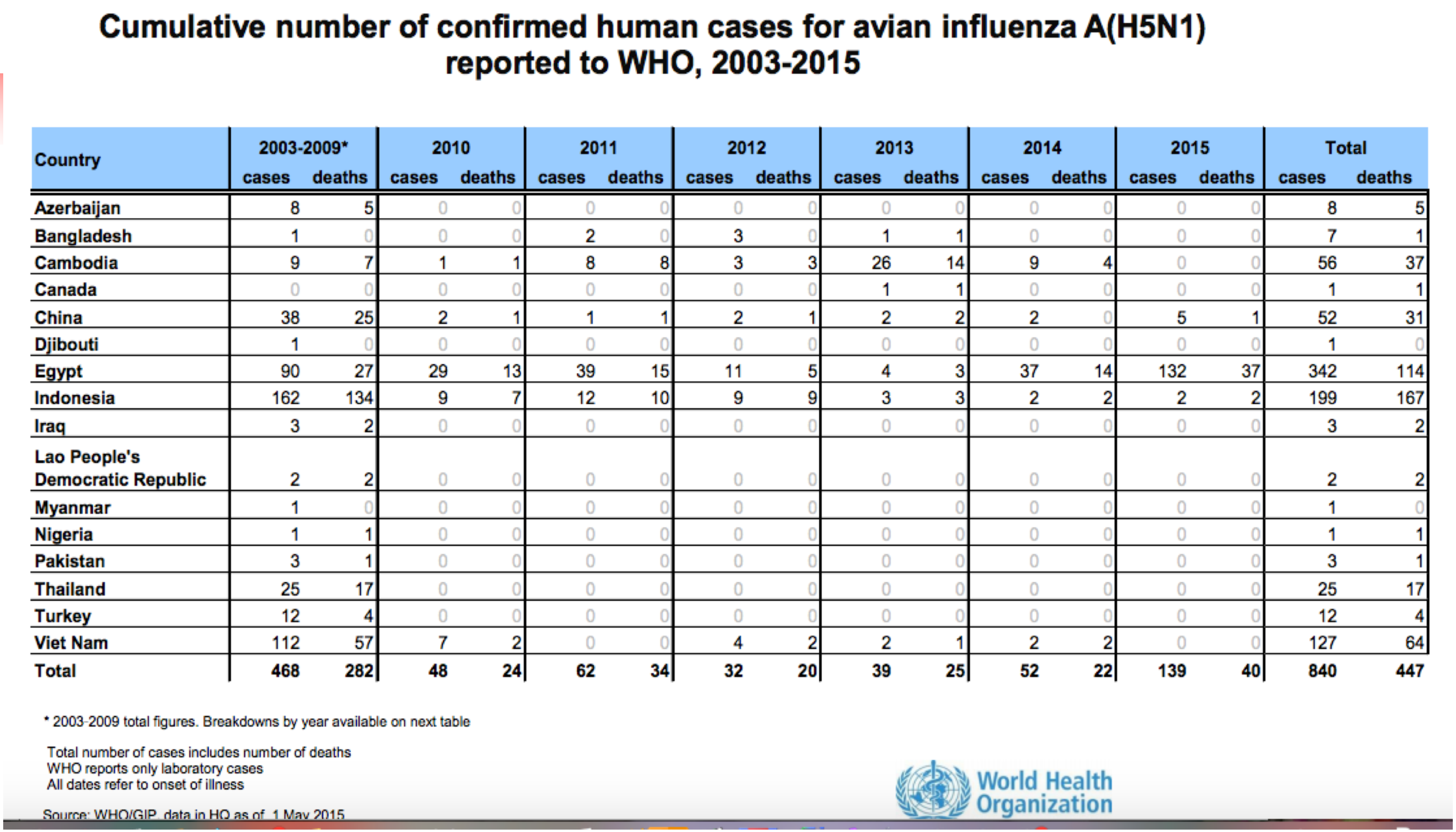
Status as of 08 April 2009
Latest available update



* All dates refer to onset of illness

World Health Organization

Data Source: WHO
Map Production: Public Health Information and Geographic Information System (GIS)
World Health Organization



Cumulative number of confirmed human cases for avian influenza A(H5N1) reported to WHO, 2003-2015

Country	2003-2009*		2010		2011		2012		2013		2014		2015		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	8	5	0	0	0	0	0	0	0	0	0	0	0	0	8	5
Bangladesh	1	0	0	0	2	0	3	0	1	1	0	0	0	0	7	1
Cambodia	9	7	1	1	8	8	3	3	26	14	9	4	0	0	56	37
Canada	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
China	38	25	2	1	1	1	2	1	2	2	2	0	5	1	52	31
Djibouti	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Egypt	90	27	29	13	39	15	11	5	4	3	37	14	132	37	342	114
Indonesia	162	134	9	7	12	10	9	9	3	3	2	2	2	2	199	167
Iraq	3	2	0	0	0	0	0	0	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Myanmar	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Nigeria	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Pakistan	3	1	0	0	0	0	0	0	0	0	0	0	0	0	3	1
Thailand	25	17	0	0	0	0	0	0	0	0	0	0	0	0	25	17
Turkey	12	4	0	0	0	0	0	0	0	0	0	0	0	0	12	4
Viet Nam	112	57	7	2	0	0	4	2	2	1	2	2	0	0	127	64
Total	**468**	**282**	**48**	**24**	**62**	**34**	**32**	**20**	**39**	**25**	**52**	**22**	**139**	**40**	**840**	**447**

* 2003-2009 total figures. Breakdowns by year available on next table

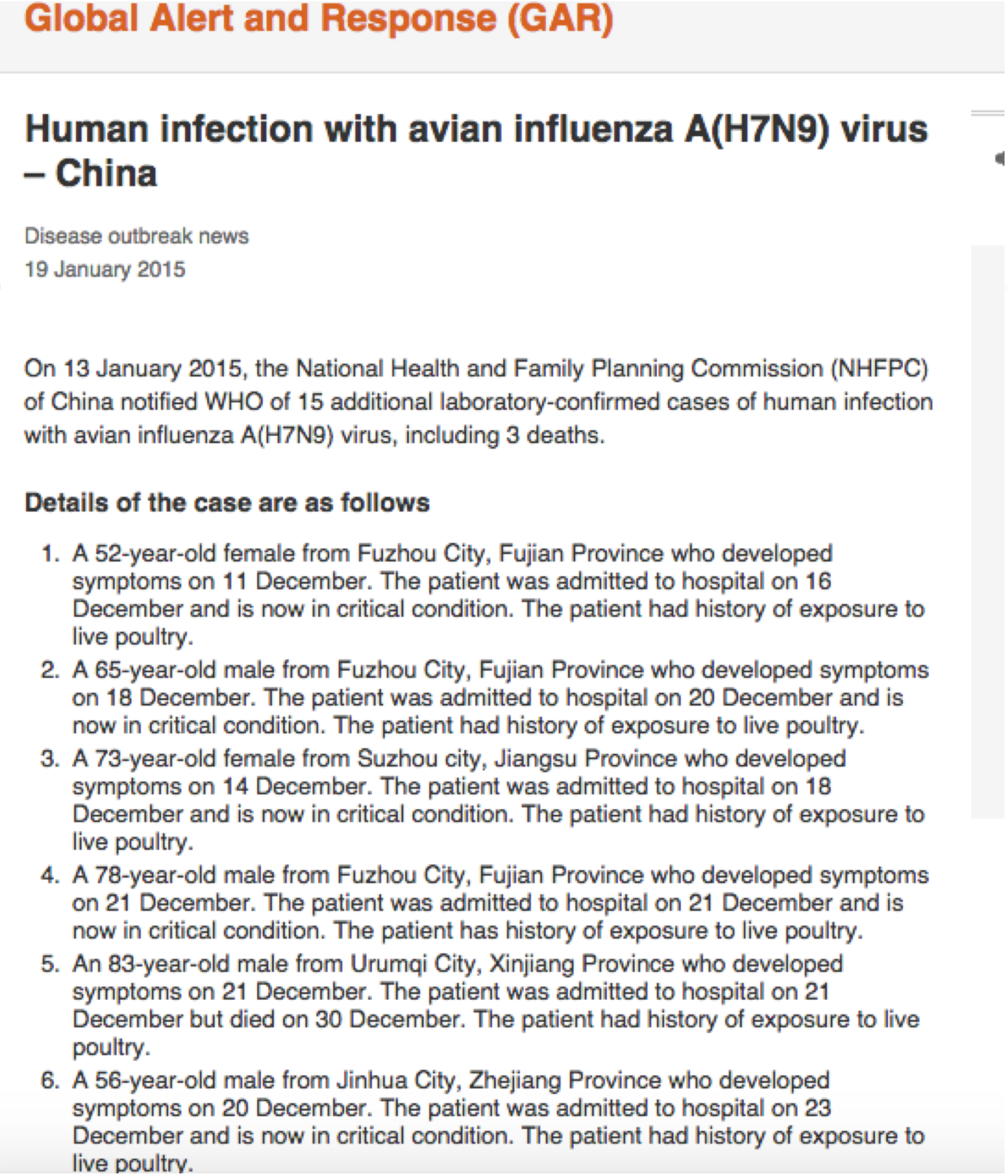
Total number of cases includes number of deaths
WHO reports only laboratory cases
All dates refer to onset of illness

Source: WHO/GIP, data in HQ as of 1 May 2015

World Health Organization

H7N9 (13/05/2013)

Chineses usam máscaras em Xangai, na China (Foto: Mark Ralston/AFP)



Global Alert and Response (GAR)

Human infection with avian influenza A(H7N9) virus – China

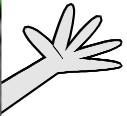
Disease outbreak news

19 January 2015

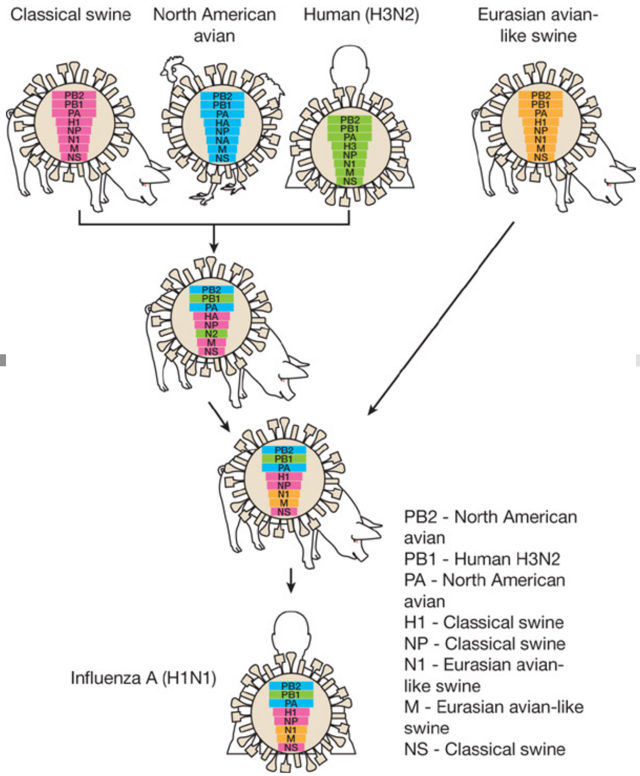
On 13 January 2015, the National Health and Family Planning Commission (NHFPC) of China notified WHO of 15 additional laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus, including 3 deaths.

Details of the case are as follows

1. A 52-year-old female from Fuzhou City, Fujian Province who developed symptoms on 11 December. The patient was admitted to hospital on 16 December and is now in critical condition. The patient had history of exposure to live poultry.
2. A 65-year-old male from Fuzhou City, Fujian Province who developed symptoms on 18 December. The patient was admitted to hospital on 20 December and is now in critical condition. The patient had history of exposure to live poultry.
3. A 73-year-old female from Suzhou city, Jiangsu Province who developed symptoms on 14 December. The patient was admitted to hospital on 18 December and is now in critical condition. The patient had history of exposure to live poultry.
4. A 78-year-old male from Fuzhou City, Fujian Province who developed symptoms on 21 December. The patient was admitted to hospital on 21 December and is now in critical condition. The patient has history of exposure to live poultry.
5. An 83-year-old male from Urumqi City, Xinjiang Province who developed symptoms on 21 December. The patient was admitted to hospital on 21 December but died on 30 December. The patient had history of exposure to live poultry.
6. A 56-year-old male from Jinhua City, Zhejiang Province who developed symptoms on 20 December. The patient was admitted to hospital on 23 December and is now in critical condition. The patient had history of exposure to live poultry.



Genesis of swine-origin H1N1 influenza viruses.

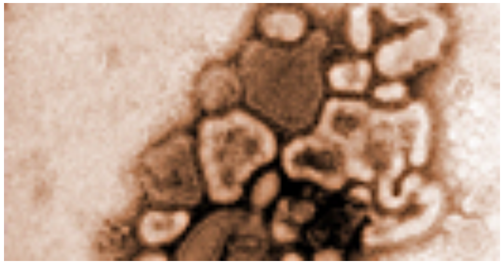


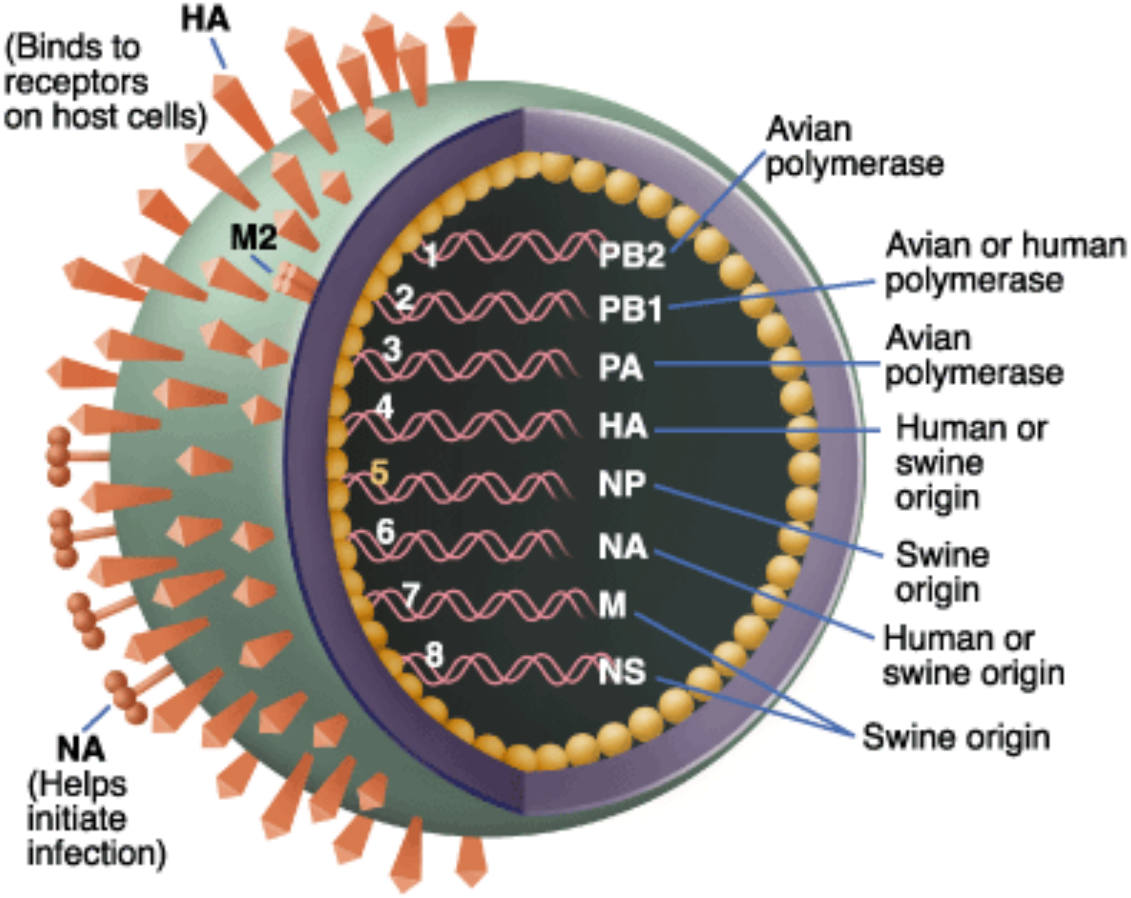
PB2 - North American avian
PB1 - Human H3N2
PA - North American avian
H1 - Classical swine
NP - Classical swine
N1 - Eurasian avian-like swine
M - Eurasian avian-like swine
NS - Classical swine

G Neumann *et al. Nature* **000**, 1-9 (2009) doi:10.1038/nature08157

nature

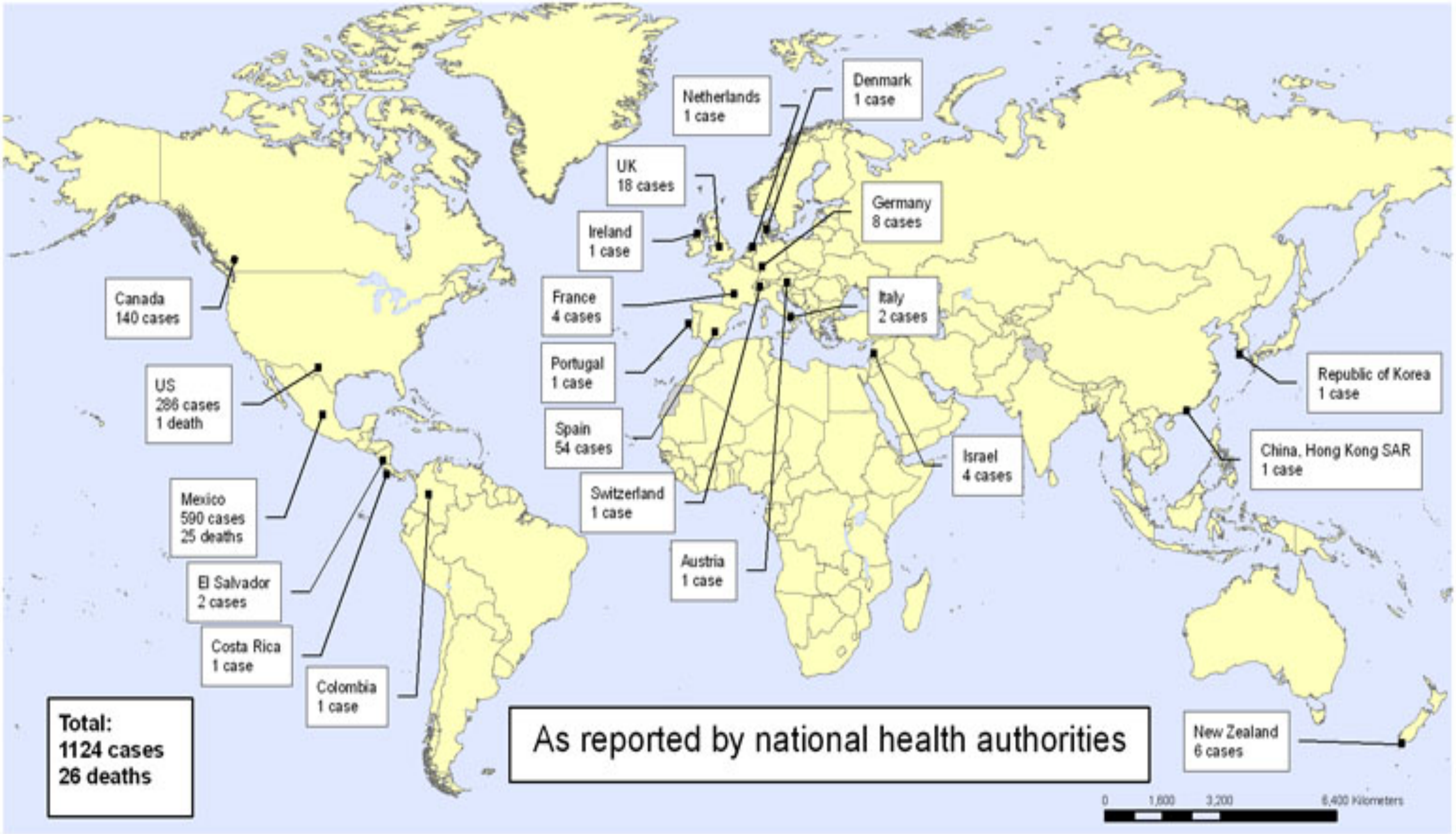
Influenza A




HA
(Binds to receptors on host cells)
M2
NA
(Helps initiate infection)
1
2
3
4
5
6
7
8
PB2
PB1
PA
HA
NP
NA
M
NS
Avian polymerase
Avian or human polymerase
Avian polymerase
Human or swine origin
Swine origin
Human or swine origin
Swine origin

New Influenza A (H1N1)
Number of laboratory confirmed cases and deaths

Status as of 5 May 2009
6:30 GMT



Data Source: World Health Organization
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization

World Health Organization

Map produced: 5 May 2009 6:30 GMT

New Influenza A (H1N1), Number of laboratory confirmed cases and deaths as reported to WHO

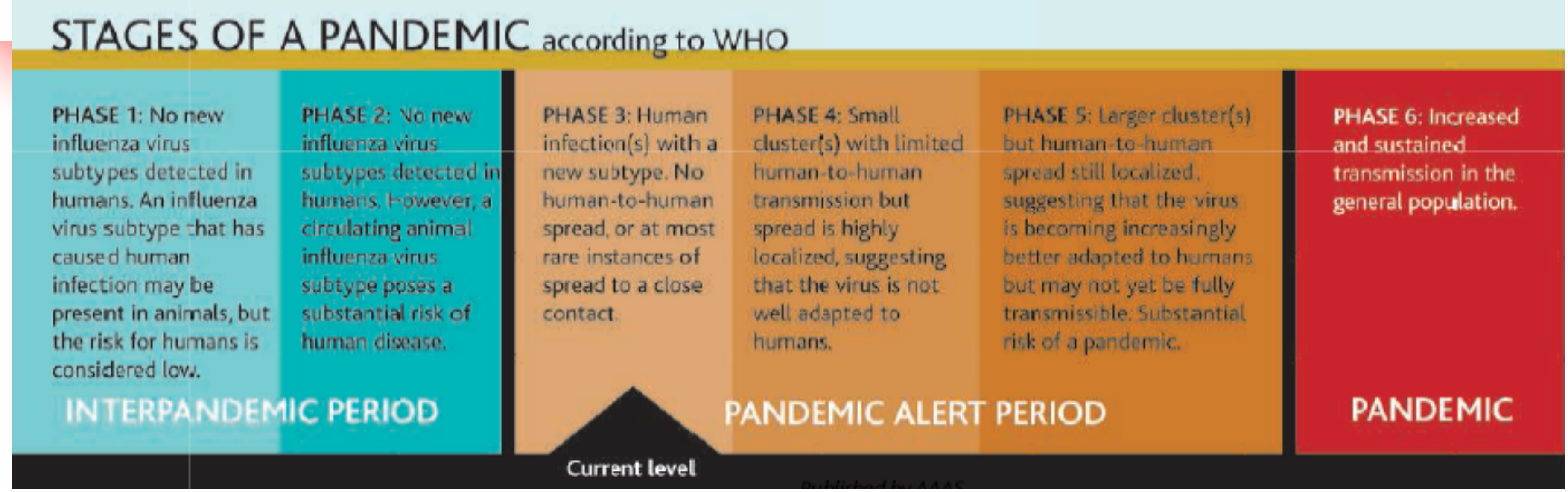
Status as of 20 May 2009 6:00 GMT

Data Source: World Health Organization
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization

World Health Organization

Map produced: 20 May 2009 6:00 GMT

ESTÁGIOS DE UMA PANDEMIA - OMS



STAGES OF A PANDEMIC according to WHO

PHASE 1: No new influenza virus subtypes detected in humans. An influenza virus subtype that has caused human infection may be present in animals, but the risk for humans is considered low.

PHASE 2: No new influenza virus subtypes detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease.

PHASE 3: Human infection(s) with a new subtype. No human-to-human spread, or at most rare instances of spread to a close contact.

PHASE 4: Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to humans.

PHASE 5: Larger cluster(s) but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to humans but may not yet be fully transmissible. Substantial risk of a pandemic.

PHASE 6: Increased and sustained transmission in the general population.

INTERPANDEMIC PERIOD

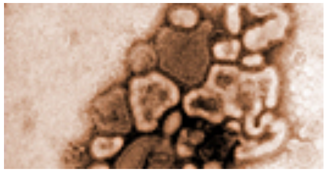
PANDEMIC ALERT PERIOD

PANDEMIC

Current level

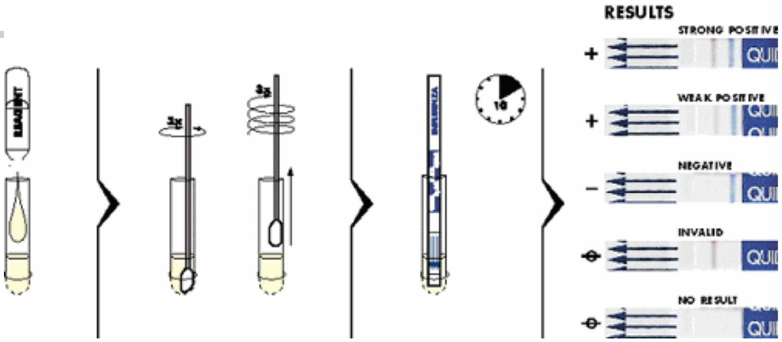
Enserink, Ago 2005 Science

1. Não há novo subtipo em humanos – poucas aves mortas;
2. Não há novo subtipo em humanos – muitas aves mortas (risco);
3. Casos em humanos (animais) - não há novo subtipo – muitas aves mortas;
4. Poucos casos de humanos para humanos (vírus não adaptado);
5. Aumento de casos em humanos (localizados);
6. Grande número de casos na população mundial – **PANDEMIA!!**

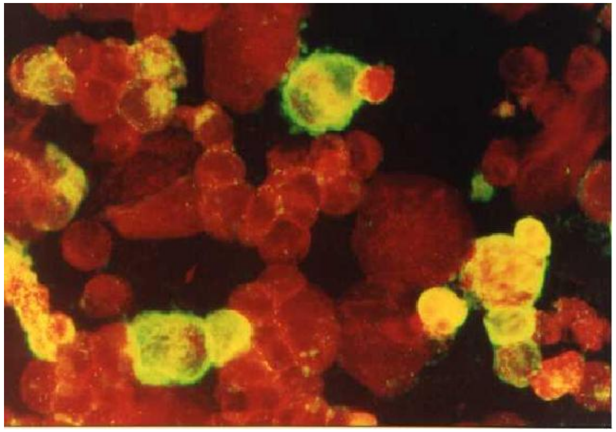


Influenza Diagnóstico

- Testes triagem: Influenza A/B



- Testes rápidos detecção antigênica



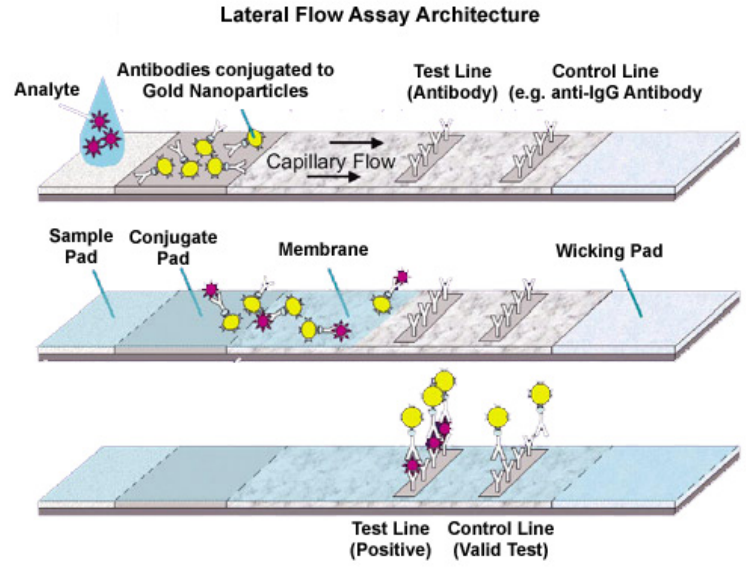
- Testes Imunofluorescência

- PCR

Respiratory Virus Diagnostics

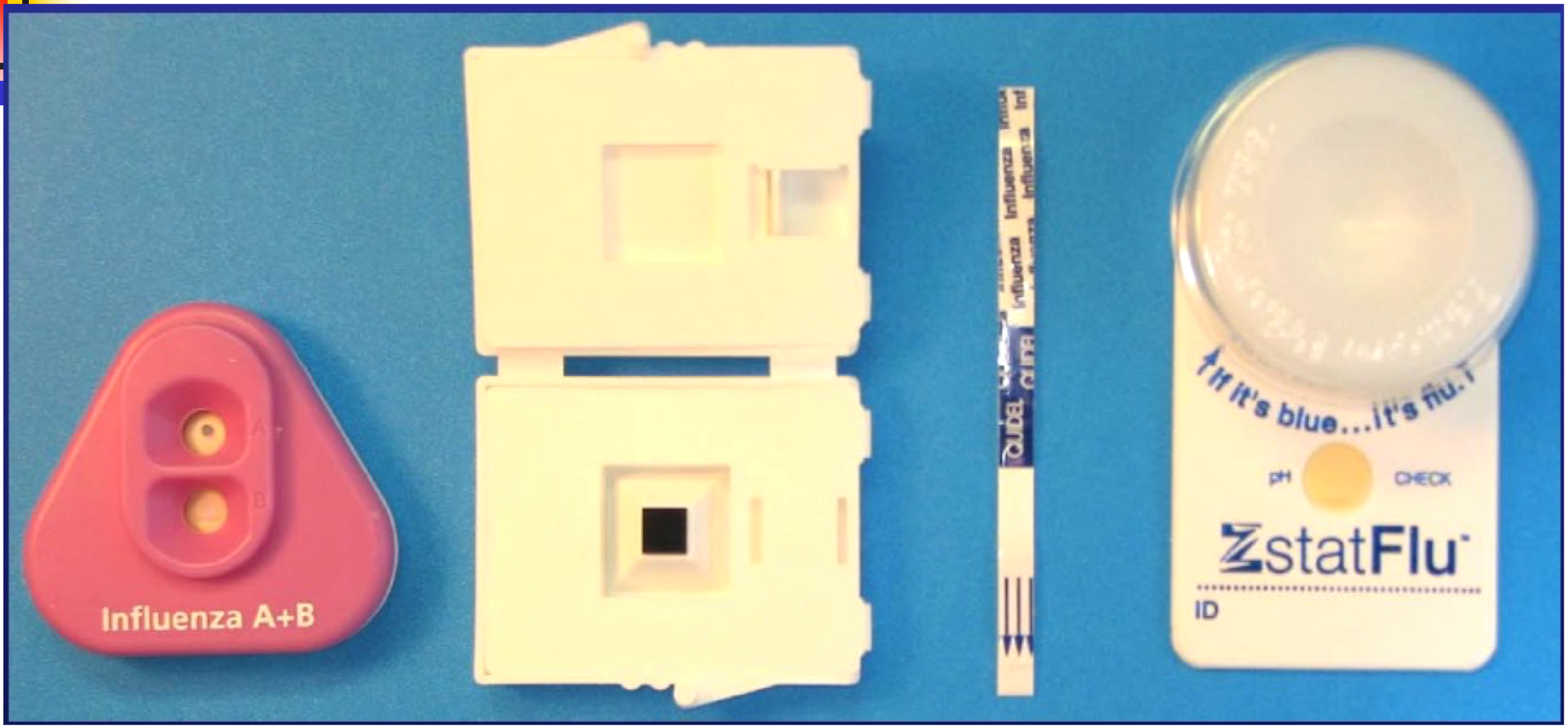
Antigen Detection: Rapid Tests

- No instrumentation required
- Flow-through or lateral flow (strip) assays
- Commercially available for Influenza A/B and RSV
- Fast (results in <30 min)
- Simple to perform
- Built-in controls
- Point-of-care testing
- Useful for guiding patient management and outbreak investigations



Respiratory Virus Diagnostics

Commercial Influenza Rapid Tests



Directigen
Flu A + B

BioStar
OIA Flu A/B

QuickVue
Influenza Test

ZstatFlu

World Health Organization

5X MagMAX™ 96 Viral Isolation Kit (Applied Biosystems®)

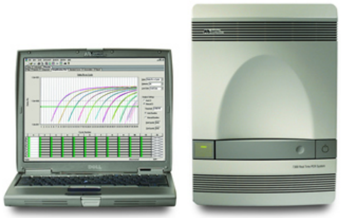
N=433

N=870

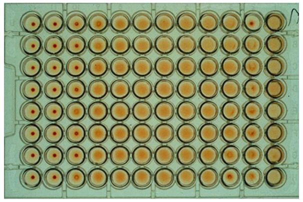
N=1093

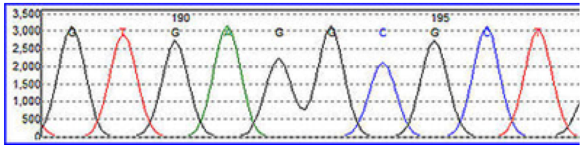
QIAmp® Viral RNA Mini Spin Column Kit (Qiagen®)

TaqMan® AIV-M Reagents (Life Technologies®)



7300 Real time Systems





St. Jude Children's Research Hospital

Vírus Respiratórios Comuns

Síndrome	Vírus Mais freqüentes	 Menos freqüentes
Infecção respiratória do trato superiores	Rinovírus Coronavírus Parainfluenza 1-3 RSV Influenza A e B	Adenovírus 1 - 7; 14, 21 Coxsackie A21, B2-5 Parainfluenza 4
Crupe (laringotraqueobronquite)	Parainfluenza 1-3 RSV Influenza A e B	Adenovírus
Bronquiolite	Parainfluenza 1-3 RSV	Influenza A
Pneumonia	Parainfluenza 1-3 RSV Influenza A	Adenovírus (3,4,7,14 e 21) Sarampo Varicela

Novos Vírus Respiratórios

Vírus	Grupo pacientes	Prevalência	Sinais Clínicos	Referência
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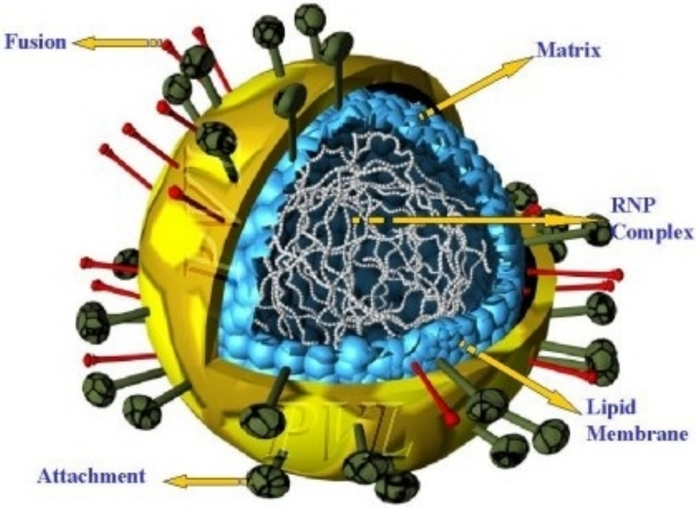
Síndrome respiratória aguda grave (SARS)	Todas idades	Esporádica	Pneumonia	Ksiazek et al (2003)
Coronavírus NL63 e HKU1	Crianças e idosos	1-10%	Bronquiolite, pneumonia, rinorréia, febre, tosse e sibilância	van der Hoek et al (2004), Woo et al (2005)
Bocavírus Humano	Crianças	1-11%	Bronquiolite, pneumonia, OMA, broncoespasmo	Allander et al (2005)
Polyomavírus KI e WU	Crianças	1-7%	Bronquiolite, pneumonia, tosse	Allander et al (2007), Gaynor at al (2007)

VÍRUS RESPIRATÓRIO SINCICIAL HUMANO (HRSV)



- Ordem: *Mononegavirales*
- Família: *Paramyxoviridae*
- Sub-família: *Pneumovirinae*
- Gênero: *Pneumovirus*

- Nucleocápside de simetria helicoidal, não segmentado, envelopado, com diâmetro de 150 a 300nm.

- -ssRNA

- Dois grupos: A e B (7 e 5 subgrupos).

- Principal causador de infecções do trato respiratório inferior em crianças menores de 1 ano de idade.
- Bronquiolite e pneumonias são as patologias mais associadas à este vírus.

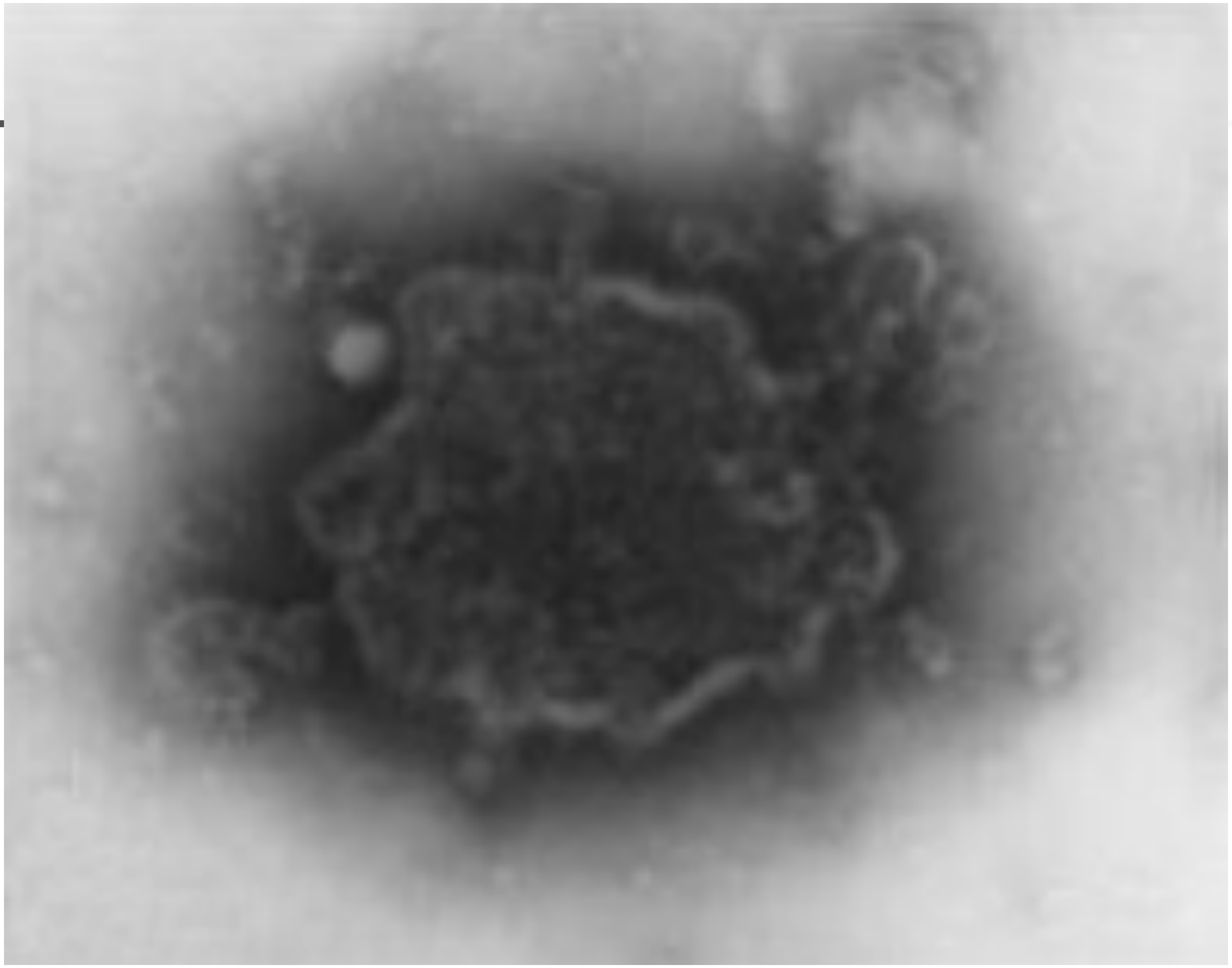
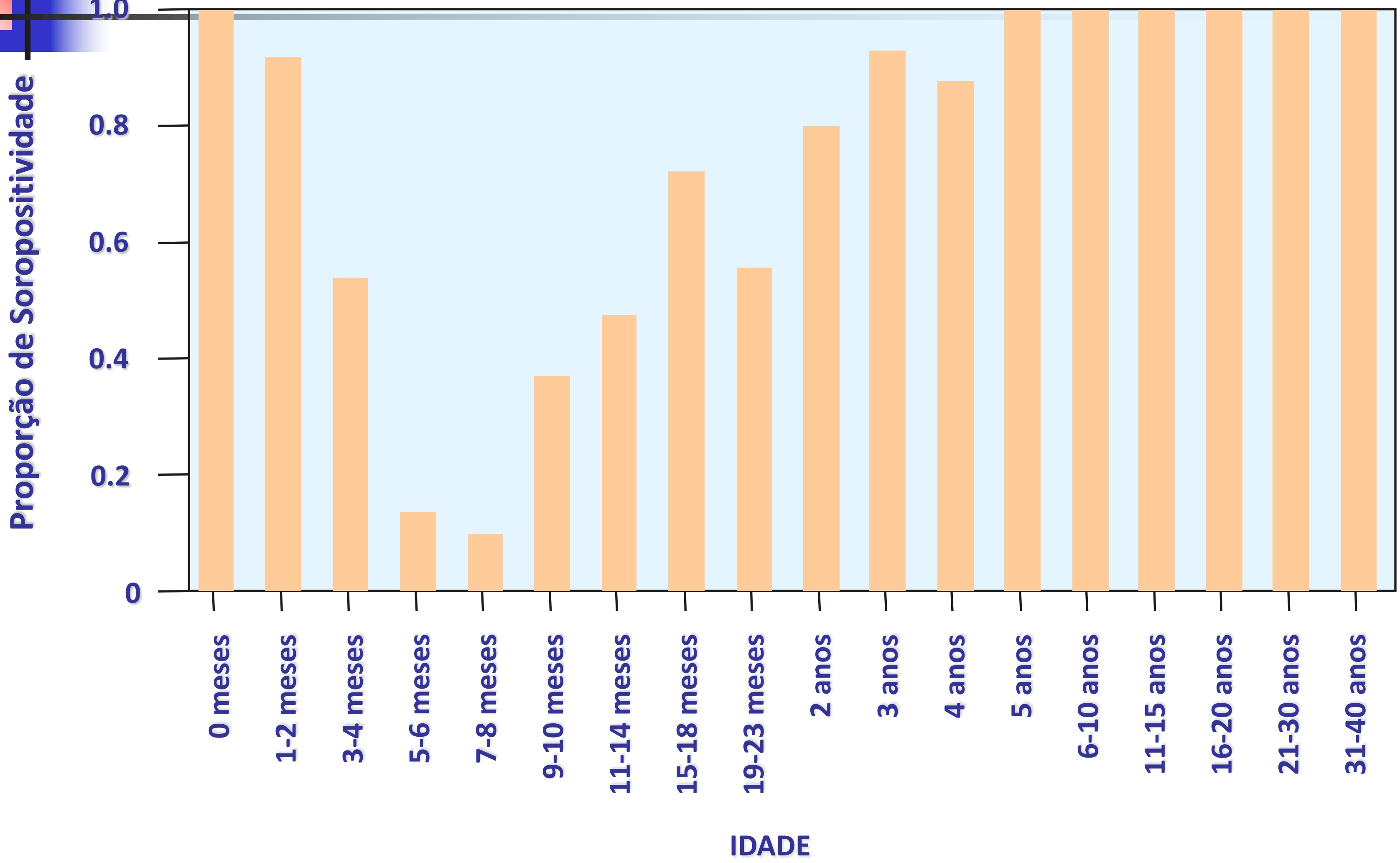
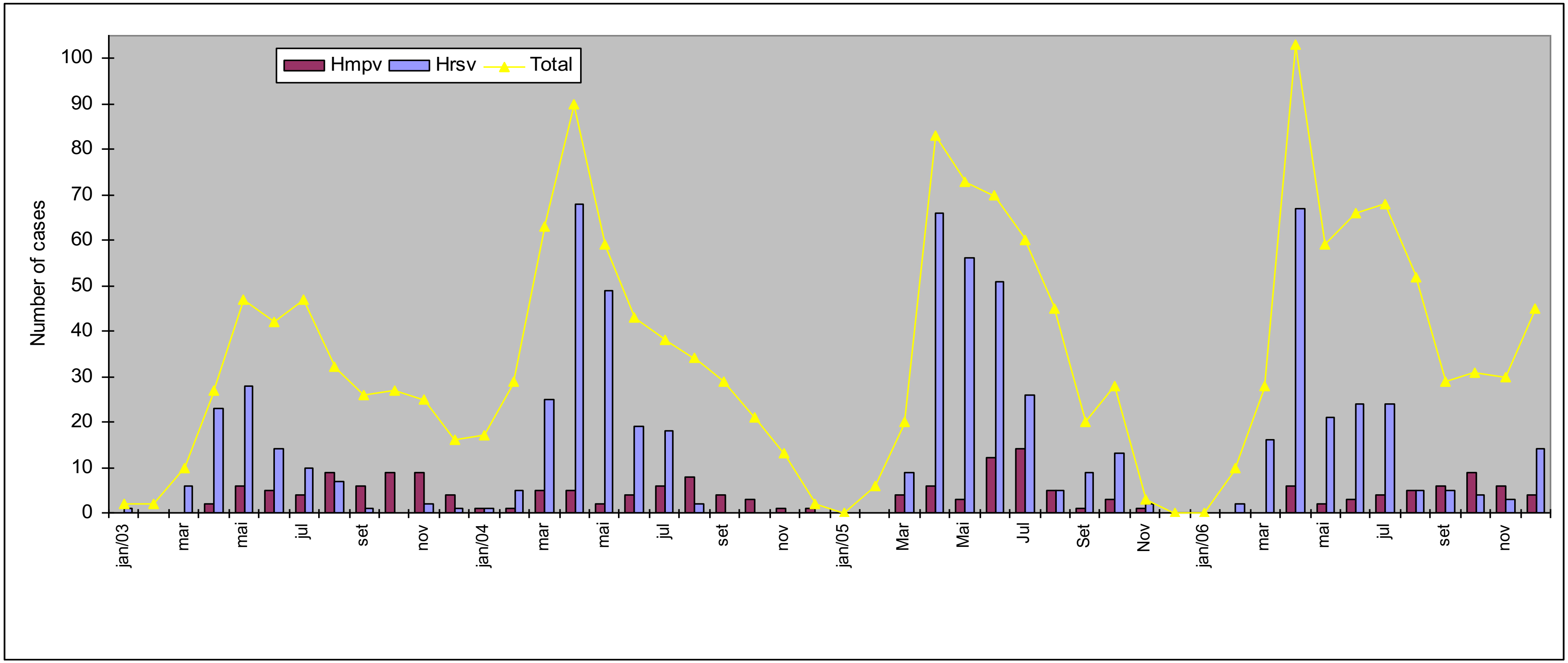


Fig. 04 - Fotomicrografia do RSV (disponível em http://www.bio.warwick.ac.uk/easton/interests.htm).

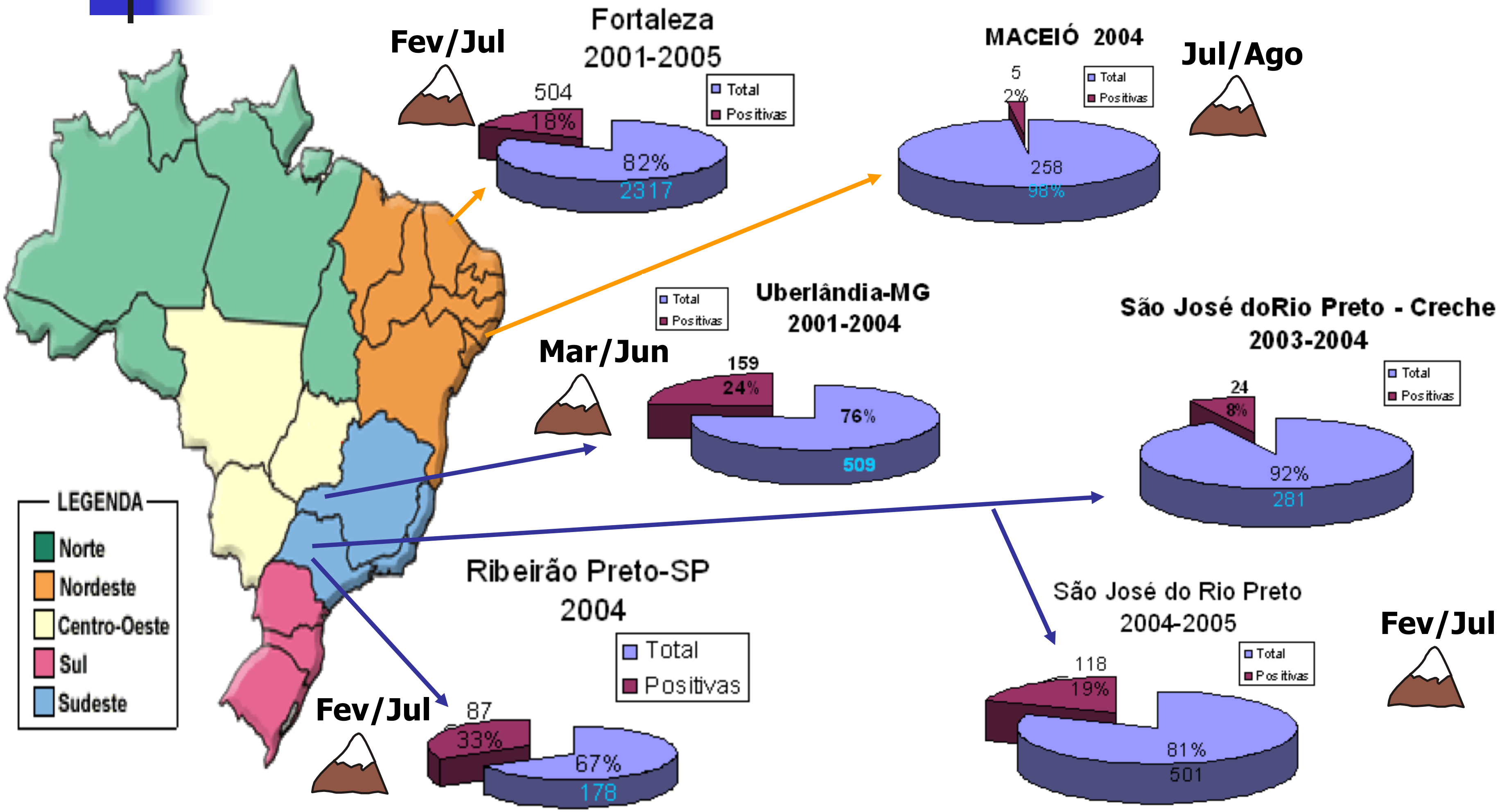
Fig. 06 - Dados de soroprevalência com a proporção de soropositividade por idade em meses e anos [n=549] (retirado de Cox et al, 1998).



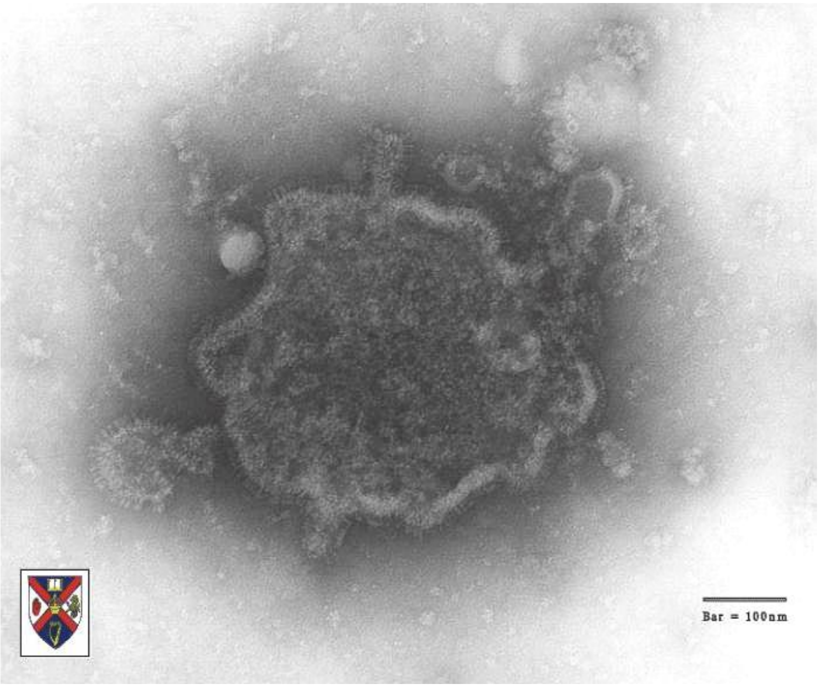
Sazonalidade de 2003 a 2006



Sazonalidade HRSV no Brasil.



Metapneumovírus humano(hMPV)



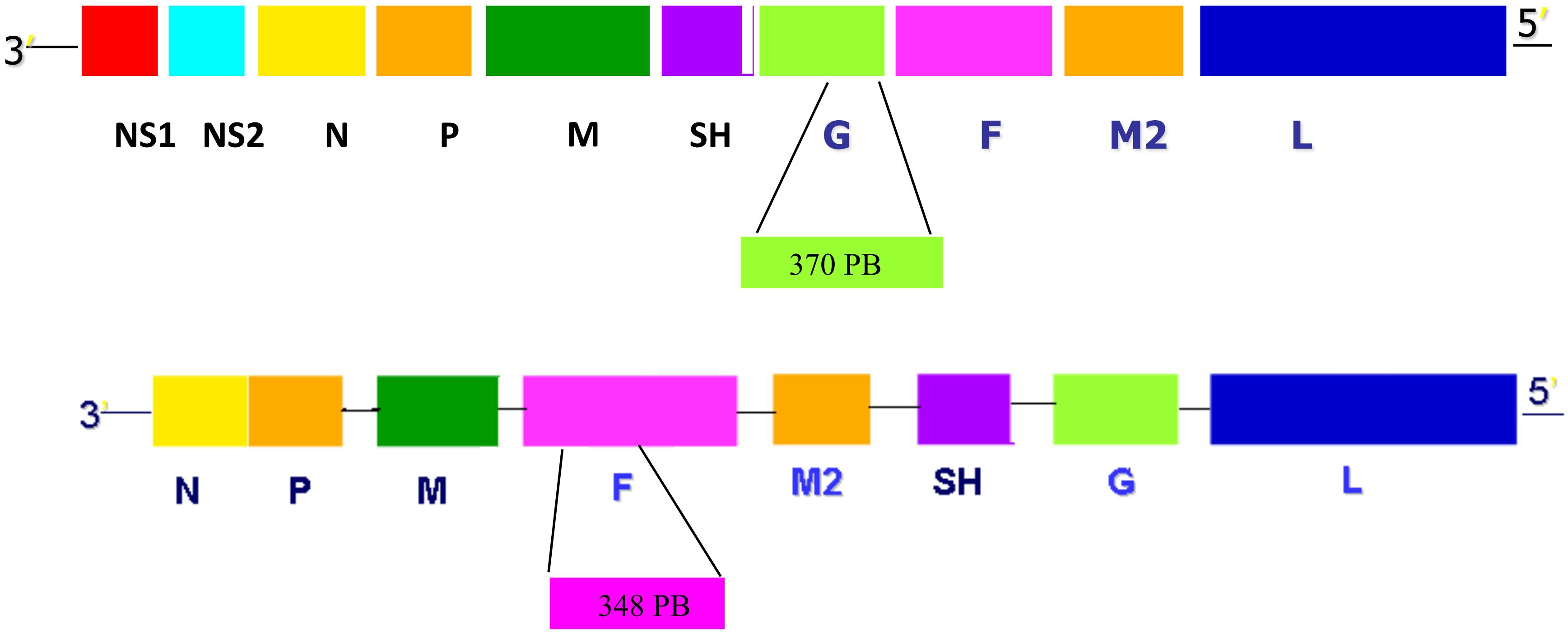
- Isolado em 2001
- RNA fita simples
- Família :*Paramyxoviridae*
- Gênero: *Metapneumovirus*
- Envelopado,nucleocapsídio helicoidal, diâmetro 150 a 300 nm
- Genotipos A e B; subtipos A1, A2, B1 e B2

Peret et al 2002

hRSV e hMPV

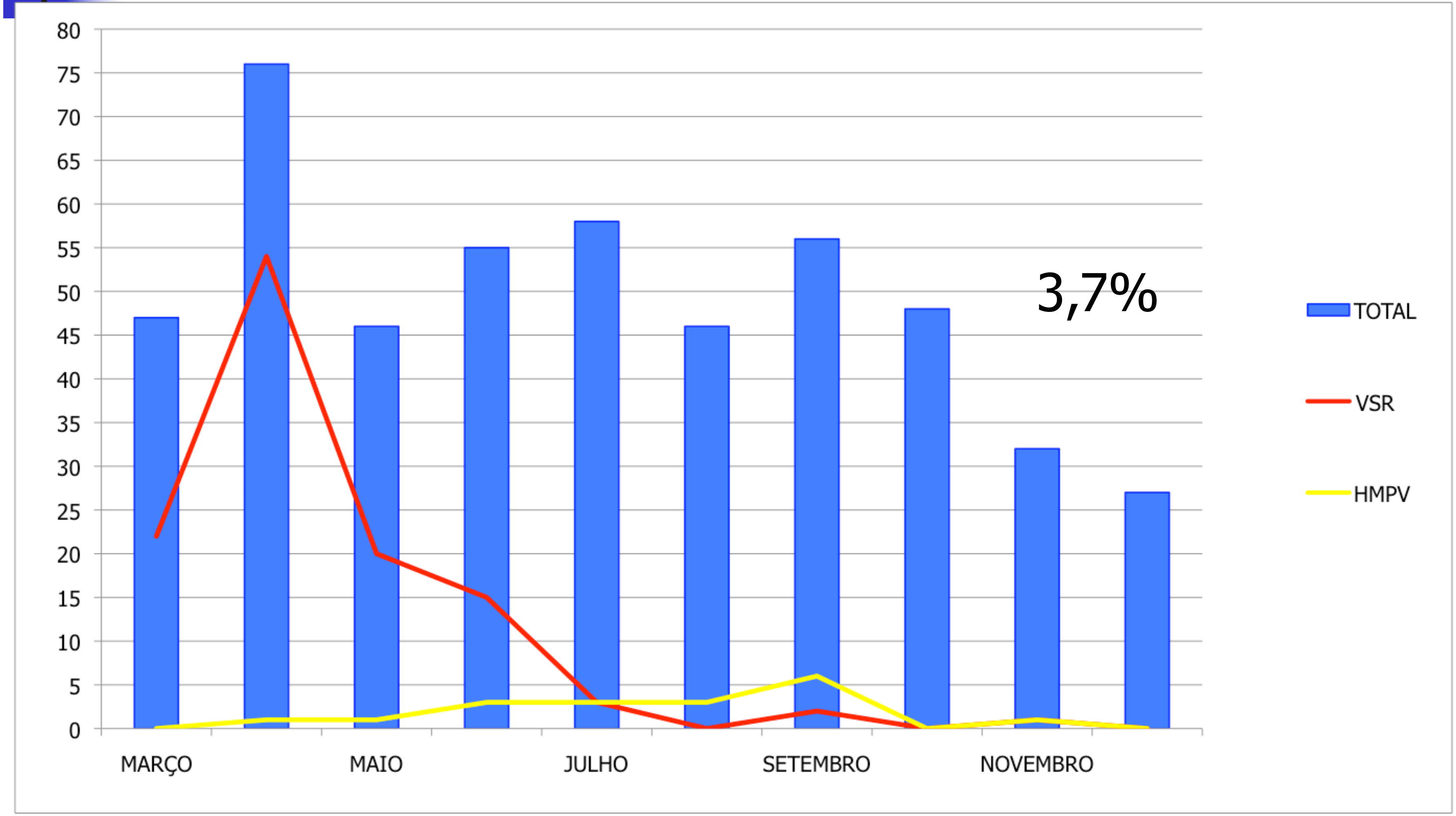
Genoma Viral

- O hRSV com 15.222 nucleotídeos



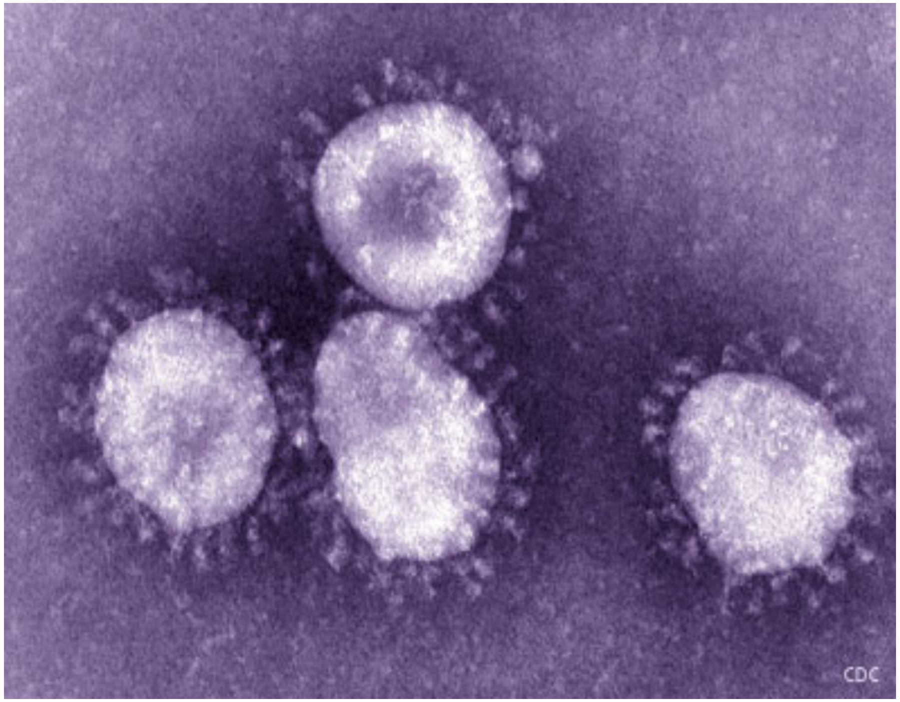
- O hMPV com 13.379 nucleotídeos. (van de HOOGEN, 2002)

Circulação de HMPV em crianças < 2 anos internadas na Santa Casa de São Paulo entre Março e Dezembro de 2008 com ITRI (N=491).



3,7%

Coronavírus



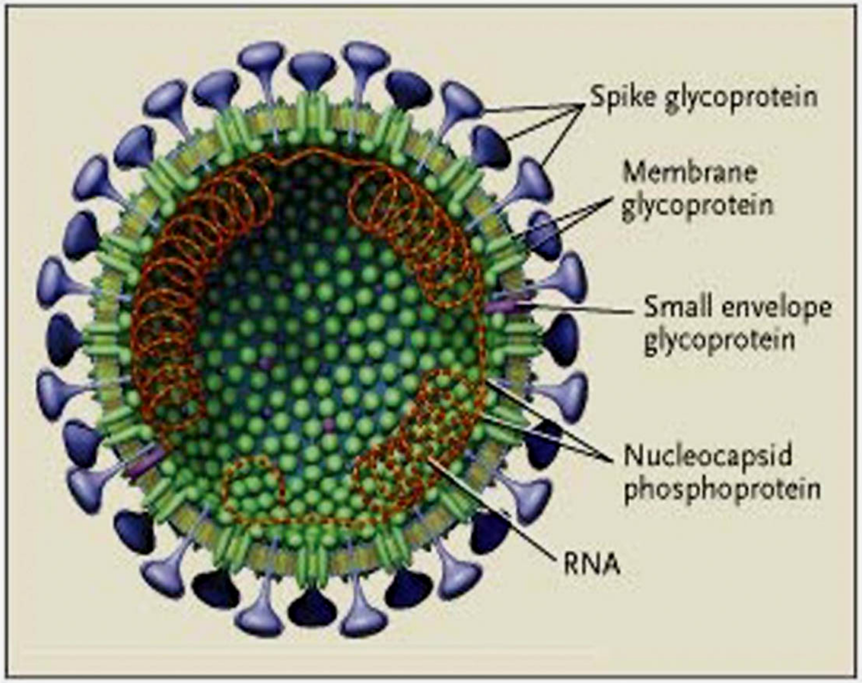
- Família: *Coronaviridae*
- Gênero: *Coronavirus*
- Humanos e animais
- RNA fita simples
- Envelopado, nucleocapsídio helicoidal, diâmetro 100-150 nm

Coronavírus

- Cepas humanas principais:
    - OC43 e 229E
    - SARS (2003), NL63(2004) e HKU1(2005)
    - MERS (2012 Saudi Arabia)
- 15% resfriados em adultos
- Mais 90% dos adultos apresentam Ac coronavírus
- Menores 1 anos: prevalência 5,5-18%

Kahn JS. PIDJ 2005, 24:5223-27

Coronavírus : SARS


Schematic drawing of SARS coronavirus

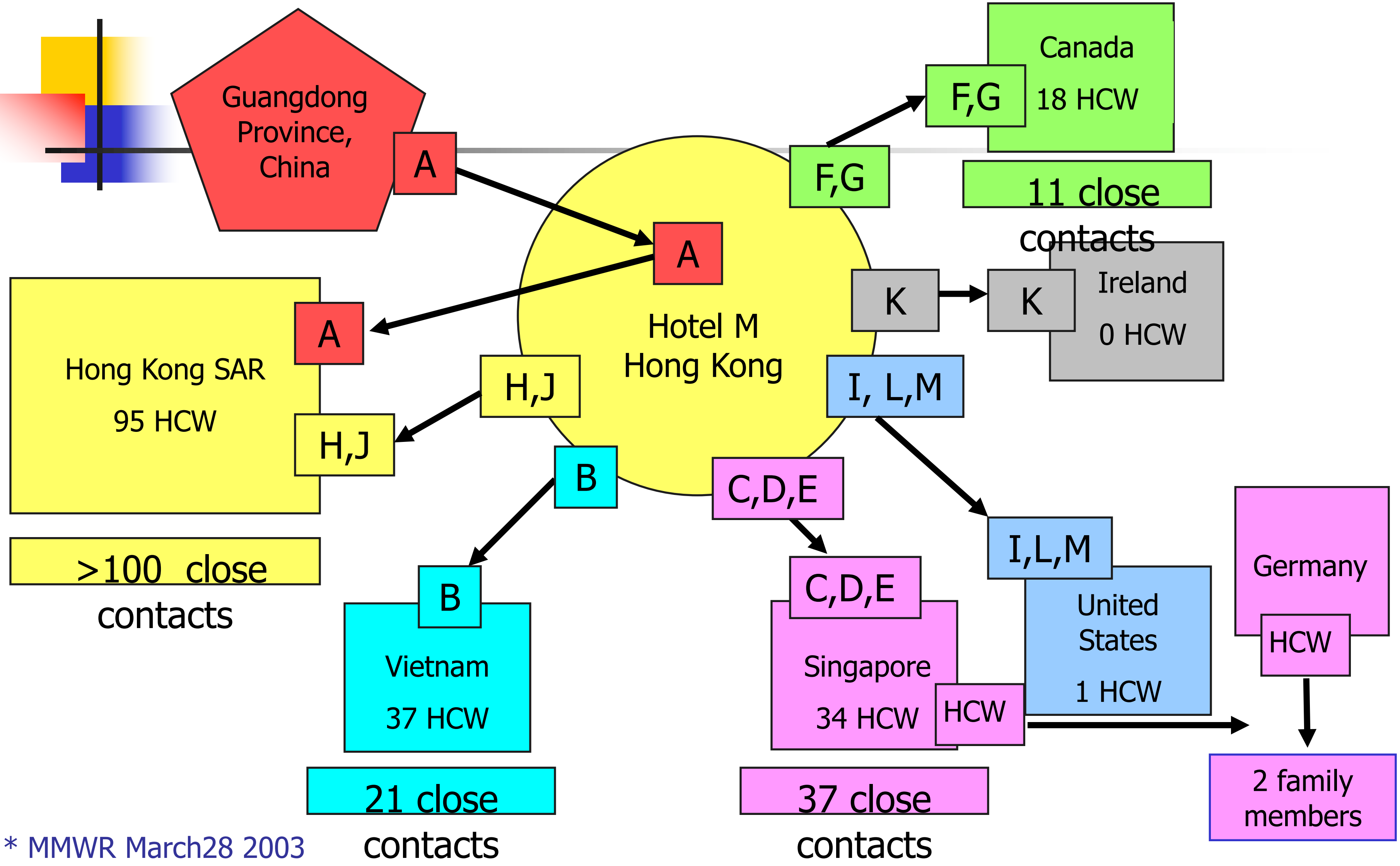
Source: Drazen JM[14]

- Surto de pneumonia grave e atípica em 2003.

CDC 2003; Tsang et al 2003

- Controle OMS

Chains of Transmission Hotel M — Hong Kong, 2003



Guangdong Province, China

A

Hotel M
Hong Kong

A

F,G

K

I, L,M

C,D,E

B

H,J

Hong Kong SAR
95 HCW

A

H,J

>100 close contacts

Canada
18 HCW

F,G

11 close contacts

Ireland
0 HCW

K

Vietnam
37 HCW

B

21 close contacts

Singapore
34 HCW

C,D,E

HCW

37 close contacts

United States
1 HCW

I,L,M

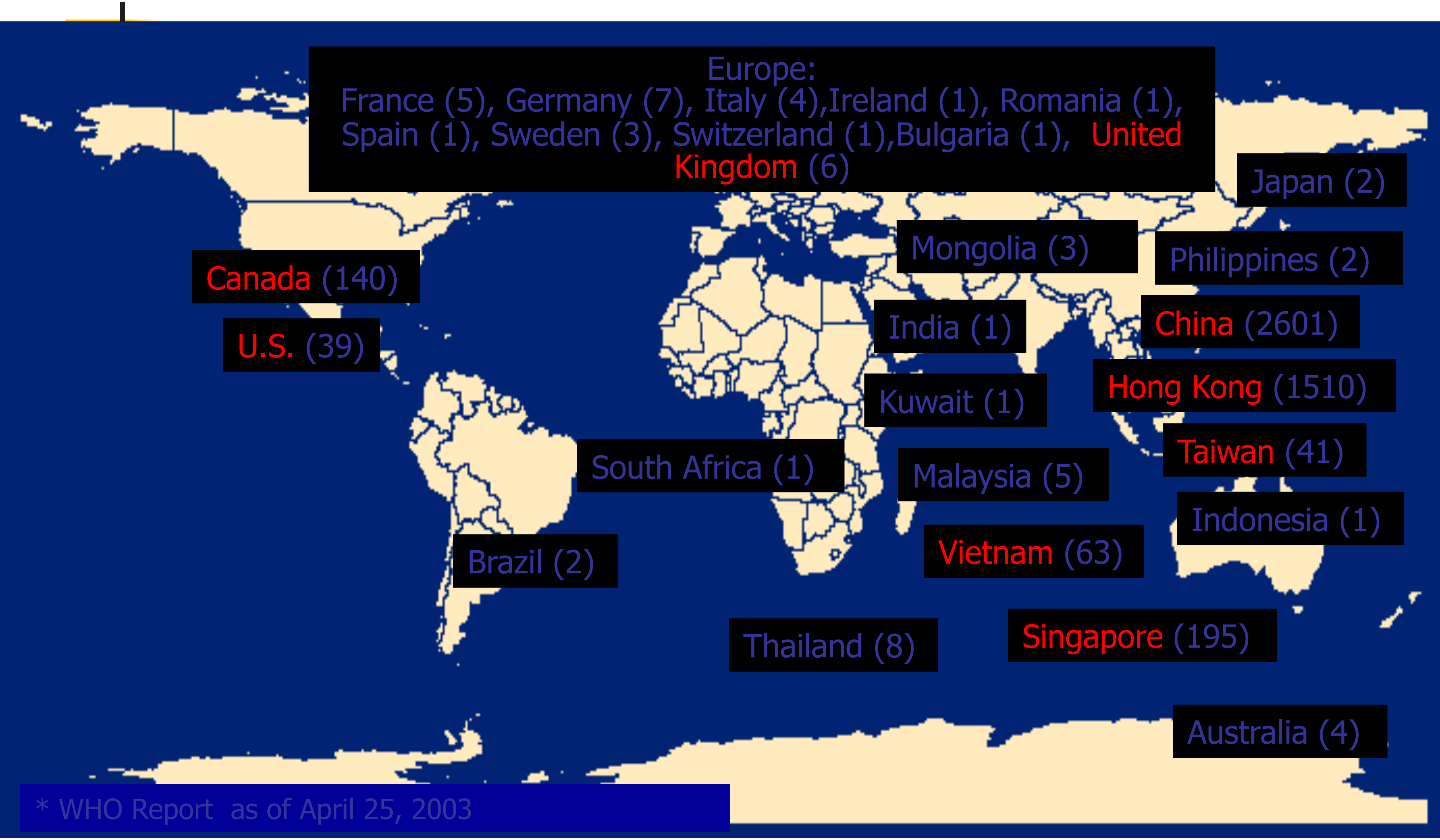
Germany

HCW

2 family members

* MMWR March28 2003

SARS Cases Worldwide



Europe:
France (5), Germany (7), Italy (4),Ireland (1), Romania (1), Spain (1), Sweden (3), Switzerland (1),Bulgaria (1), United Kingdom (6)

Japan (2)

Mongolia (3)

Philippines (2)

Canada (140)

China (2601)

India (1)

U.S. (39)

Kuwait (1)

Hong Kong (1510)

Taiwan (41)

South Africa (1)

Malaysia (5)

Indonesia (1)

Vietnam (63)

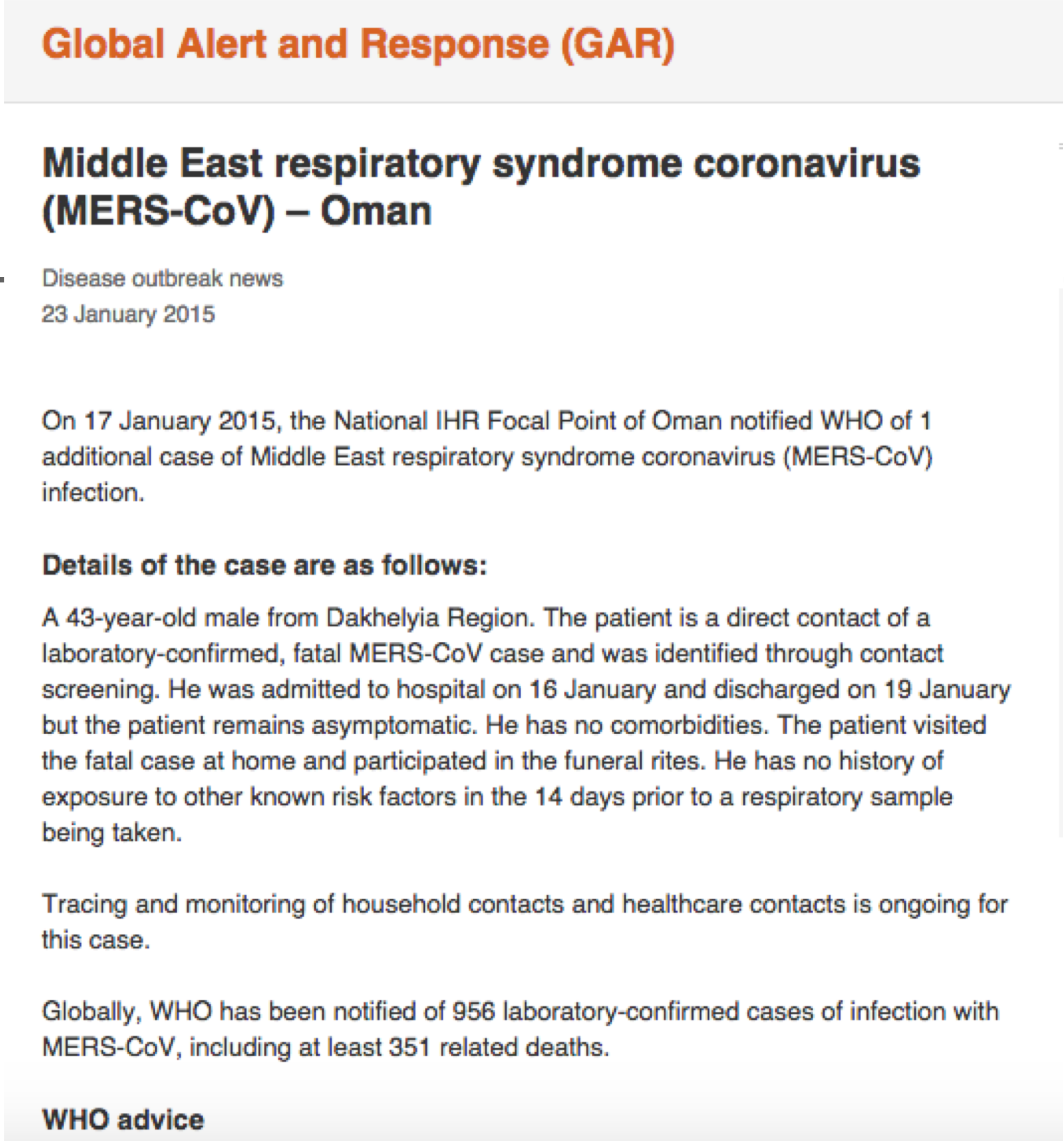
Brazil (2)

Singapore (195)

Thailand (8)

Australia (4)

* WHO Report as of April 25, 2003



Global Alert and Response (GAR)

Middle East respiratory syndrome coronavirus (MERS-CoV) – Oman

Disease outbreak news

23 January 2015

On 17 January 2015, the National IHR Focal Point of Oman notified WHO of 1 additional case of Middle East respiratory syndrome coronavirus (MERS-CoV) infection.

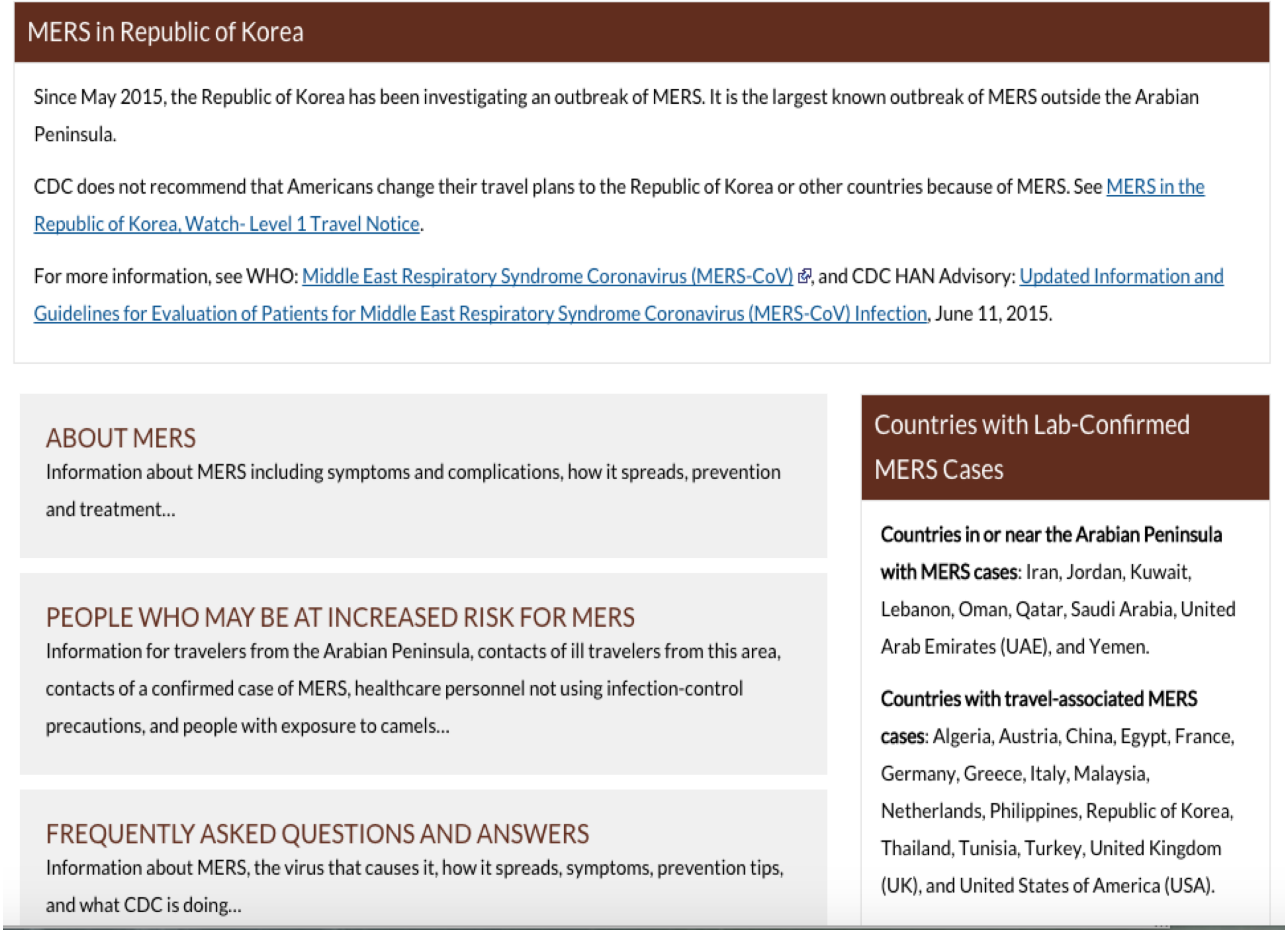
Details of the case are as follows:

A 43-year-old male from Dakhelyia Region. The patient is a direct contact of a laboratory-confirmed, fatal MERS-CoV case and was identified through contact screening. He was admitted to hospital on 16 January and discharged on 19 January but the patient remains asymptomatic. He has no comorbidities. The patient visited the fatal case at home and participated in the funeral rites. He has no history of exposure to other known risk factors in the 14 days prior to a respiratory sample being taken.

Tracing and monitoring of household contacts and healthcare contacts is ongoing for this case.

Globally, WHO has been notified of 956 laboratory-confirmed cases of infection with MERS-CoV, including at least 351 related deaths.

WHO advice



MERS in Republic of Korea

Since May 2015, the Republic of Korea has been investigating an outbreak of MERS. It is the largest known outbreak of MERS outside the Arabian Peninsula.

CDC does not recommend that Americans change their travel plans to the Republic of Korea or other countries because of MERS. See MERS in the Republic of Korea, Watch- Level 1 Travel Notice.

For more information, see WHO: Middle East Respiratory Syndrome Coronavirus (MERS-CoV), and CDC HAN Advisory: Updated Information and Guidelines for Evaluation of Patients for Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Infection, June 11, 2015.

ABOUT MERS

Information about MERS including symptoms and complications, how it spreads, prevention and treatment…

PEOPLE WHO MAY BE AT INCREASED RISK FOR MERS

Information for travelers from the Arabian Peninsula, contacts of ill travelers from this area, contacts of a confirmed case of MERS, healthcare personnel not using infection-control precautions, and people with exposure to camels…

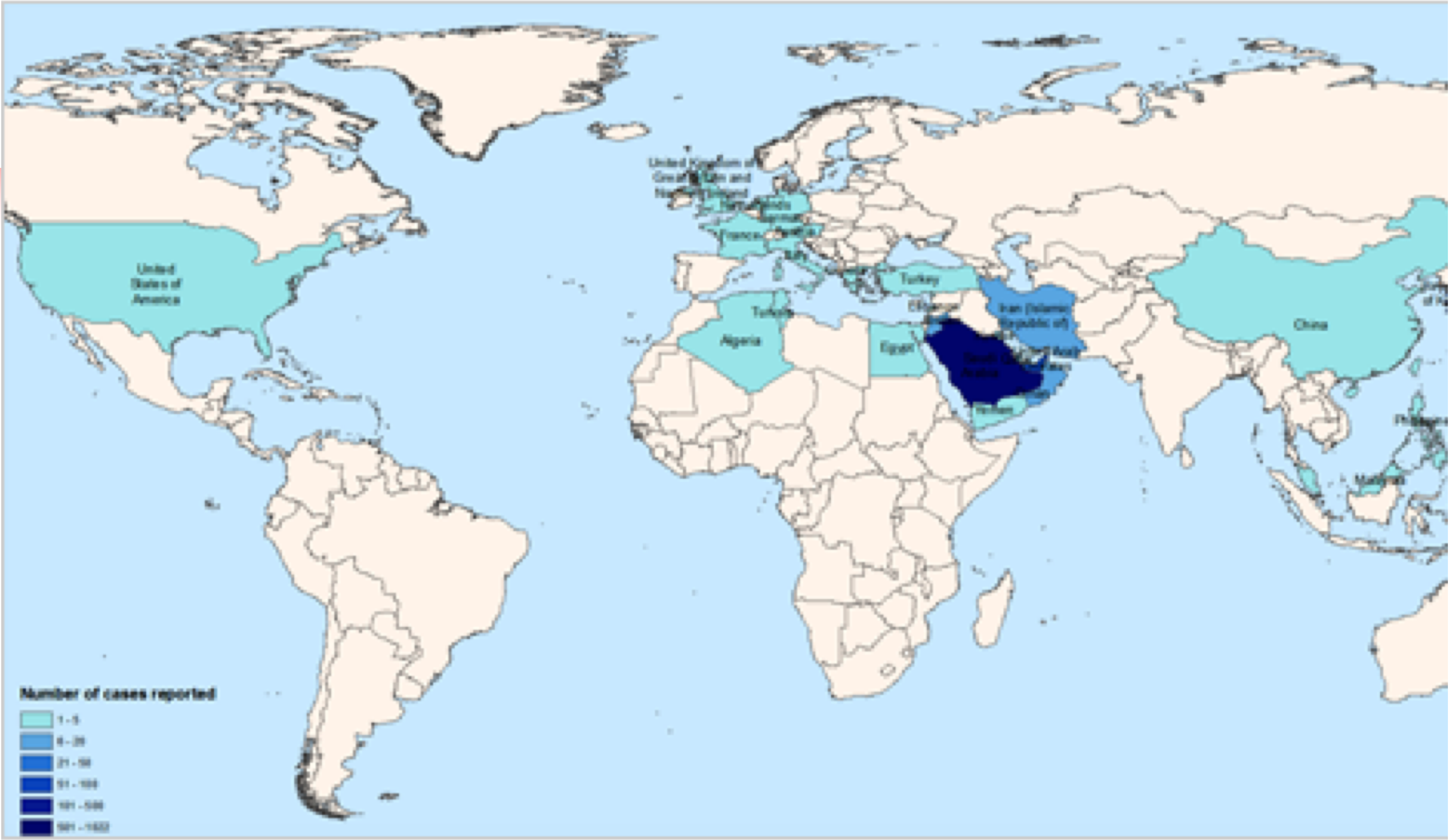
FREQUENTLY ASKED QUESTIONS AND ANSWERS

Information about MERS, the virus that causes it, how it spreads, symptoms, prevention tips, and what CDC is doing…

Countries with Lab-Confirmed MERS Cases

Countries in or near the Arabian Peninsula with MERS cases: Iran, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, United Arab Emirates (UAE), and Yemen.

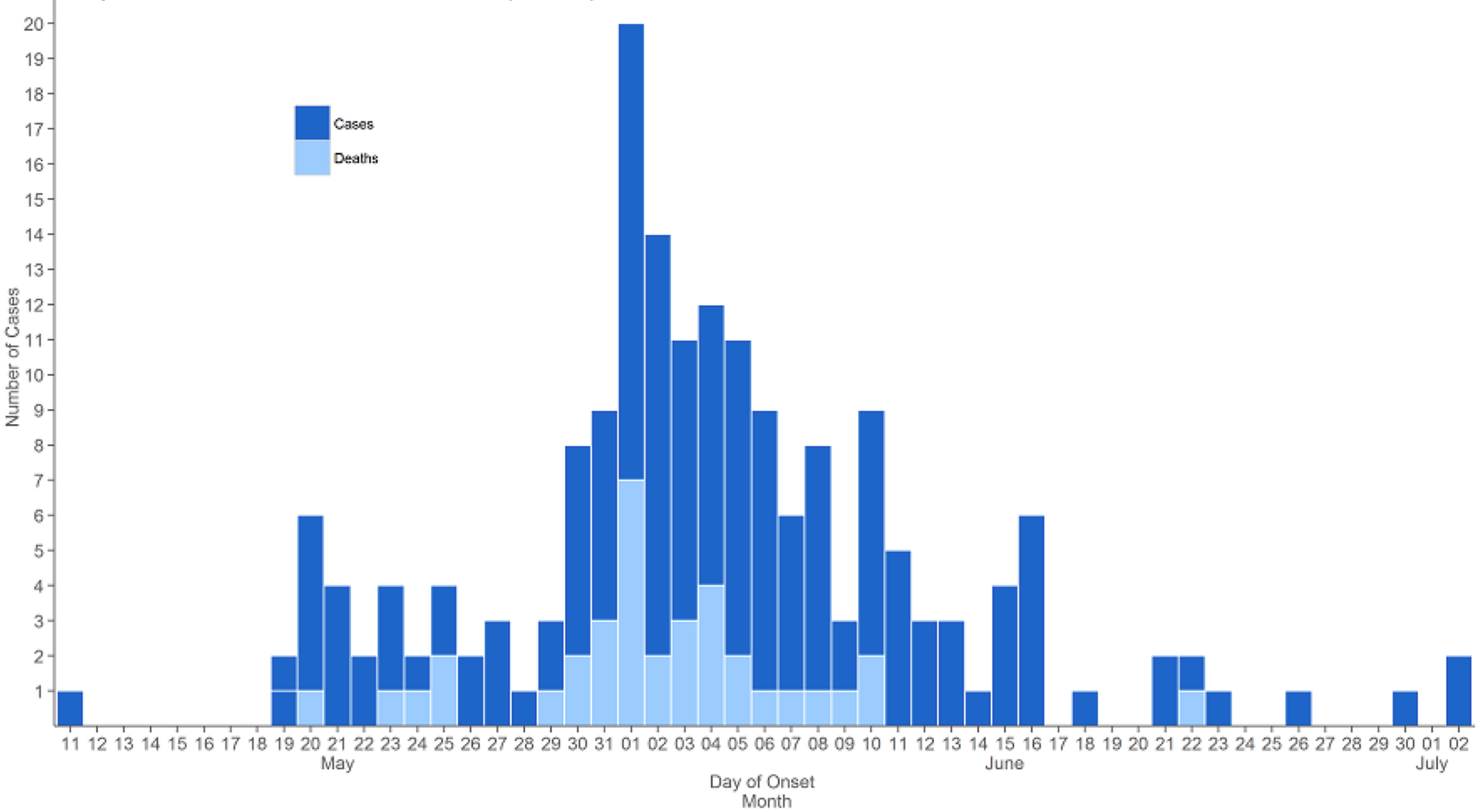
Countries with travel-associated MERS cases: Algeria, Austria, China, Egypt, France, Germany, Greece, Italy, Malaysia, Netherlands, Philippines, Republic of Korea, Thailand, Tunisia, Turkey, United Kingdom (UK), and United States of America (USA).

United Kingdom of Great Britain and Northern Ireland
France
Italy
United States of America
Turkey
Tunisia
Algeria
Egypt
Iran (Islamic Republic of)
Saudi Arabia
Yemen
China
Malaysia
Number of cases reported
1 - 5
6 - 20
21 - 50
51 - 100
101 - 500
501 - 1022

17 July 2015

Confirmed cases of MERS-CoV in the Republic of Korea and China

Reported to WHO as of 17 Jul 2015 (n=186)



Please note that the underlying data is subject to change as the investigations around cases are ongoing. Onset date estimated if not available. Source: WHO

Bocavírus Humano: HBoV

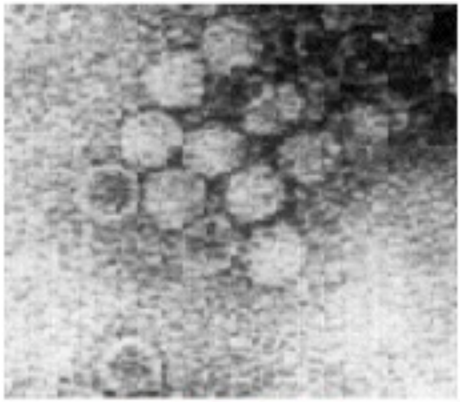
- O Bocavírus humano (HBoV) foi primeiro descrito em 2005 por Allander e cols , identificado em ANF de pacientes com doença respiratória aguda.

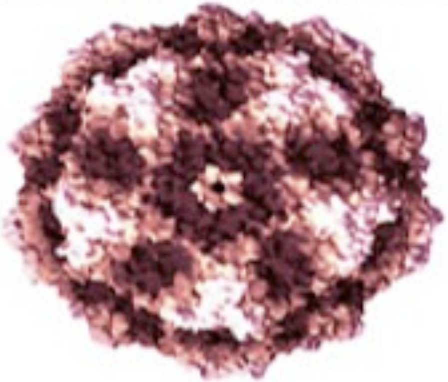
  Allander T et al. *Proc Natl Acad Sci*. 2005; 102:12891-12896.

- É um vírus DNA: família Parvoviridae, gênero Bocavirus.

- Duas proteínas não estruturais principais:
  - NS1 (1920 nucleotídeos e 639 aminoácidos)
  - NP-1(660 nucleotídeos e 219 aminoácidos)

- Duas capsídeo proteínas: VP1/VP2 (2016 nucleotídeos e 671 aminoácidos).





Bocavírus Humano: HBoV

- Distribuição mundial

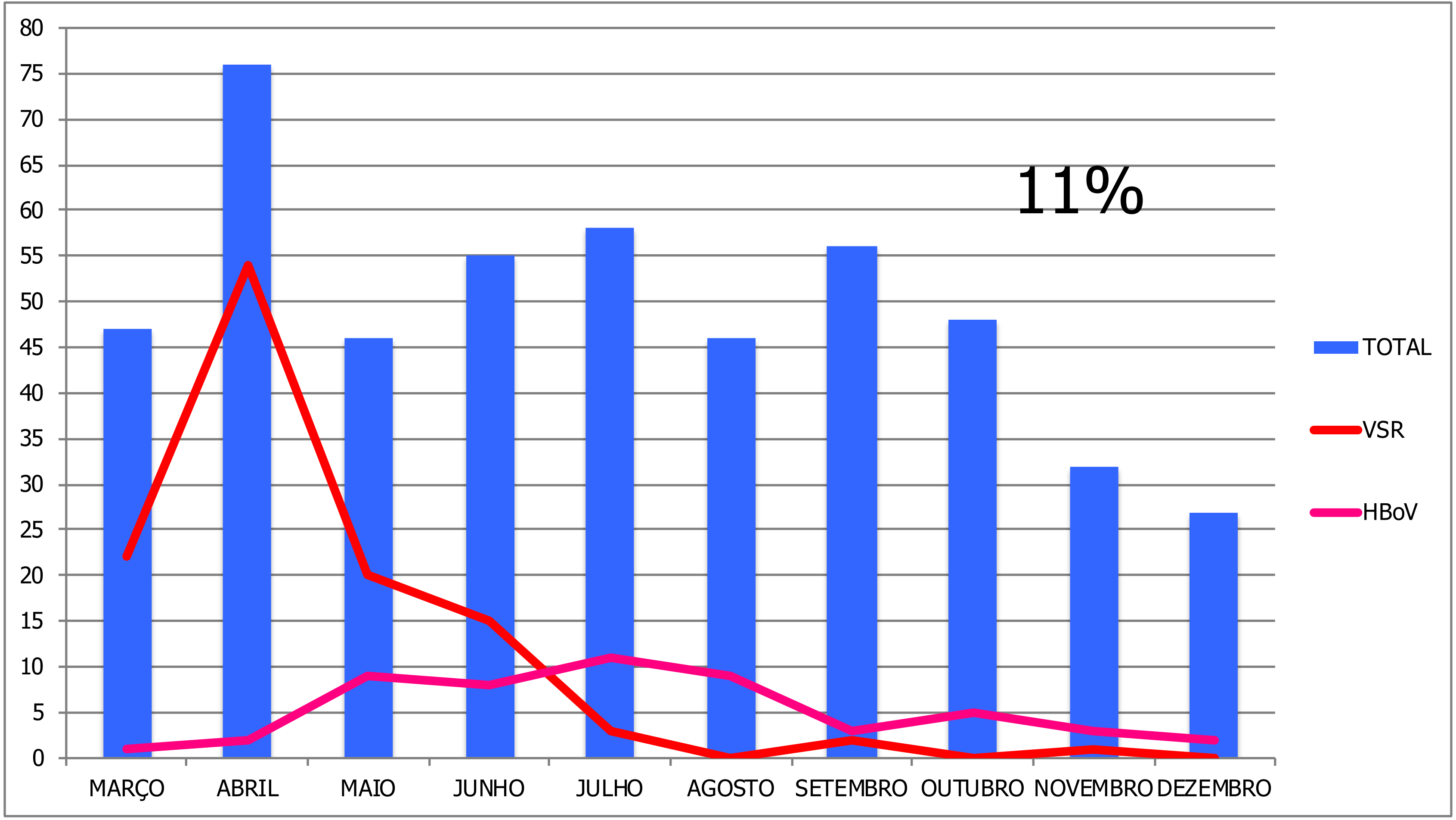
- Prevalência variável de 1,5 a 19% nos diferentes estudos.

Allander T., *J Clin Virol*. 2008; 41: 29-33.

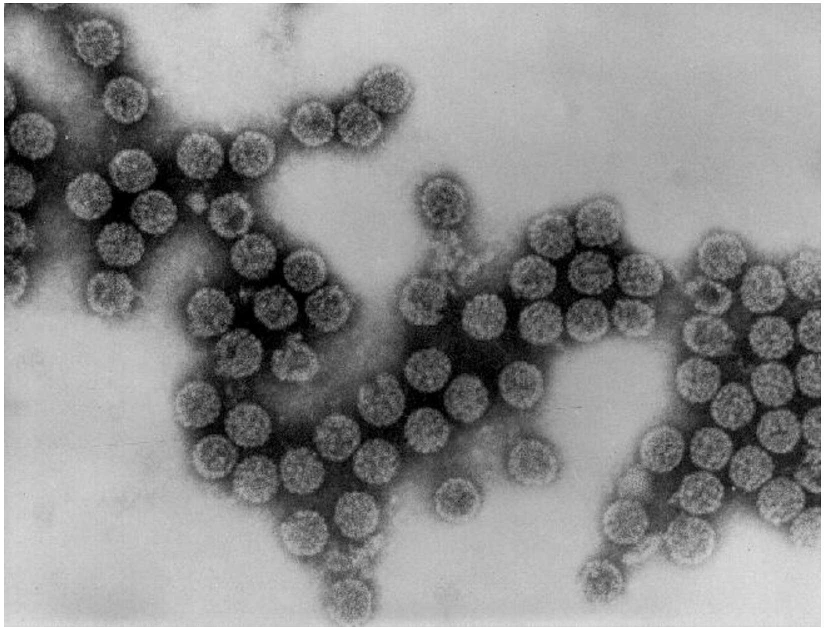
- A sazonalidade não bem definida, com circulação viral durante todo o ano com picos nos meses de inverno nos países de clima temperado.

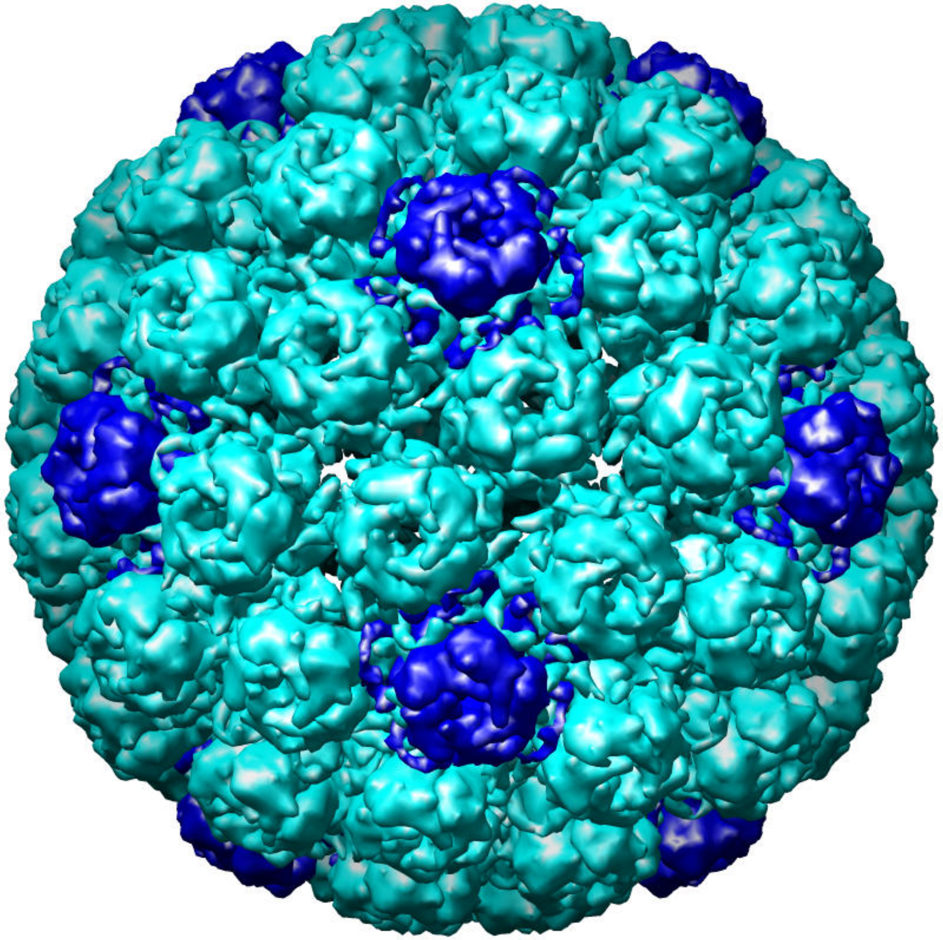
Kesebir D. et al *J Infect Dis*. 2006; 1276-1282.

Circulação de HBoV em crianças < 2 anos internadas na Santa Casa de São Paulo entre Março e Dezembro de 2008 com ITRI (N=491).



Polyomavírus humano WU e KI





Polyomavírus humano WU e KI

- Detectados amostras respiratórias 2007.

Allander et al 2007, Gaynor et al 2007

- DNA, dupla fita, Família *Polyomaviridae*

- Latência e longo período de excreção: 6-8 semanas

Le at al 2007

Polyomavírus humano WU e KI

- Prevalência:
- KIV: 1,5-2,5%

Bialasiewicz et al 2008; Noja et al 2007

- WUV: 1-7%

Bialasiewicz et al 2008; Noja et al 2007; Han et al 2007

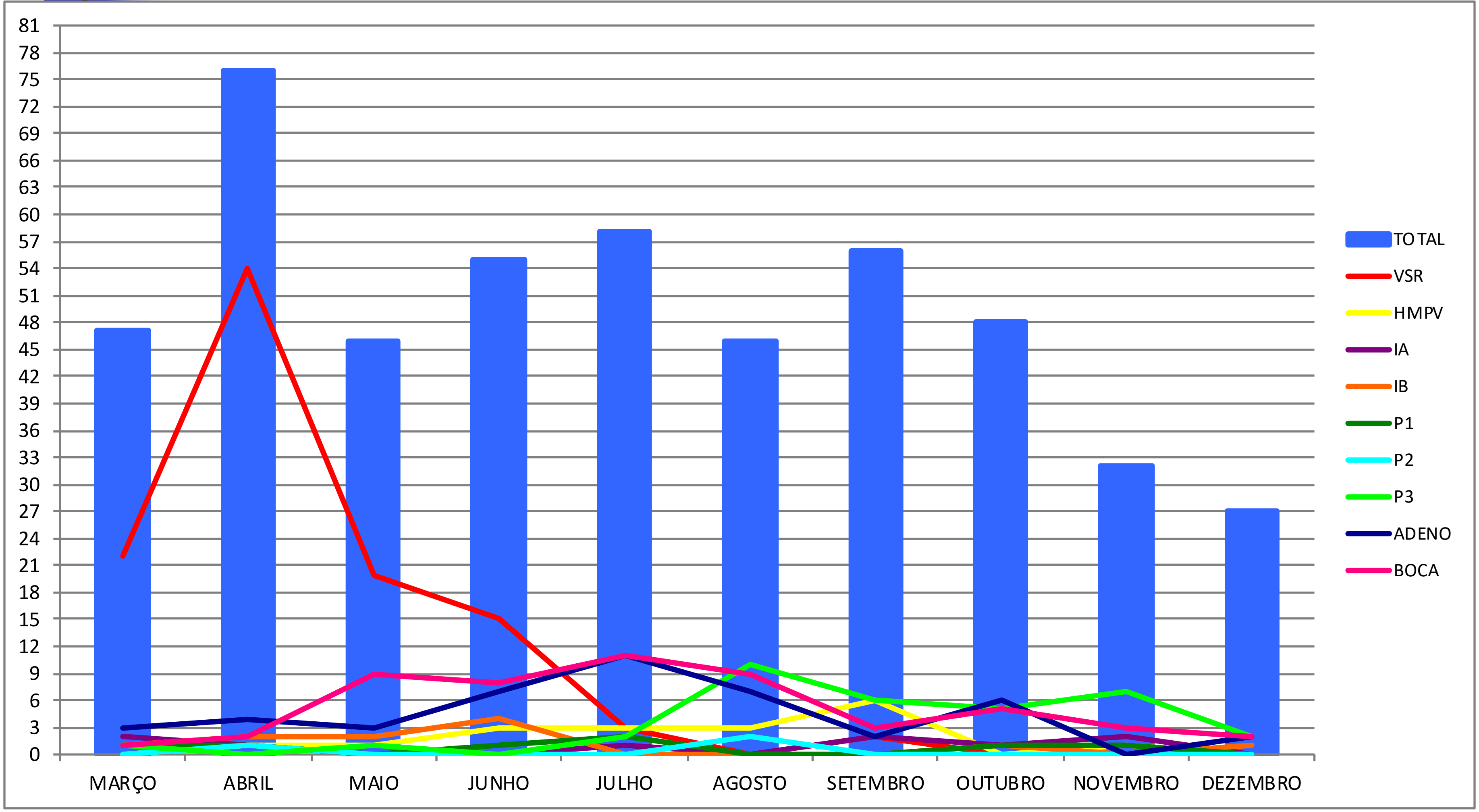
- Coinfecção outros vírus respiratórios:
- KIV: 74%

Bialasiewicz et al 2008

- WUV: 68 – 79%

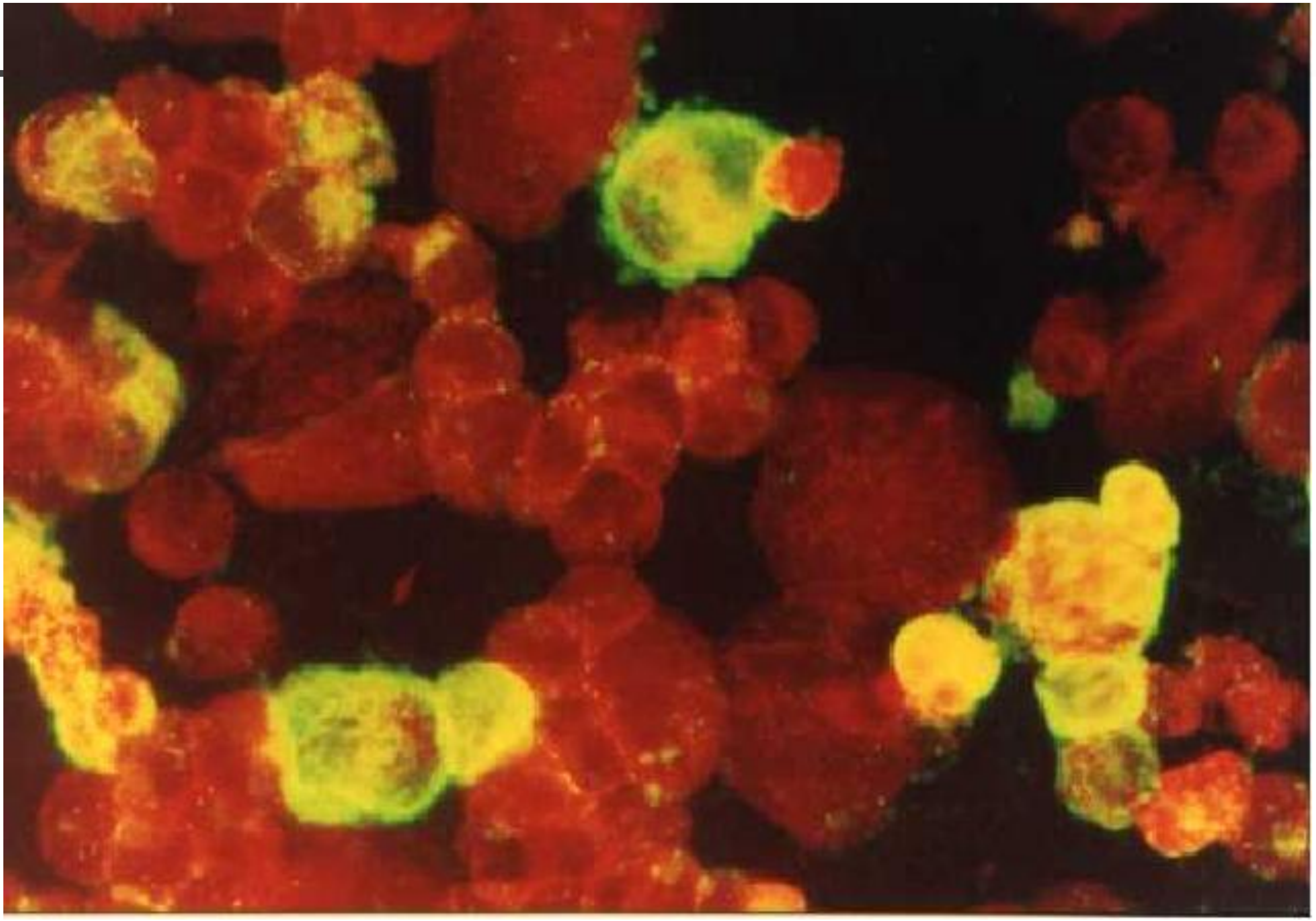
Bialasiewicz et al 2008; Han et al 2007; Le et al 2007

Circulação de vírus respiratórios em crianças < 2 anos internadas na Santa Casa de São Paulo entre Março e Dezembro de 2008 com ITRI (N=491).



Laboratorial Diagnosis

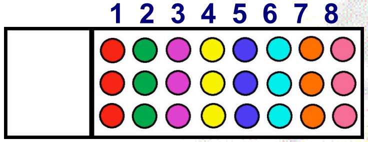
- Direct
  - Clinical samples – Nasopharyngeal Aspirate
    - Assays:
      - Cell cultured
      - immunofluorescence
      - RT-PCR
- Indirect
  - Sorology IgG, IgM
    - Assays:
      - ELISA e immunofluorescênce



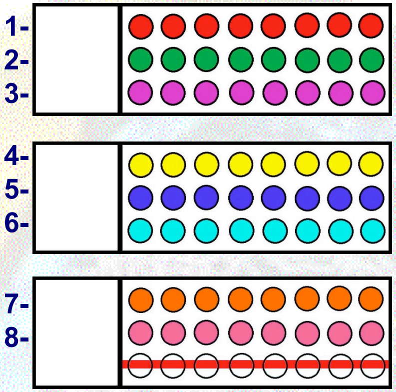
Protocolo para Leitura de Lâminas de Imunofluorescência Indireta

Lâmina:______________________ **Data: __/__/____**

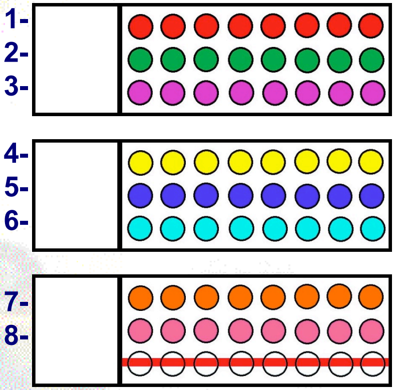
Screen: Pool + RSV + C.Neg.



Mab: RSV+Ia+Ib+P!+P2+P3+Ad+C.Neg.



Tipagem: RSV+RSVA+RSVB+C.Neg.



Obs:____________________

____

____

____

Resultados:

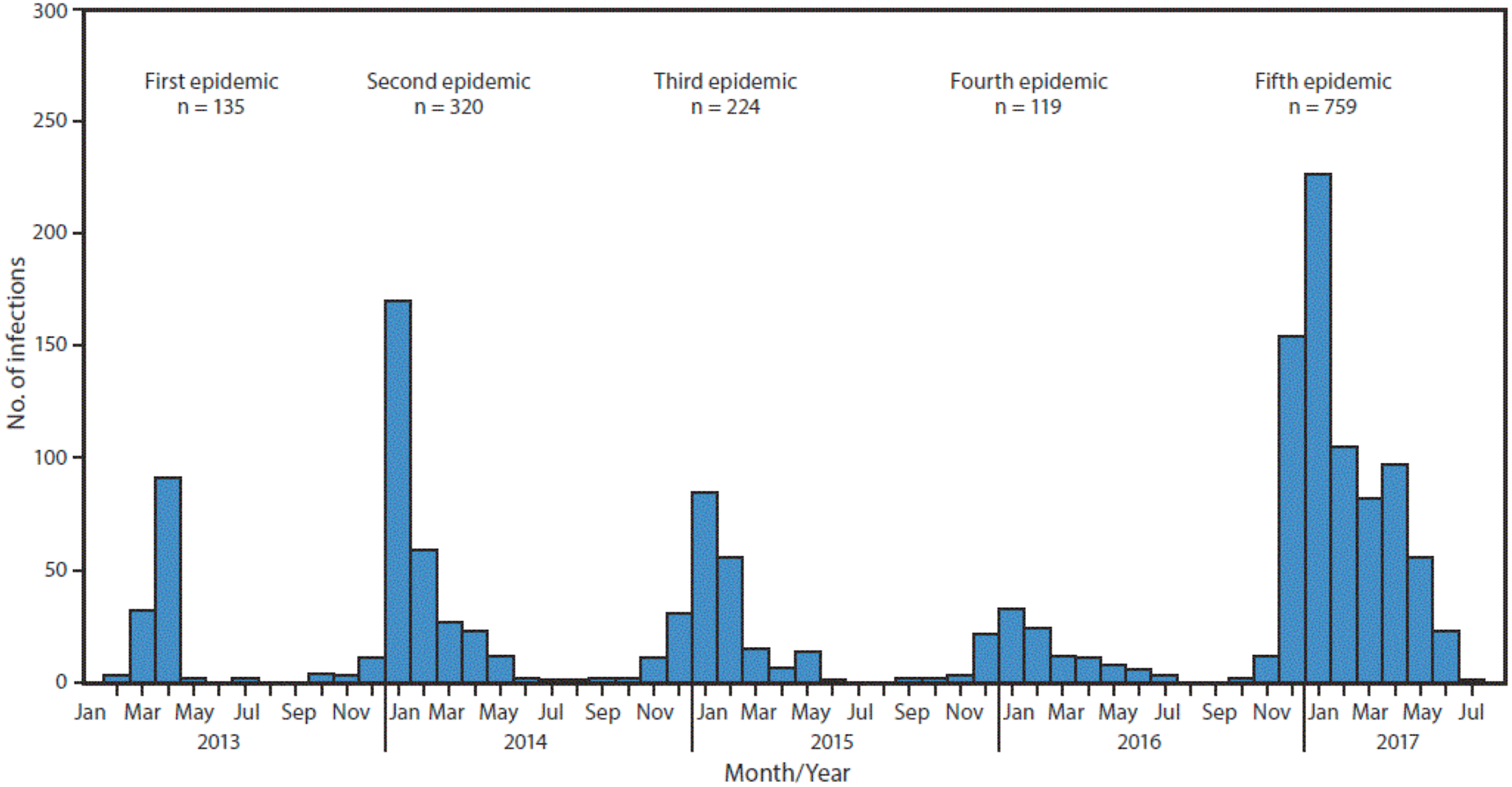
Amostras		Screen	Mab	Tipagem
1 -	R – 2003 – 01			
2 -	R – 2003 – 02			
3 -	R – 2003 – 03			
4 -	R – 2003 – 04			
5 -	R – 2003 – 05			
6 -	R – 2003 – 06			
7 -	R – 2003 – 07			
8 -	R – 2003 – 08			

Respiratory Virus Diagnostics

Commercial Molecular Assays for Respiratory Pathogens

Luminex x-TAG RVP http://www.luminexcorp.com/rvp/overview.html	Bead-based assays
Qiagen ResPLEX II http://www1.qiagen.com/Products/ResPlexIPanel.asp	Bead-based assays
EraGen MultiCode PLx RVP http://www.eragen.com/contentPage.cfm?ID=430	Bead-based assays
Seegene Seeplex RPA http://www.seegene.com/en/diagnosis/d_seeplex.php	Capillary sequencer sizing
MassTag PCR http://www.chem.agilent.com/Library/posters/Public/ASMS2007%20Poster%20MPT326.pdf	Mass spectrometric detection
AutoGenomics INFINITI RVP+ http://www.autogenomics.com/1/infectious_respiratory.php	Biofilm microarray
Idaho Technology FilmArray www.idahotech.com/filmarray	Multiplex real-time PCR array http://
CLART *PneumoVir* http://www.biomerieux .com.br/	Clinical Array Technology
Fast-Track FTD RP http://www.fast-trackdiagnostics.com/pages/order_cat/catalogue.cgi?state=11&cust=0&cat_no=FTD-2	Multiplex real-time PCR

FIGURE 1. Confirmed Asian lineage avian influenza A(H7N9) virus infections of humans reported to the World Health Organization (N = 1,557),* by month of illness onset — China,† February 19, 2013–August 7, 2017



Source: Publically released infections in Disease Outbreak News (http://www.who.int/csr/don/en/) or Human-Animal Interface Monthly Report (http://www.who.int/influenza/human_animal_interface/en/).