ΜΕΤΑΠΤΥΧΙΑΚΟ ΠΡΟΓΡΑΜΜΑ ΛΟΙΜΩΞΙΟΛΟΓΙΑ

Γρίπη-Πανδημική γρίπη-Γρίπη πουλερικών

Σωτήρης Τσιόδρας

Καθηγητής Παθολογίας-Λοιμώξεων

Ιατρική Σχολή ΕΚΠΑ

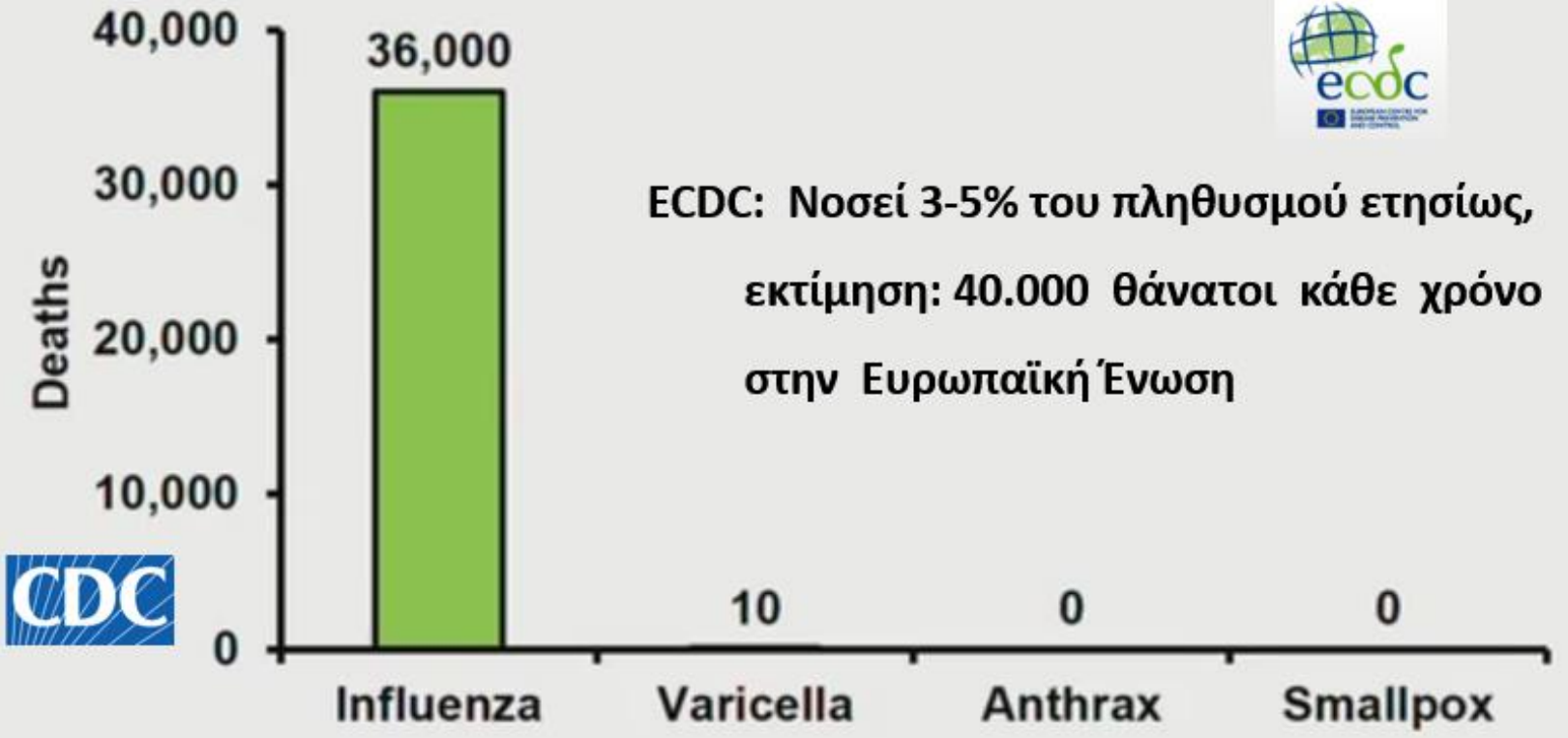
2/12/2019

Εποχική Γρίπη & συχνότητα

- **το πιο συχνό νόσημα** που προλαμβάνεται με εμβολιασμό, προκαλεί επιδημίες κάθε έτος
  - 5-15% του πληθυσμού (S. Potkin 2016)

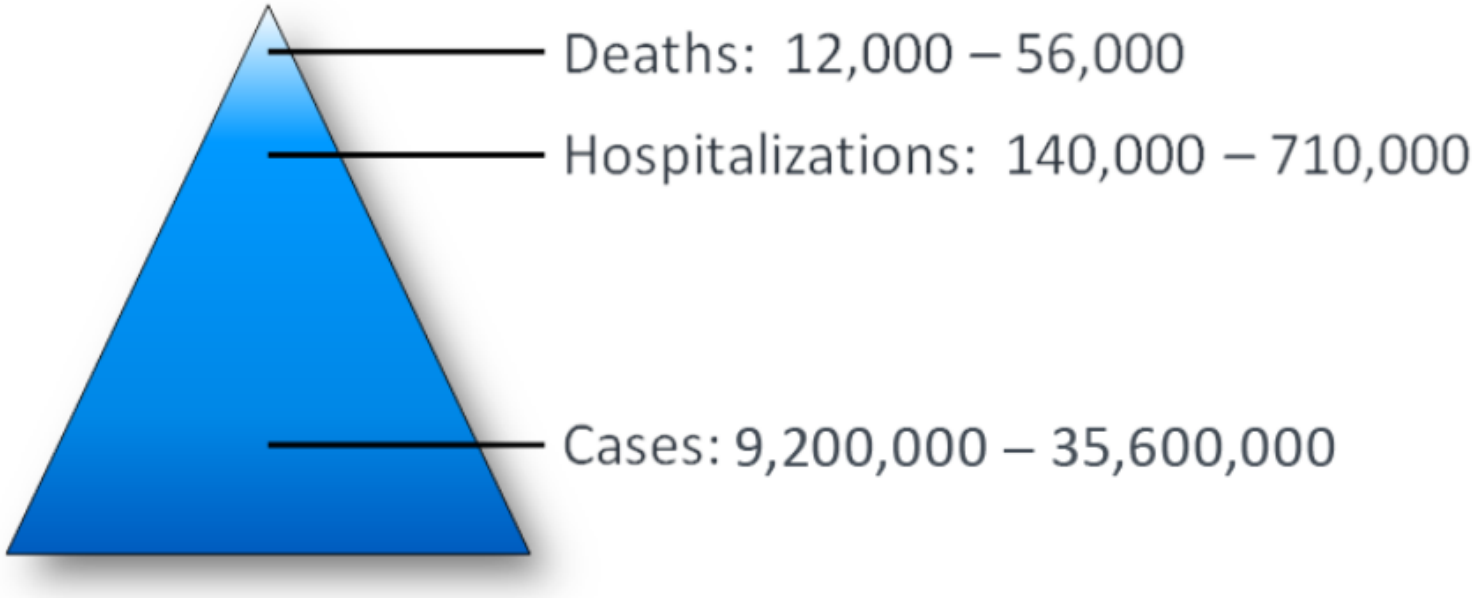
- **το πιο συχνό αίτιο θανάτου** από νόσημα που προλαμβάνεται με εμβολιασμό
  - εκτίμηση: 250.000- 500.000 θάνατοι ετησίως

Εποχική Γρίπη & συχνότητα



USA 2010-18, estimates

Πιο συχνή νόσος που προλαμβάνεται με εμβολιασμό



While the impact of flu varies, it places a substantial burden on the health of people in the United States each year. CDC estimates that influenza has resulted in between 9.2 million and 35.6 million illnesses, between 140,000 and 710,000 hospitalizations and between 12,000 and 56,000 deaths annually since 2010.

Flu-linked mortality

Πιο συχνή αιτία θανάτου που προλαμβάνεται με εμβόλιο

World Health Organization

Health Topics | Countries | News | Emergencies | About Us

Home / News / Detail / Up to 650 000 people die of respiratory diseases linked to seasonal flu each year

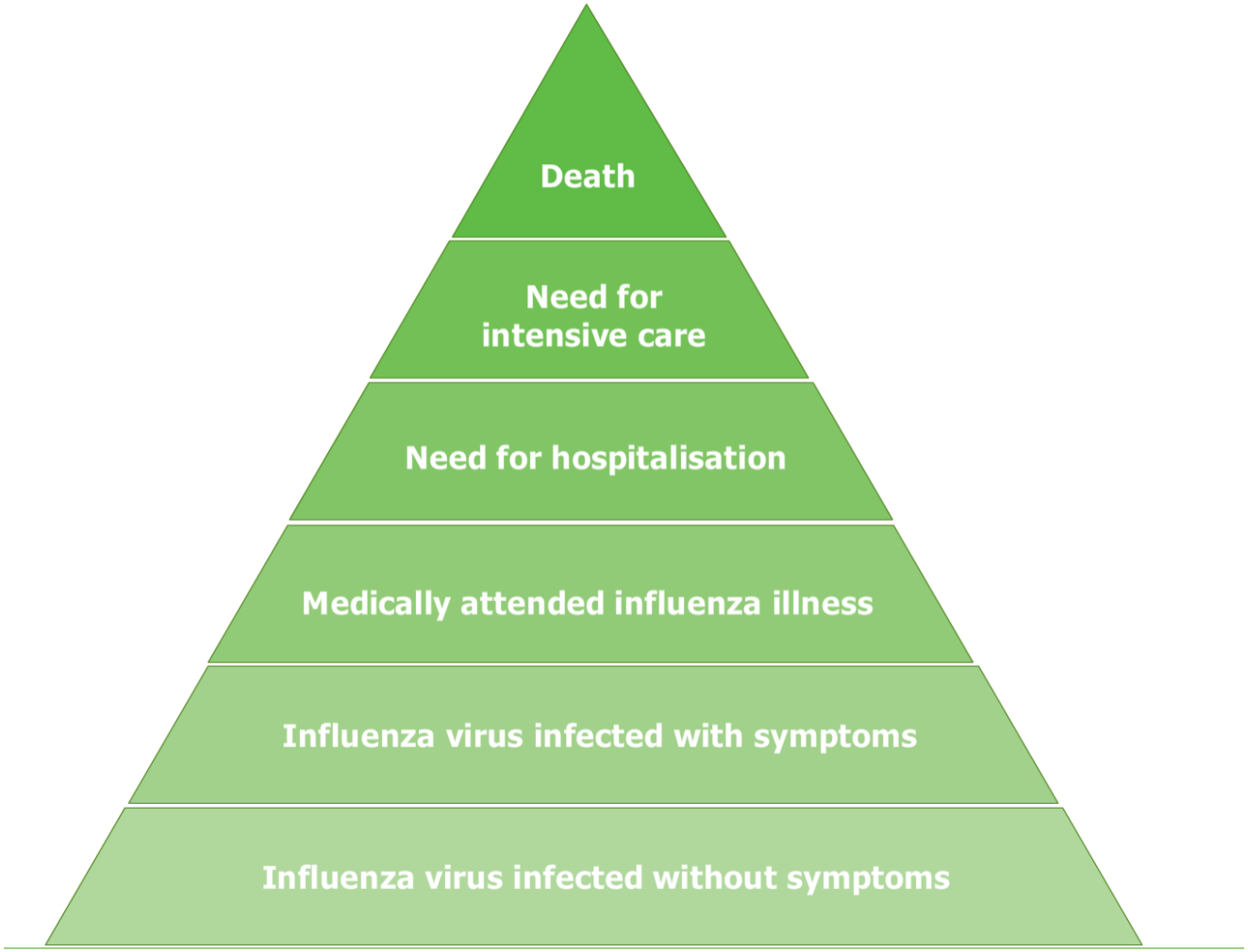
Up to 650 000 people die of respiratory diseases linked to seasonal flu each year

العربية | 中文 | Français | Русский | Español

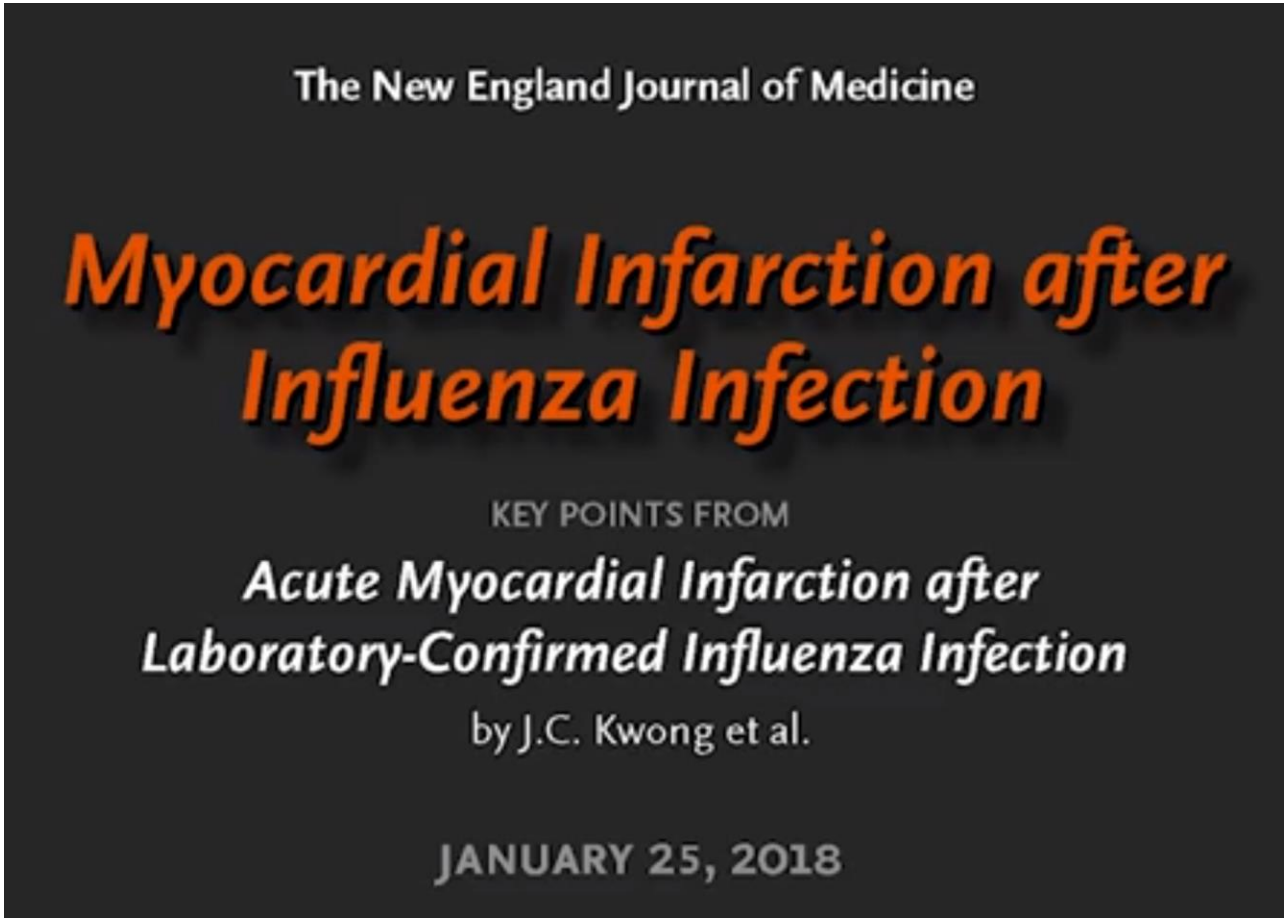
14 December 2017 |News Release |GENEVA

Media Contacts

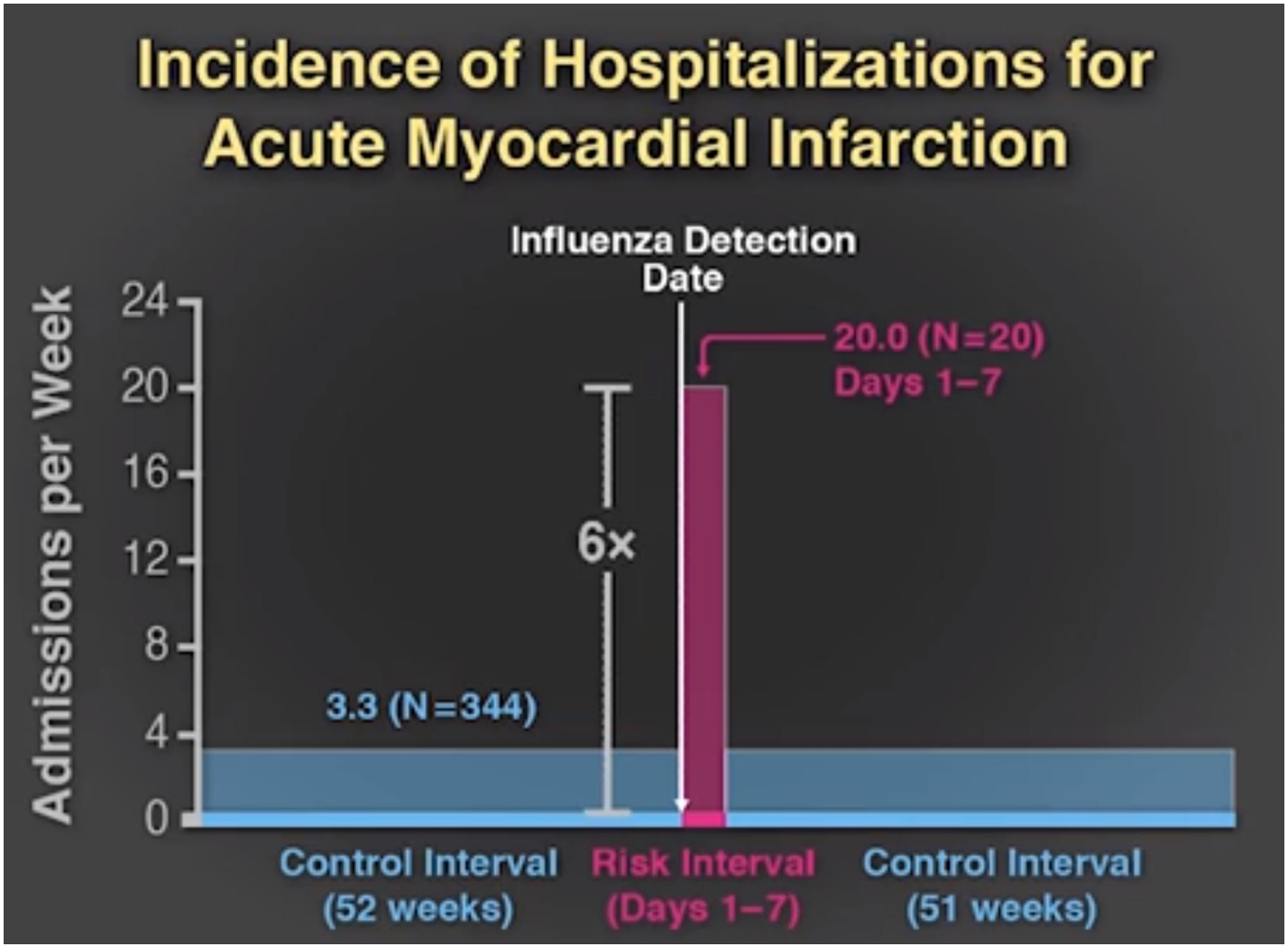
ΕΠΟΧΙΚΗ ΓΡΙΠΗ & ΕΠΙΠΛΟΚΕΣ



Influenza & οξύ έμφραγμα μυοκαρδίου



Influenza & οξύ έμφραγμα μυοκαρδίου, Kwong,et al, NEJM 2018



Flu-CDC estimates 2018-19

USA 2019

CDC estimates that, from **October 1, 2018,** through **May 4, 2019,** there have been:

37.4 million – 42.9 million
flu illnesses

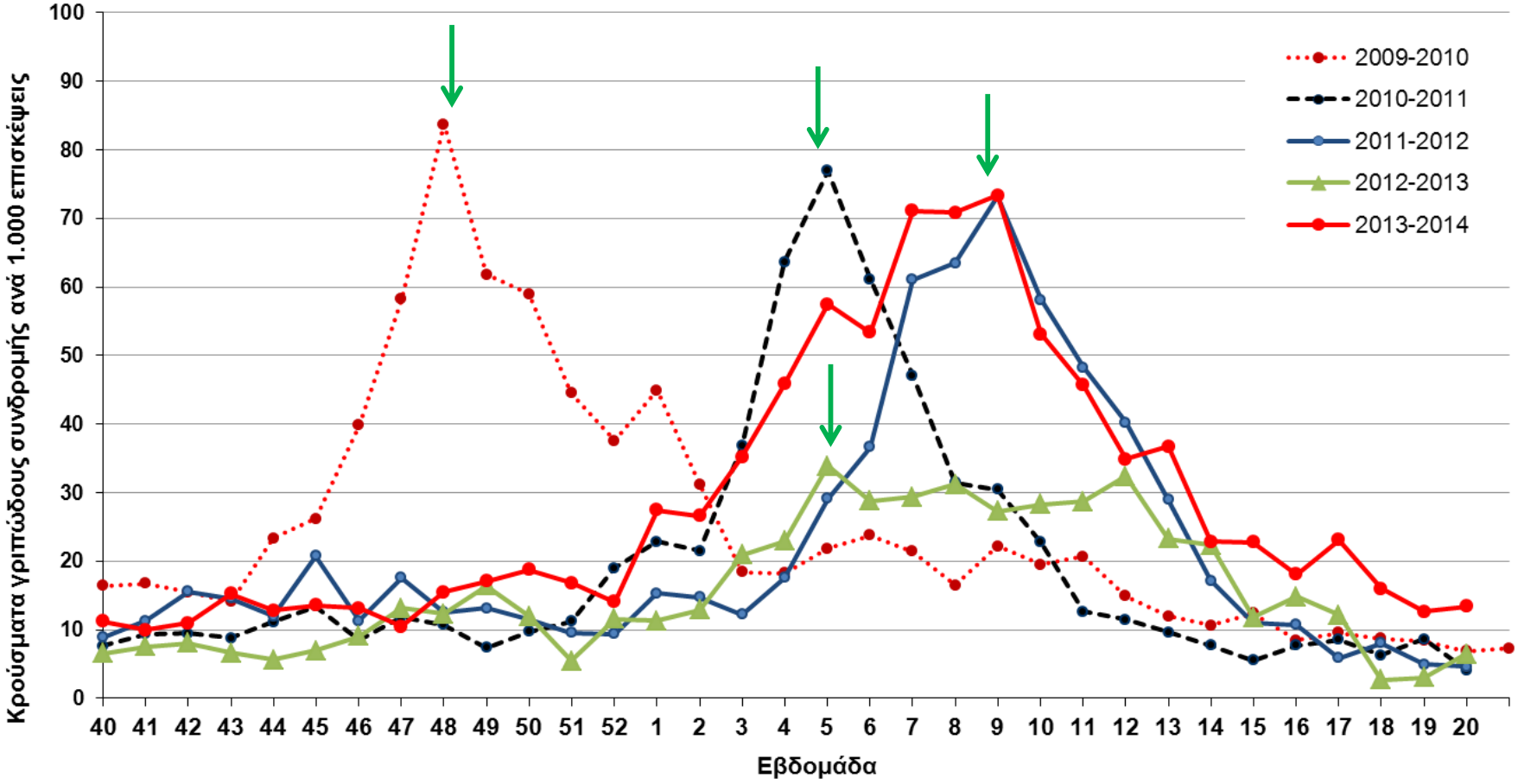
17.3 million – 20.1 million
flu medical visits

531,000 – 647,000
flu hospitalizations

36,400 – 61,200
flu deaths

CDC

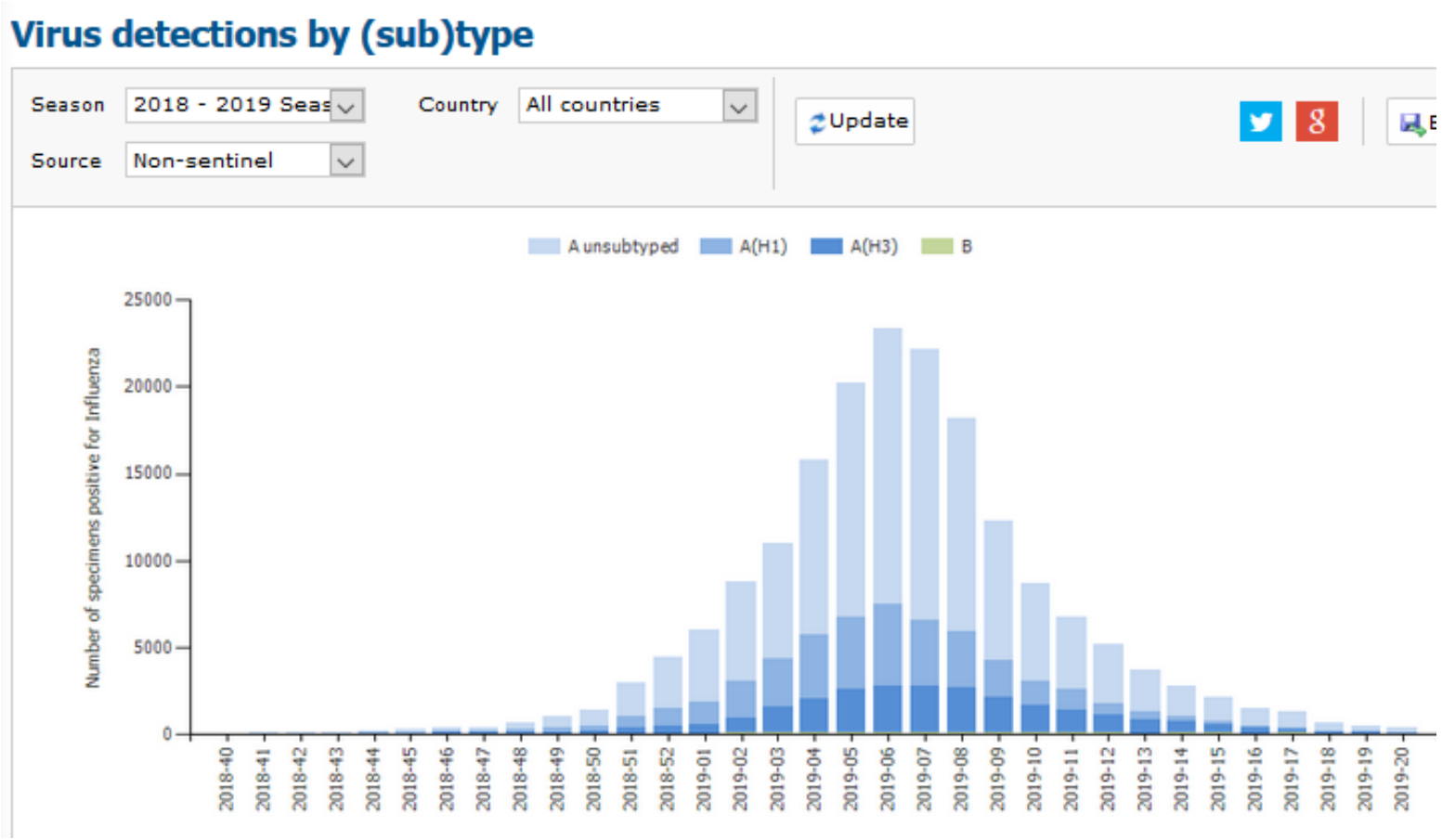
Εκτίμηση ILI/1.000 επισκέψεις & εβδομάδα, Ελλάδα (2009-2014)



Όποιο στέλεχος γρίπης κι αν κυριαρχεί, οι επιδημίες γρίπης συνδέονται με αυξημένη νοσηρότητα!!!

Influenza 2018-19, 2018-19, EU/EEA

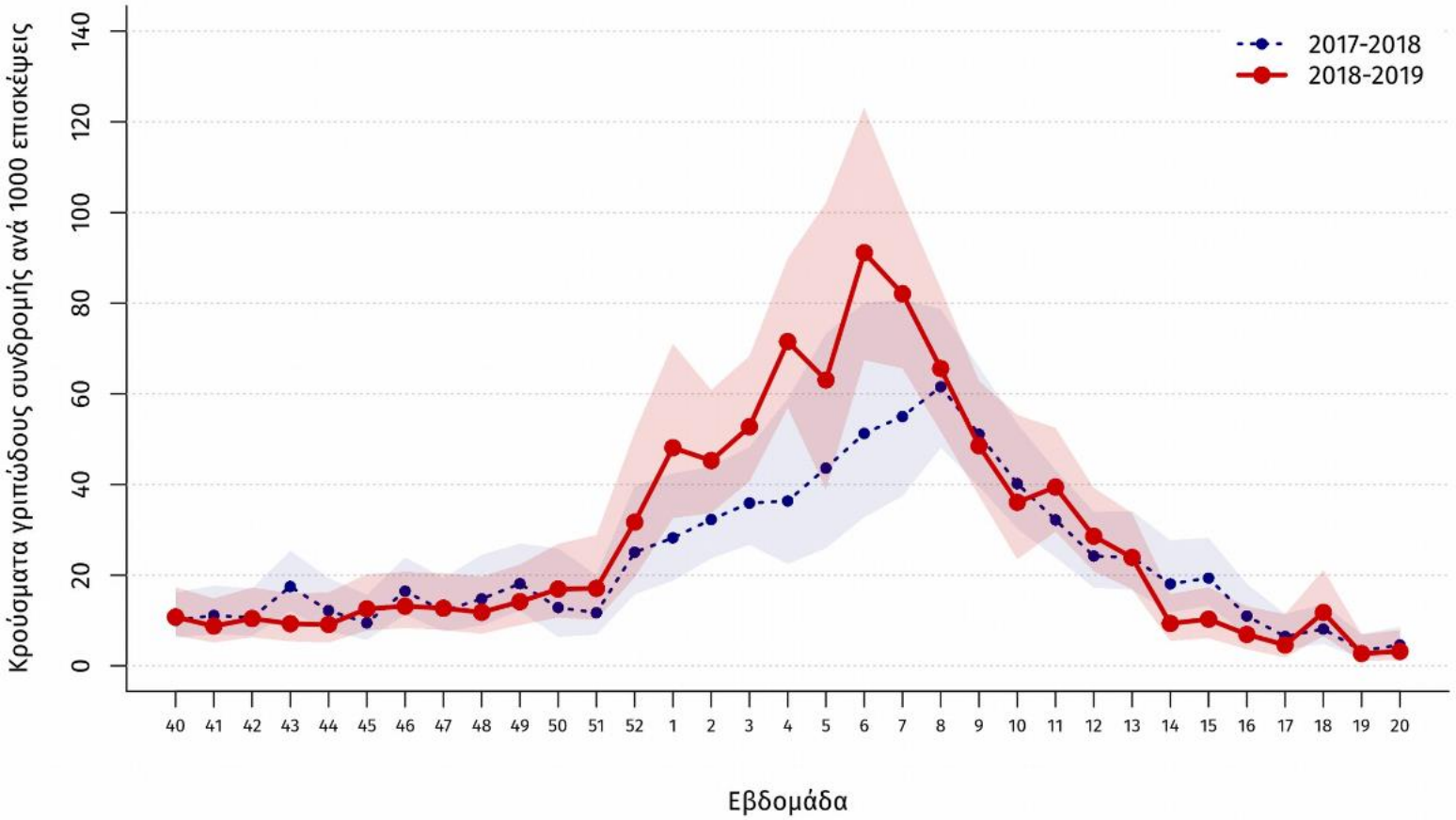
type A 99%, (H1N1)pdm09: 55%, AH3N2: 45%



Sentinel data

Γρίπη – Ελλάδα, 2018-19

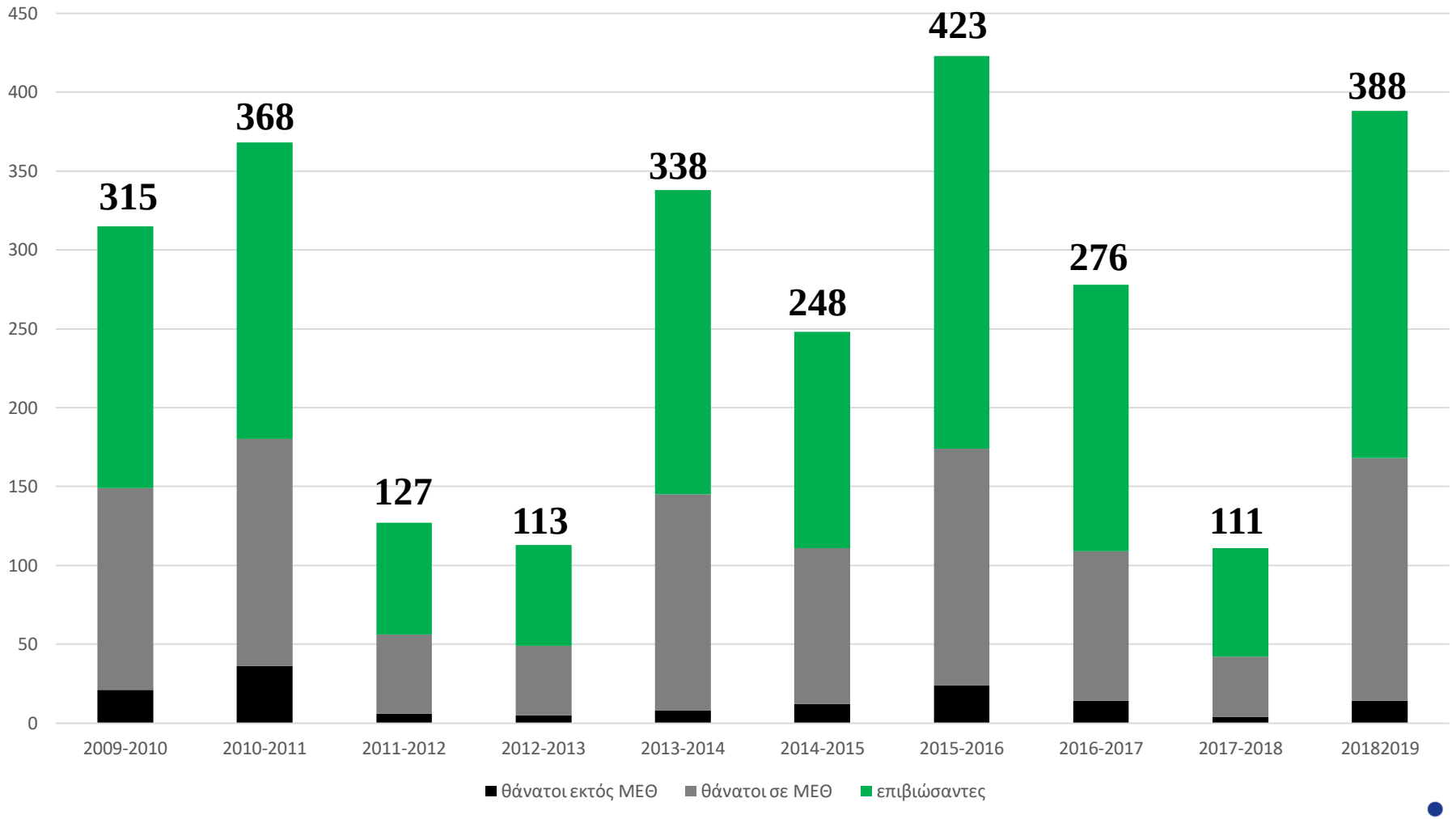
Διάγραμμα 1: Εκτίμηση αριθμού κρουσμάτων γριπώδους συνδρομής ανά 1.000 επισκέψεις, κατά εβδομάδα. Σύνολο χώρας, περίοδοι γρίπης: 2017-2018, 2018-2019.



ΕΘΝΙΚΟΣ ΟΡΓΑΝΙΣΜΟΣ ΔΗΜΟΣΙΑΣ ΥΓΕΙΑΣ

Ν σοβαρών Ελλάδα, 2009-2019

77% high risk, εμβολιασμένοι 15%!!!



ΕΘΝΙΚΟΣ ΟΡΓΑΝΙΣΜΟΣ ΔΗΜΟΣΙΑΣ ΥΓΕΙΑΣ

Το στέλεχος Α Η1Ν1pdm09 & συσχέτιση με σοβαρή νόσο, μικρότερες ηλικίες & θανατηφόρα έκβαση!!!

Πλειοψηφία=ήπια νόσος !!!

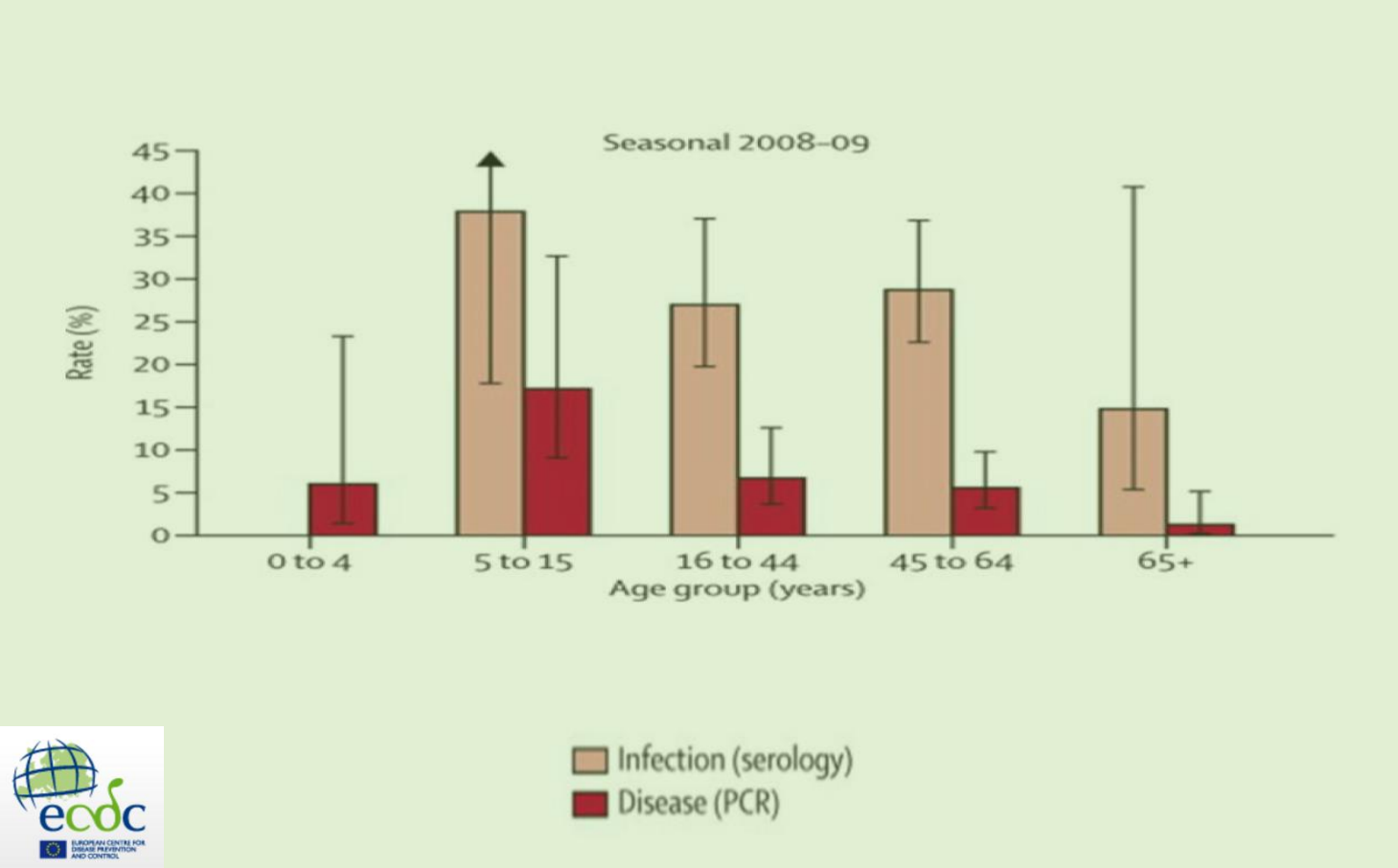
- Η πλειοψηφία όσων ασθενούν με γρίπη
  - νοσούν για 3 έως 7 ημέρες και
- η υγεία τους αποκαθίσταται πλήρως

Η ΓΡΙΠΗ ΕΙΝΑΙ ΥΠΟΥΛΗ ΝΟΣΟΣ &

ΜΠΟΡΕΙ ΝΑ ΜΕΤΑΔΟΘΕΙ & ΑΠΌ

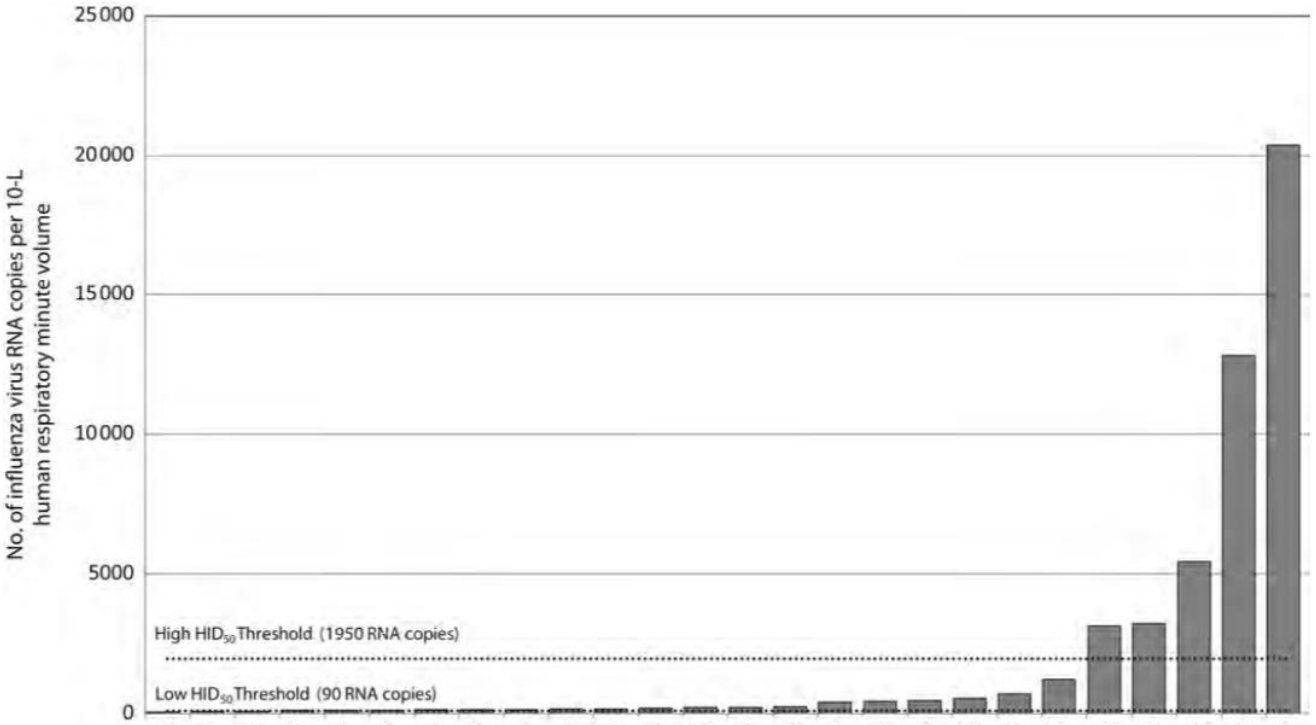
ΑΣΥΜΠΤΩΜΑΤΙΚΟΥΣ

ΑΛΗΘΕΙΑ !!!



Hayward et al Lancet Resp Dis 2014

Super emitters !!!



InfluenzaVirus: Here, There, Especially Air?

Caroline Breese Hall

Departments of Pediatrics and Medicine, University of Rochester School of Medicine and Dentistry, New York

ΔΙΑΓΝΩΣΗ

- Στο peak – κλινικά
- Εκτός peak
  - Rapid tests
  - Molecular PCR tests
  - Multiplex tests

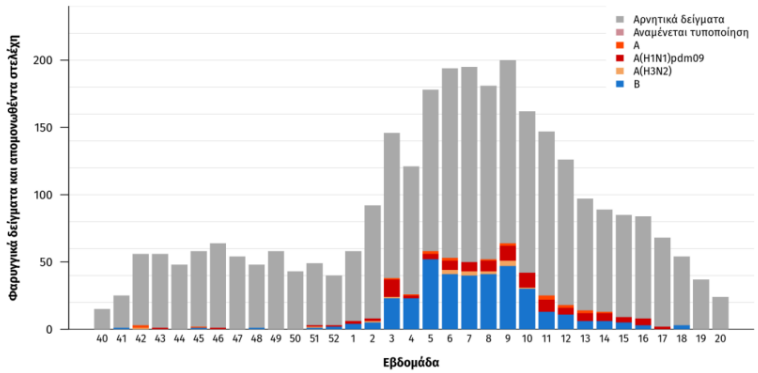
- Gold standard = καλλιέργεια

Δίνουμε Αντιγριπικά & πότε;

- **Πυρετός + βήχας** σε περίοδο γρίπης = Rx

  σαν γρίπη σε high risk groups

Διάγραμμα 3: Συνολικός αριθμός φαρυγγικών δειγμάτων και απομονωθέντων στελεχών ιού γρίπης στα Εργαστήρια Αναφοράς Γρίπης. Σύνολο χώρας, περίοδος γρίπης 2017 – 2018.



ΣΥΣΤΑΣΕΙΣ ΓΙΑ Rx

Ήπια γρίπη χωρίς επιπλοκές (ενήλικες και παιδιά)

Rx σε αυξημένου κινδύνου για την εμφάνιση επιπλοκών

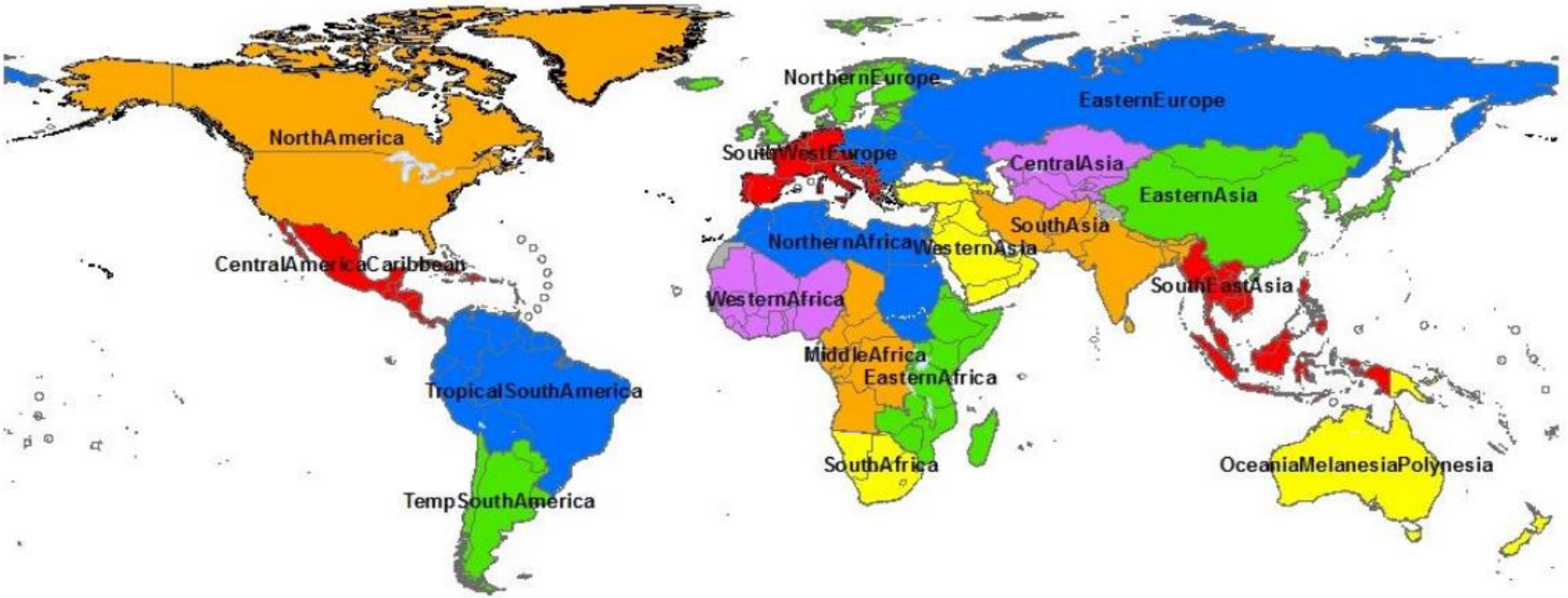
Γρίπη με επιπλοκές ή προοδευτική επιδείνωση

Rx σε όλους

Influenza transmission zones

Influenza Transmission Zones

The Influenza Transmission Zones are geographical groups of countries, areas or territories with similar influenza transmission patterns. Below is a map showing the borders of the Influenza Transmission Zones as well as the list of countries, areas or territories by zone.



Influenza lab surveillance 2019

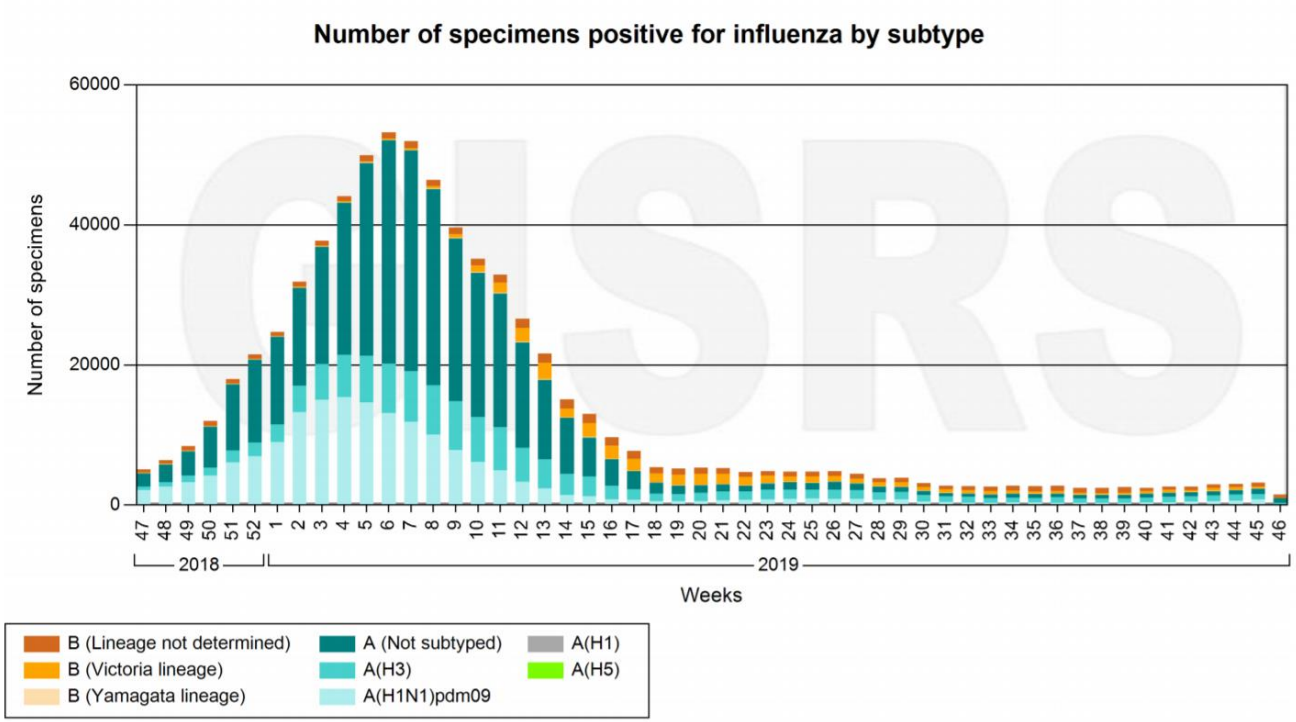
World Health Organization

Influenza Laboratory Surveillance Information

by the Global Influenza Surveillance and Response System (GISRS)

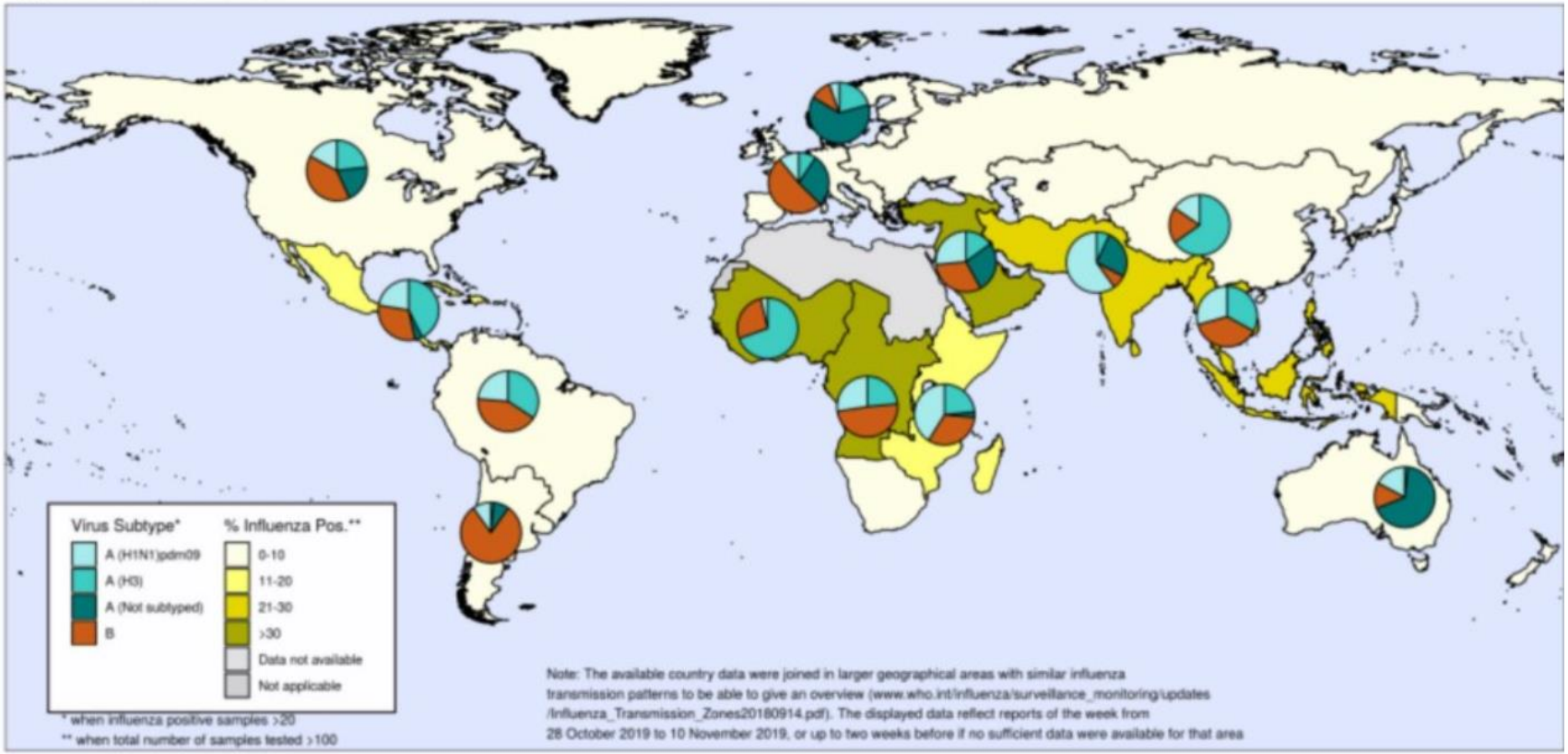
generated on 22/11/2019 05:24:11 UTC

Global circulation of influenza viruses



Data source: FluNet (www.who.int/flunet), GISRS

Influenza lab surveillance 2019



ΑΤΟΜΑ ↑↑ ΚΙΝΔΥΝΟΥ
επιδείνωση χρονίων νόσων

- οι θάνατοι αφορούν κυρίως άτομα με υποκείμενα νοσήματα
- **ΕΜΒΟΛΙΑΣΜΟΣ = SOS**
  - Άσθμα κι άλλες αναπνευστικές ασθένειες, καρδιαγγειακά νοσήματα
  - Διαβήτη, νοσήματα του ήπατος
  - Νεφροπάθειες, νευρολογικά νοσήματα
  - Καρκινοπαθείς και άλλοι ασθενείς σε ανοσοκαταστολή
  - **Έγκυες & παχύσαρκοι**

ΕΜΒΟΛΙΟ ΓΡΙΠΗΣ

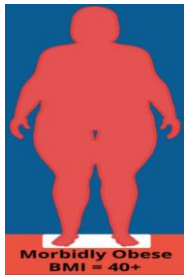
προσοχή ευπαθείς ομάδες!!!

- **Πότε;** Κάθε χρόνο

- **Ποιοι;** Όλοι οι ενήλικες ασθενείς > 60 ετών

  Όλοι με υποκείμενες νόσους

Έγκυες, δείκτης μάζας σώματος > 40 kg/m²



Vaccination coverage EU -> insufficient!!!

no country reached 75% in high risk groups!!!

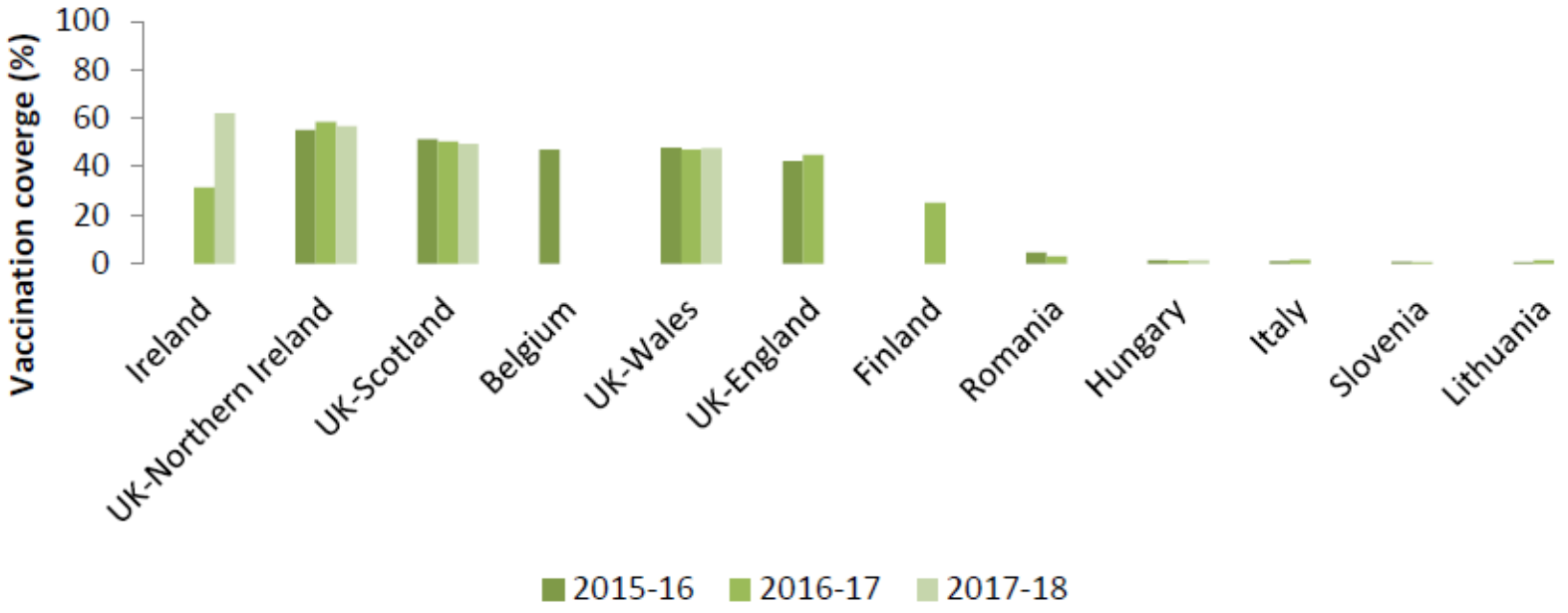
Η γρίπη είναι επικίνδυνη για εγκύους ;

- **ΗΠΑ --> πιο σοβαρή νόσος σε έγκυες**
- **↑ επιπλοκών εγκυμοσύνης**
  - **Πρόωρος τοκετός**

Vaccination coverage EU -> insufficient!!!

no country reached 75% in pregnancy!!!

Figure 6. Seasonal influenza vaccination coverage rates for pregnant women in nine EU/EEA Member States, influenza seasons (2015–2016; 2016–2017; 2017–2018)*



Source: National seasonal influenza vaccination survey, January 2018

**Data for UK is displayed by respective country (England, Northern Ireland, Scotland, Wales)*

Vaccination in HCWs!!!

We work when we are sick!!! 50% did in Canadian study

Healthcare Workers Often Work While Sick

Nicola M. Parry, DVM
June 21, 2019

0 Read Comments ADD TO EMAIL ALERTS

Most healthcare workers (HCWs) with an acute respiratory illness (ARI) have worked while sick, putting their patients and coworkers at risk for infection, a recent study published online June 18 in *Infection Control & Hospital Epidemiology* has shown.

"[We] found that 50% of participants working in Canadian acute care hospitals reported 251 episodes of ARI during each influenza season, with 95% of those who reported an ARI working 1 or more days of their illness," write Lili Jiang, PhD, Sinai Health System, Toronto, Canada, and colleagues.

The investigators conducted a four-season prospective cohort study of influenza and other respiratory illnesses among HCWs across nine Canadian hospitals during the 2010–2011 to 2013–2014 influenza seasons.

Which healthcare workers work with acute respiratory illness? Evidence from Canadian acute-care hospitals during 4 influenza seasons: 2010–2011 to 2013–2014

Lili Jiang [a1], Allison McGeer [a1] [a2], Shelly McNeil [a3] [a4], Kevin Katz [a2] [a5] ...
DOI: https://doi.org/10.1017/ice.2019.141 Published online: 18 June 2019

Abstract

Background:
Healthcare workers (HCWs) are at risk of acquiring and transmitting respiratory viruses while working in healthcare settings.
Objectives:
To investigate the incidence of and factors associated with HCWs working during an acute respiratory illness (ARI).
Methods:
HCWs from 9 Canadian hospitals were prospectively enrolled in active surveillance for ARI during the 2010–2011 to 2013–2014 influenza seasons. Daily illness diaries during ARI episodes collected information on symptoms and work attendance.
Results:
At least 1 ARI episode was reported by 50.4% of participants each study season. Overall, 94.6% of ill individuals reported working at least 1 day while symptomatic, resulting in an estimated 1.9 days of working while symptomatic and 0.5 days of absence during an ARI per participant season. In multivariable analysis, the adjusted relative risk of working while symptomatic was higher for physicians and lower for nurses relative to other HCWs. Participants were more likely to work if symptoms were less severe and on the illness onset date compared to subsequent days. The most cited reason for working while symptomatic was that symptoms were mild and the HCW felt well enough to work (67%). Participants were more likely to state that they could not afford to stay home if they did not have paid sick leave and were younger.
Conclusions:
HCWs worked during most episodes of ARI, most often because their symptoms were mild. Further data are needed to understand how best to balance the costs and risks of absenteeism versus those associated with working while ill.

ΚΙΝΔΥΝΟΣ ΓΙΑ ΥΓΕΙΟΝΟΜΙΚΟΥΣ

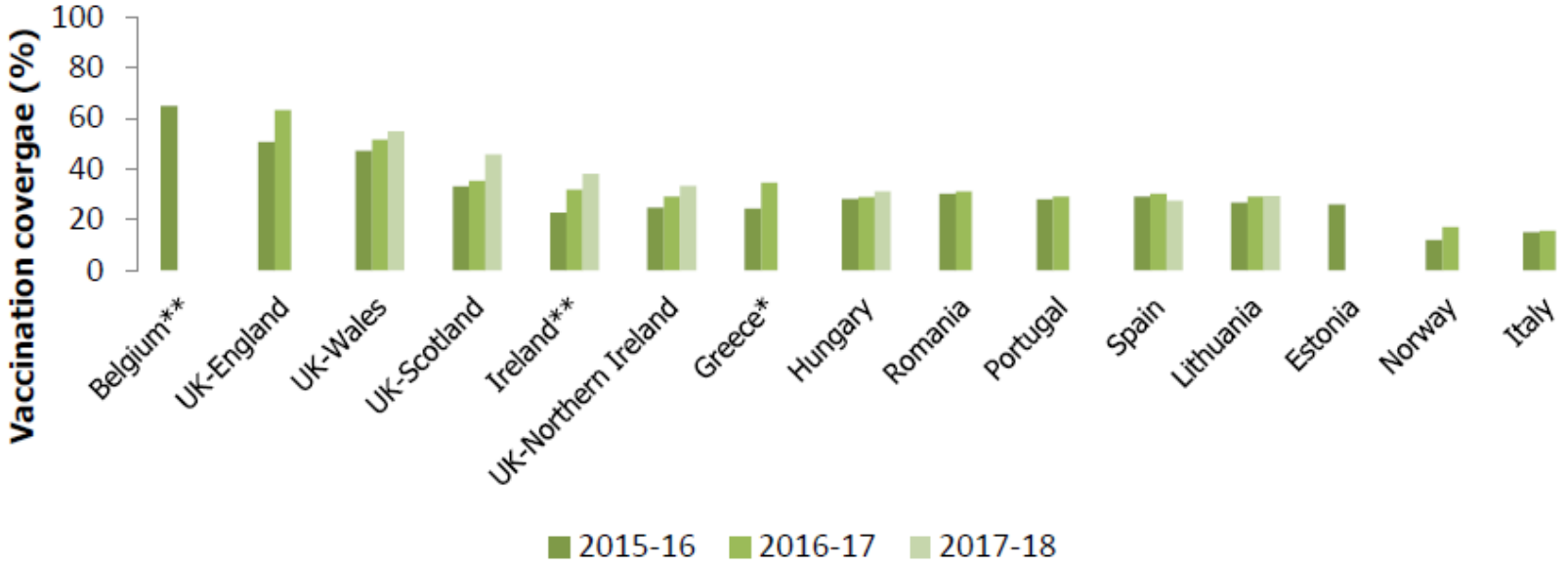
- 3,5 φορές υψηλότερος κίνδυνος λόγω επαγγέλματος
  - 30% με ασυμπτωματική λοίμωξη
  - παρ' όλα αυτά μεταδίδουν τον ιό
    - σε ασθενείς &
    - οικογενειακό περιβάλλον
    - 1-2 ημέρες προ έναρξης συμπτωμάτων

Kuster et al PLoS One 2011

Vaccination coverage EU -> insufficient!!!

no country reached 75% in HCWs!!!

Figure 7. Seasonal influenza vaccination coverage rates among healthcare workers in 12 EU/EEA Member States, influenza seasons: 2015–2016; 2016–2017; 2017–2018



Source: National seasonal influenza vaccination survey, January 2018

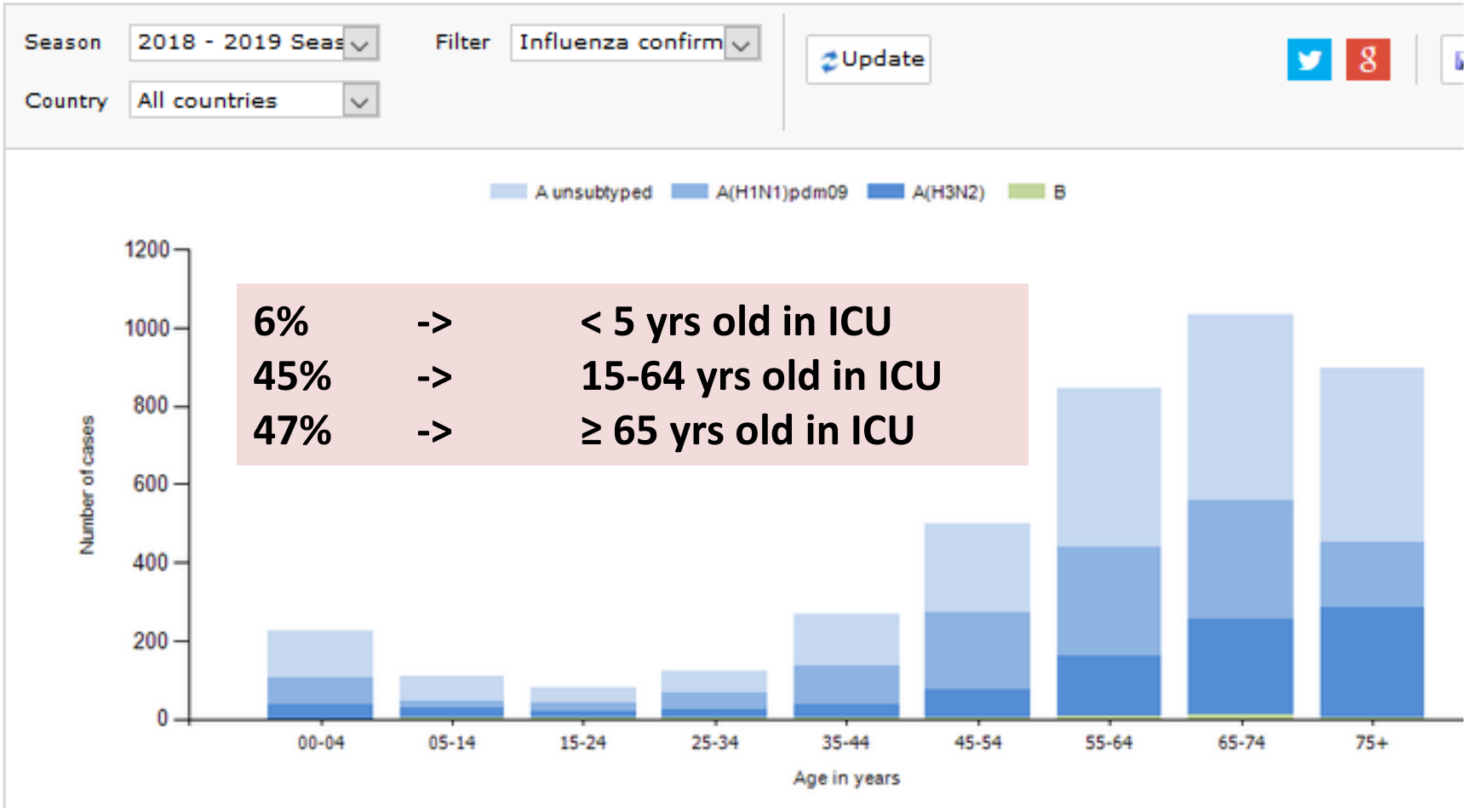
Οι ηλικιωμένοι

- **Γνωστή χαμηλή αποτελεσματικότητα εμβολίου**
- **Υψηλά % νοσηλειών ΜΕΘ**
  - **Ιδιαίτερα για AH3N2**
- **Υψηλά % θνητότητας**

Influenza 2018-19 season

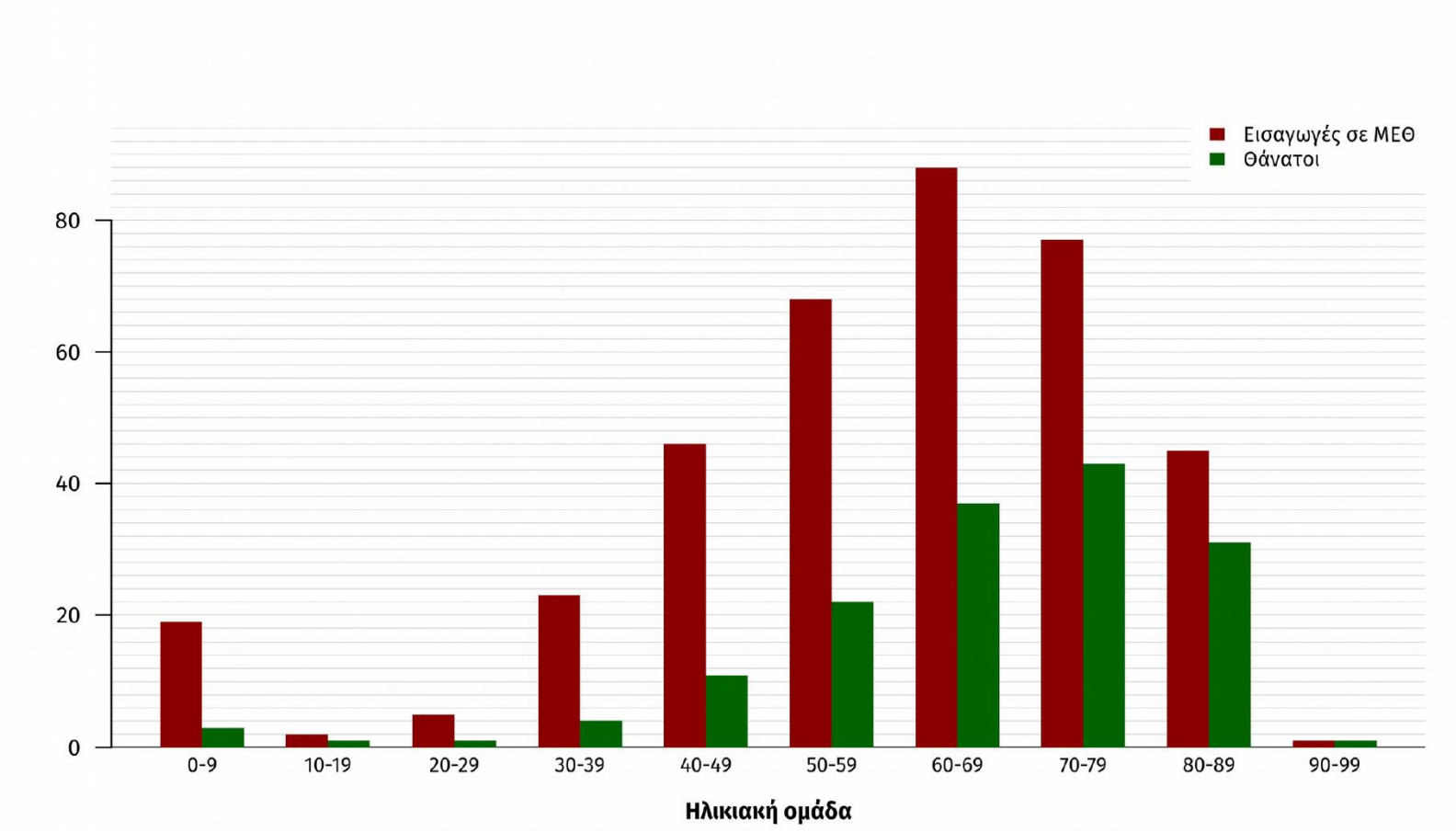
Hospitals 99% fluA (54% AH1N1), in ICUs 99% fluA (66% AH1N1)

Distribution of virus (sub)type by age group in hospitalised cases



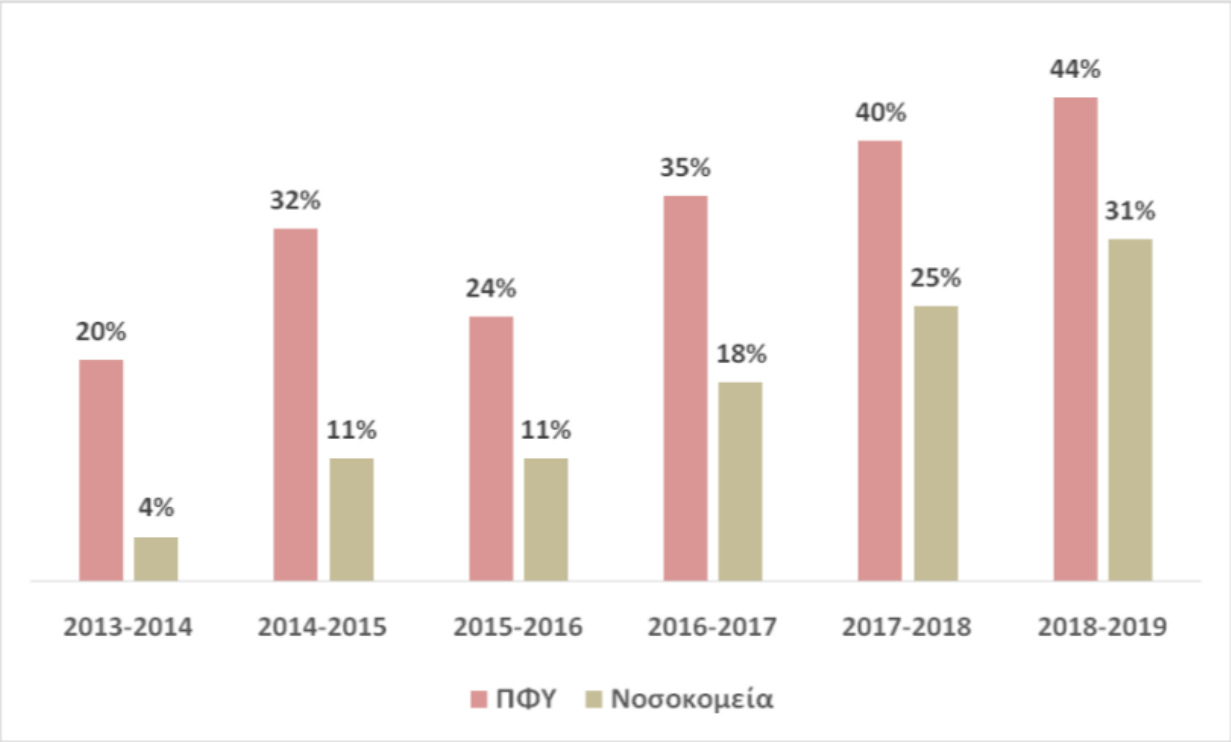
Influenza, severity, Ελλάδα 2018-19

Διάγραμμα 6: Ηλικιακή κατανομή εισαχθέντων σε Μ.Ε.Θ. με εργαστηριακά επιβεβαιωμένη γρίπη και ασθενών που κατέληξαν σε Μ.Ε.Θ ή εκτός Μ.Ε.Θ. Σύνολο Ελλάδας, από εβδομάδα 40/2018 έως εβδομάδα 20/2019 (13–19 Μαΐου 2019).



Εμβολιασμός υγειονομικών Ελλάδα 2013-19, ΕΟΔΥ

Διάγραμμα 12: Ποσοστά αντιγριπικού εμβολιασμού των εργαζομένων σε χώρους παροχής υπηρεσιών υγείας (νοσοκομεία και Κέντρα Πρωτοβάθμιας Φροντίδας Υγείας), περίοδοι γρίπης 2013-2014 έως 2018-2019.



Vaccination of household contacts & HCW in contact!!!

Recommended vaccine composition
6 months before!

World Health Organization

Health Topics | Countries | News | Emergencies | About Us

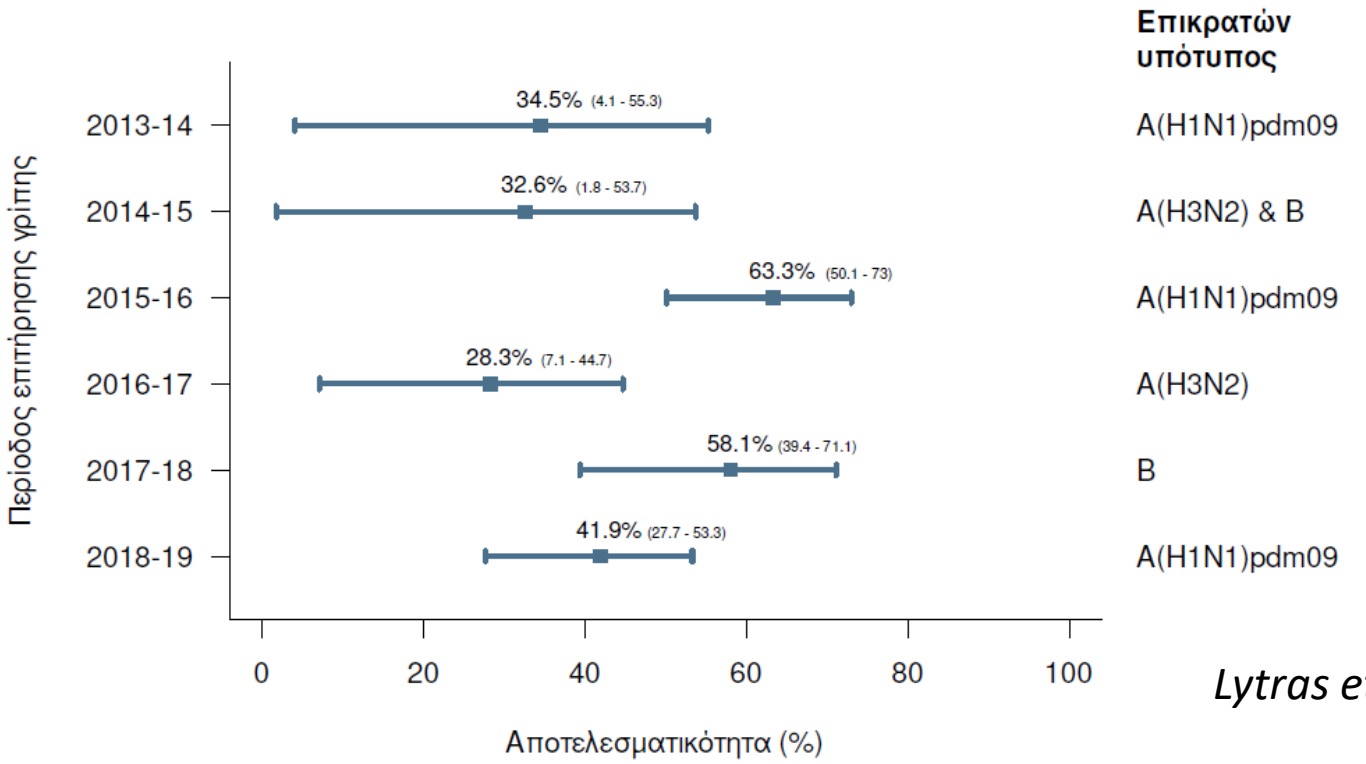
Influenza

Recommended composition of influenza virus vaccines for use in the 2018-2019 northern hemisphere influenza season

February 2018 - WHO convenes technical consultations in February and September each year to recommend viruses for inclusion in influenza vaccines for the northern and southern hemisphere influenza seasons, respectively. This recommendation relates to the influenza vaccines for use in the forthcoming northern hemisphere 2018-2019 influenza season. A recommendation will be made in September 2018 relating to vaccines that will be used for the southern hemisphere 2019 influenza season.

Read the recommendations

Ελλάδα 2013-19



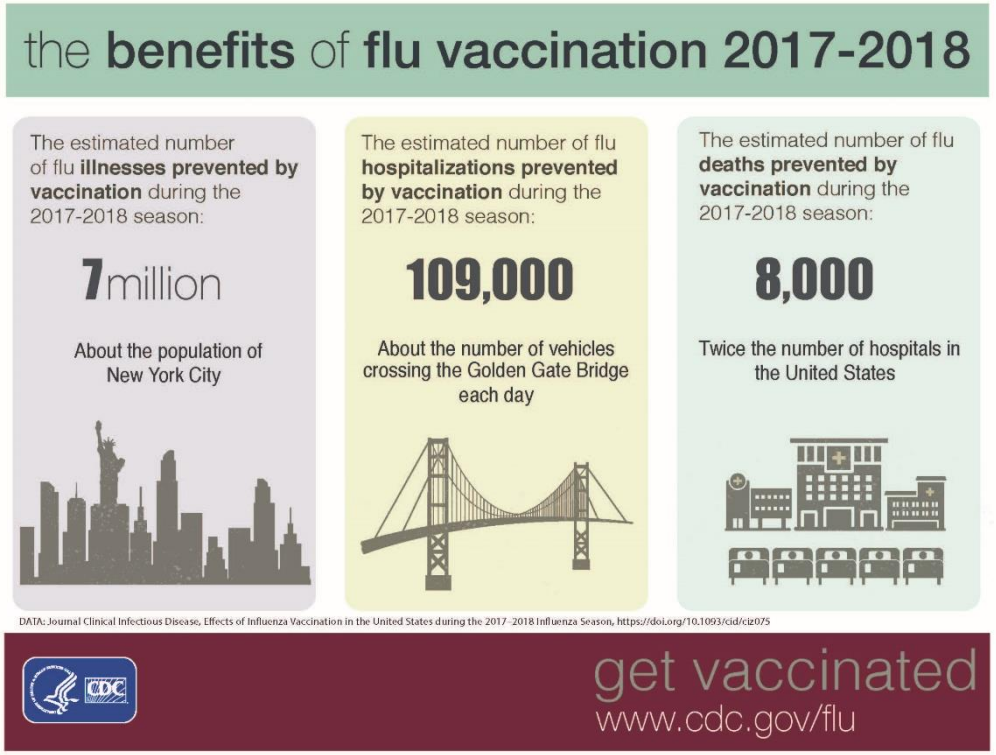
Lytras et al JMV 2016

Περίοδος 2018-19

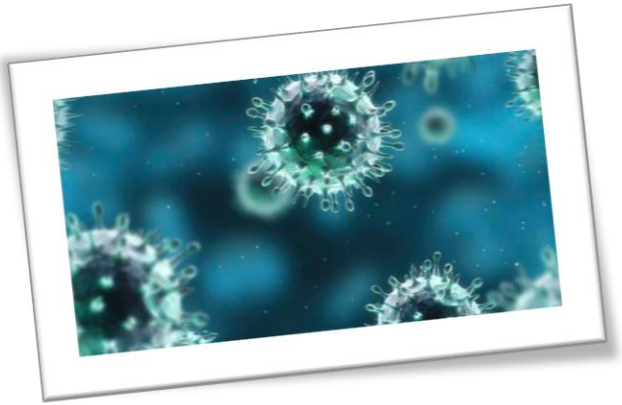
- **Συνολική αποτελεσματικότητα για πρόληψη της νοσηλείας από γρίπη: 42% (ΔΕ: 28-53%)**
- **Υψηλότερη αποτελεσματικότητα:**
  - **Άτομα <65 ετών έναντι >65 ετών** — **55% ΔΕ: 36-68% vs 30% ΔΕ:6-48%**
  - **A(H1N1)pdm 09 έναντι υπότυπου A(H3N2)** — **45% ΔΕ: 28-57% vs 25% ΔΕ: 0-48%**

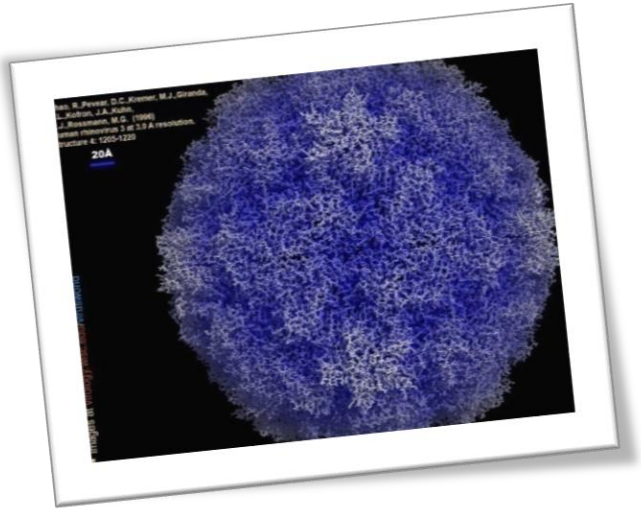
Influenza vaccine effectiveness, USA, 2017-2018

- **A(H3N2)** season, **VE 40%,** vaccine estimated to prevent
  - 7.1 million illnesses
  - 3.7 million medical visits
  - 109,000 hospitalizations
  - **8,000 deaths**



ΑΛΛΟΙ ΙΟΙ – ΚΟΙΝΟ ΚΡΥΟΛΟΓΗΜΑ

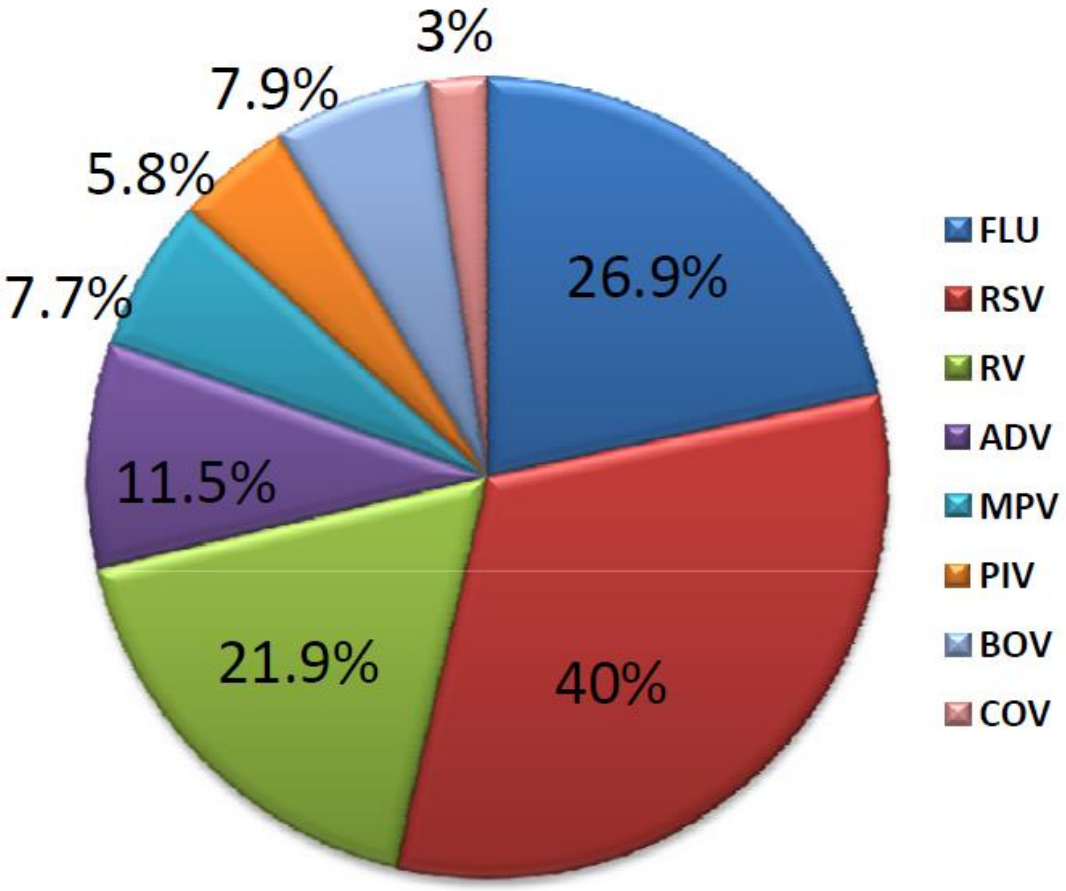




- Πληθώρα άλλων ιών κυκλοφορούν περίπου την ίδια χρονική περίοδο με τον ιό της γρίπης
  - ρινοϊοί, ο αναπνευστικός συγκυτιακός ιός (RSV), κορονα-ϊοί, αδενοϊοί

- Οι ιοί αυτοί προκαλούν το κοινό κρυολόγημα

Μελέτη Pasteur, Ελλάδα



Pogka et al, J Med Virol, 2011

ΑΛΛΕΣ ΓΡΙΠΕΣ!!!

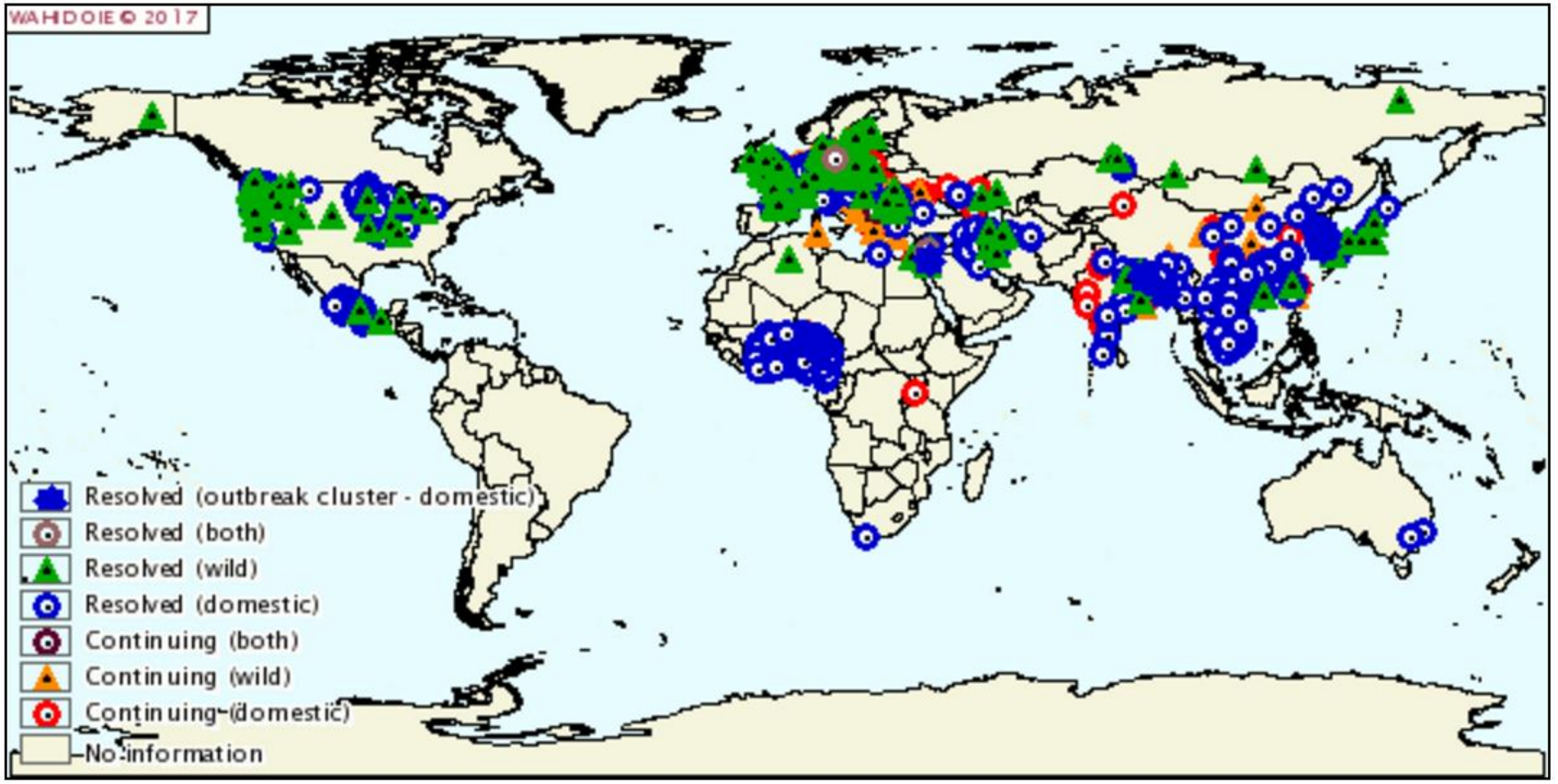
- ΑΝΘΡΩΠΟΙ
  - Α Η5Ν1, ΑΙΓΥΠΤΟΣ 2015
  - Α Η7Ν9, ΚΙΝΑ
  - Α Η5Ν6, ΚΙΝΑ
  - Α Η3Ν2v, ΗΠΑ 2015-16
  - Α Η9Ν2, ΜΠΑΓΚΛΑΝΤΕΣ 2015
  - Α Η7Ν3, Α Η10Ν8, ΑΗ6Ν1
- ΠΟΥΛΕΡΙΚΑ
  - Α Η5Ν1 ΝΙΓΗΡΙΑ, ΓΑΛΙΑ 2016
  - Α Η5Ν2, Α Η5Ν3, Α Η5Ν6, ΑΗ5Ν8, ΑΗ5Ν9

Zoonotic or variant influenza

- influenza viruses that are routinely circulating in animals
  - avian influenza virus subtypes A(H5N1) & A(H9N2)
  - swine influenza virus subtypes A(H1N1) & (H3N2)

- Occasional human infection
  - They get a "v" after the name

ΓΡΙΠΕΣ ΠΤΗΝΩΝ, ΗΡΑΙ 2013-17!!!



Avian influenza

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

SEARCH

CDC A-Z INDEX

Influenza (Flu)

- Avian Influenza
- Bird Flu Basics +
- Current Situation
- Specific Avian Flu Viruses +
- Past Outbreaks +
- Health Care & Laboratorian Guidance +
- What CDC Does +
- Avian Influenza Related Links

Get Email Updates

To receive weekly email updates about Seasonal Flu, enter your email address:

Information on Avian Influenza

Avian influenza refers to the disease caused by infection with avian (bird) influenza (flu) Type A viruses. These viruses occur naturally among wild aquatic birds worldwide and can infect domestic poultry and other bird and animal species. Avian flu viruses do not normally infect humans. However, sporadic human infections with avian flu viruses have occurred. The links below offer more information about avian influenza.

Bird Flu Basics

- Avian Influenza Type A Viruses
- Bird Flu in Birds
- Bird Flu in People
- Prevention and Treatment

Bird Flu Updates

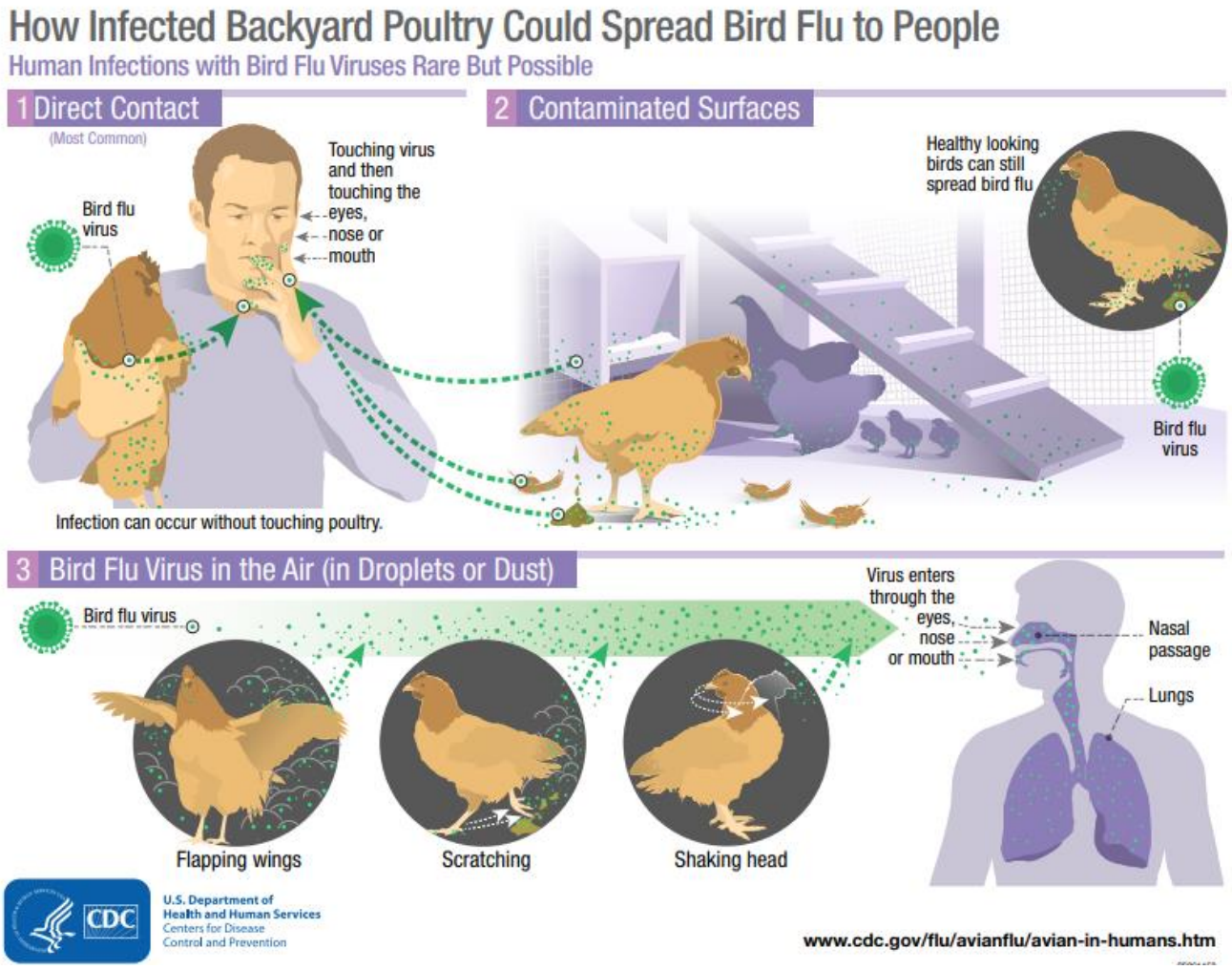
- Current Situation
- Specific Avian Flu Viruses
- Past Outbreaks

More >

Health Care & Laboratorian Guidance

- Case Definitions
- Testing, Reporting & Lab Information
- Infection Control

Avian influenza



Avian influenza

Avian influenza overview February – August 2019

Surveillance report

27 Sep 2019

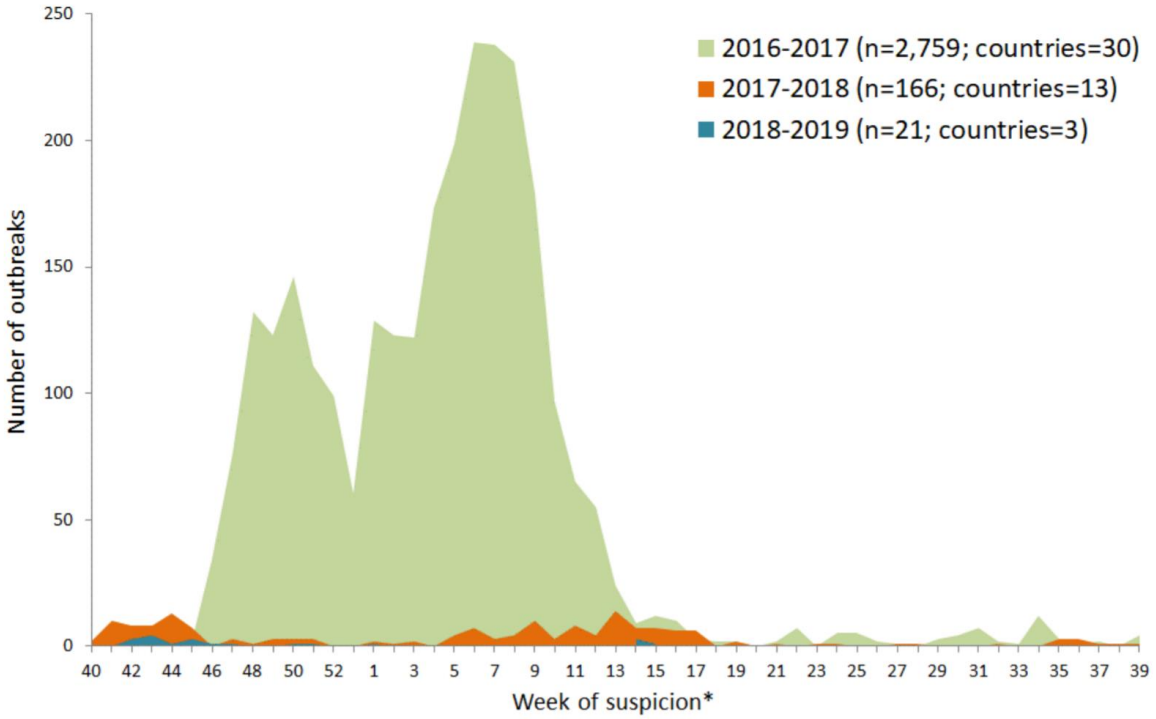
Publication series: Avian influenza overview

Time period covered: February – August 2019

Cite:

Between 16 February and 15 August 2019, five HPAI A(H5N8) outbreaks at poultry establishments in Bulgaria, two low pathogenic avian influenza (LPAI) A(H5N1) outbreaks in poultry in Denmark and one in captive birds in Germany, one LPAI A(H7N3) outbreak in poultry in Italy and one LPAI A(H7N7) outbreak in poultry in Denmark were reported in Europe.

Avian influenza



* When the date of suspicion is not available then the date of confirmation is used to assign the week of suspicion.
Data source: ADNS, EFSA.

Figure 1: Distribution of total number of HPAI outbreaks detected in Europe in seasons 2016–2017 (green), 2017–2018 (orange), 2018–2019 (blue) and reported via ADNS by week of suspicion, 28 September 2015 – 15 August 2019 (n=2,946)

Avian influenza

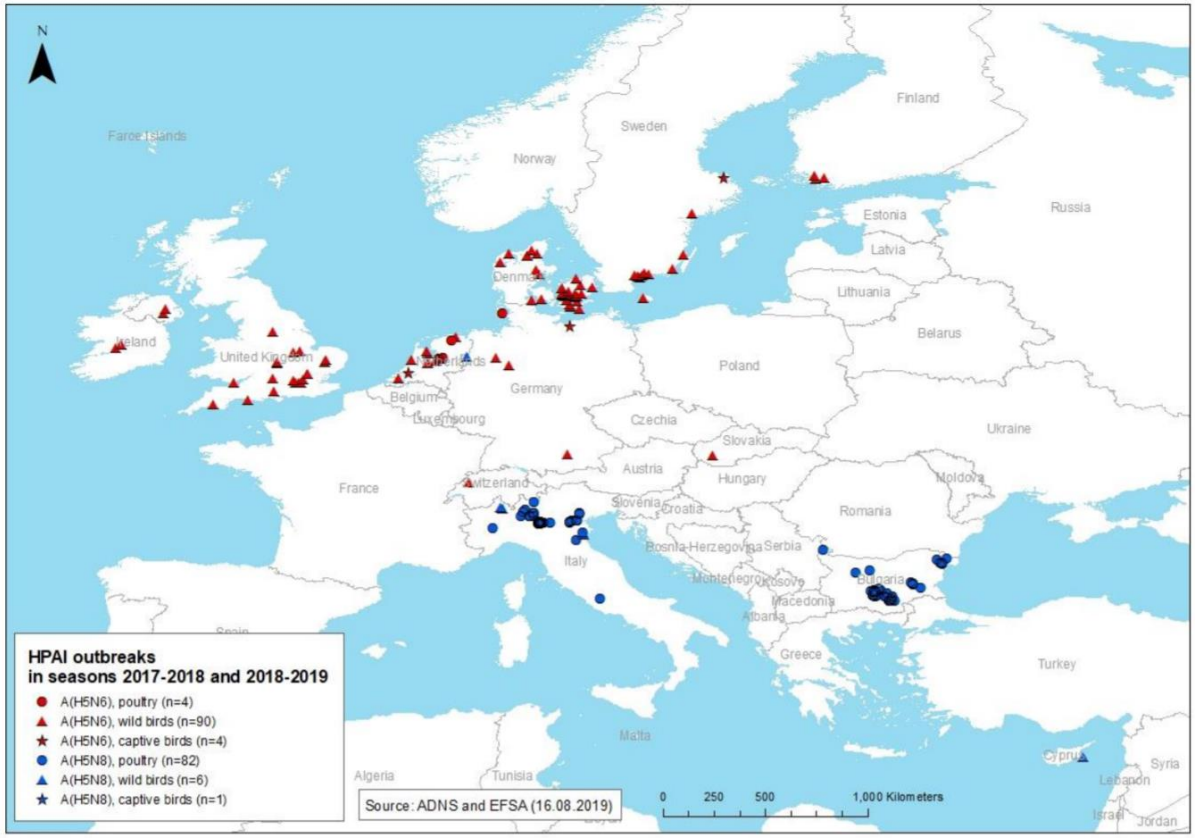
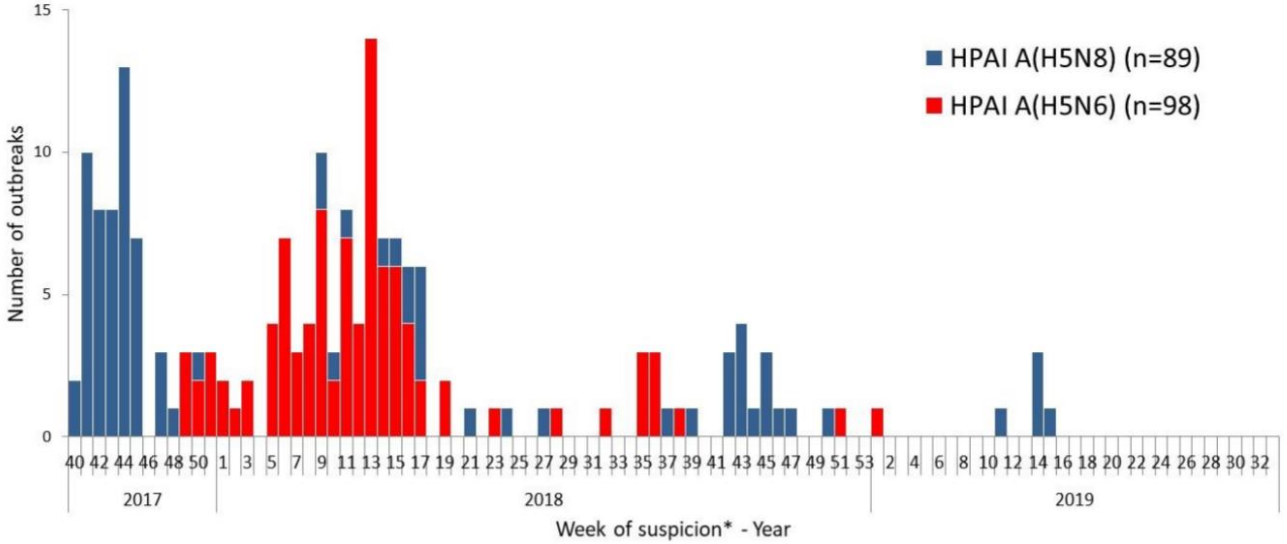


Figure 2: Geographical distribution, based on available geocoordinates, of HPAI outbreaks in Europe by A(H5N6) (red) and A(H5N8) (blue) virus in poultry (circles), wild birds (triangles) and captive birds (stars), in seasons 2017–2018 and 2018–2019 (2 October 2017 – 15 August 2019; n=187)

Avian influenza

Figure 2: Geographical distribution, based on available geocoordinates, of HPAI outbreaks in Europe by A(H5N6) (red) and A(H5N8) (blue) virus in poultry (circles), wild birds (triangles) and captive birds (stars), in seasons 2017–2018 and 2018–2019 (2 October 2017 – 15 August 2019; n=187)



* When the date of suspicion is not available then the date of confirmation is used to assign the week of suspicion.
Data source: ADNS, EFSA.

Figure 3: Distribution of total number of HPAI A(H5N6) (red) and A(H5N8) (blue) outbreaks in Europe by week of suspicion in seasons 2017–2018 and 2018–2019 (2 October 2017 – 15 August 2019; n=187)

Avian influenza 2018-19

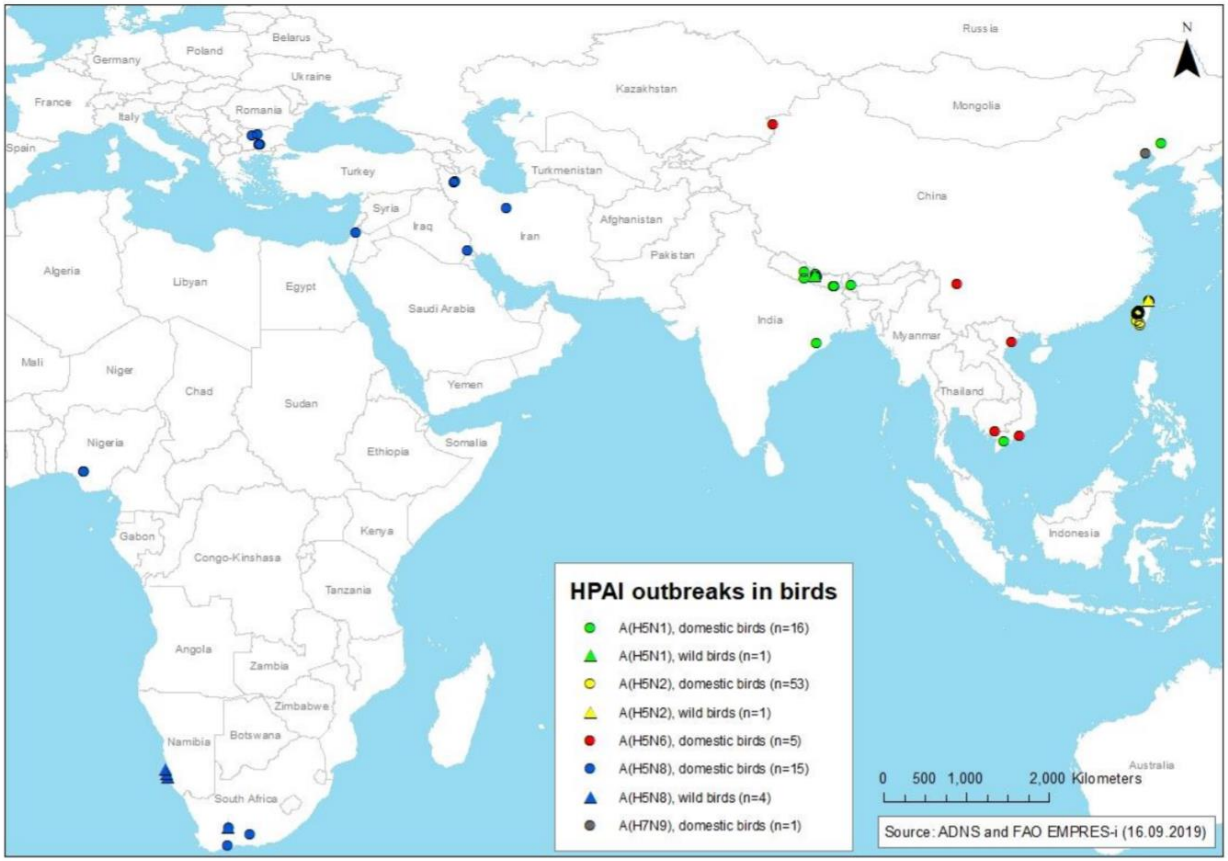
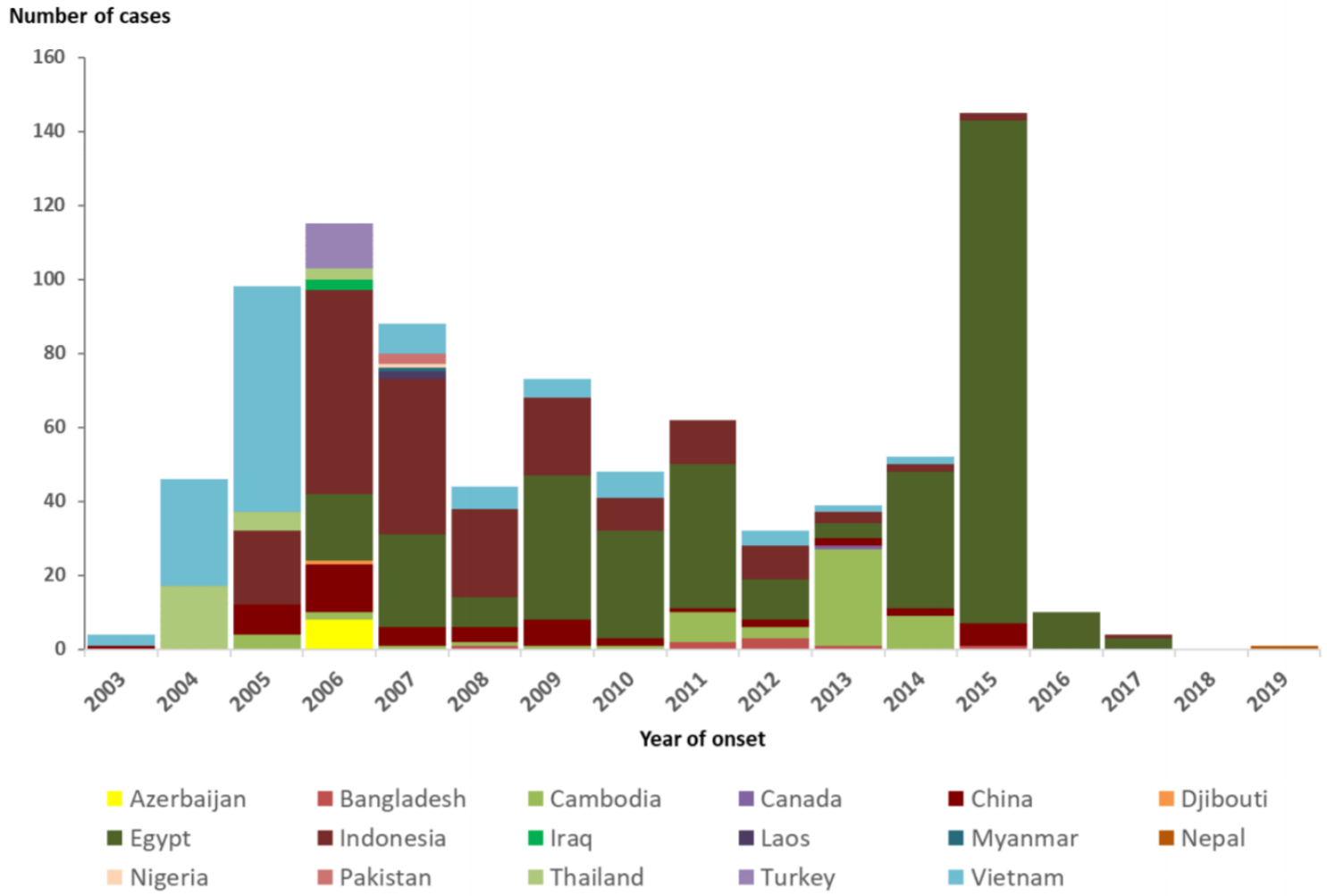


Figure 9: Geographical distribution, based on available geocoordinates, of HPAI outbreaks in Europe, Asia and Africa in domestic birds (circles) and wild birds (triangles), by A(H5N1) (green), A(H5N2) (yellow), A(H5N6) (red), A(H5N8) (blue), A(H7N9) (grey), 16 November 2018 – 15 February 2019 (n=96)

Avian influenza H5N1 2013-19

n= 861, 455 deaths



Γρίπη των πουλερικών H5N1 και άνθρωπος

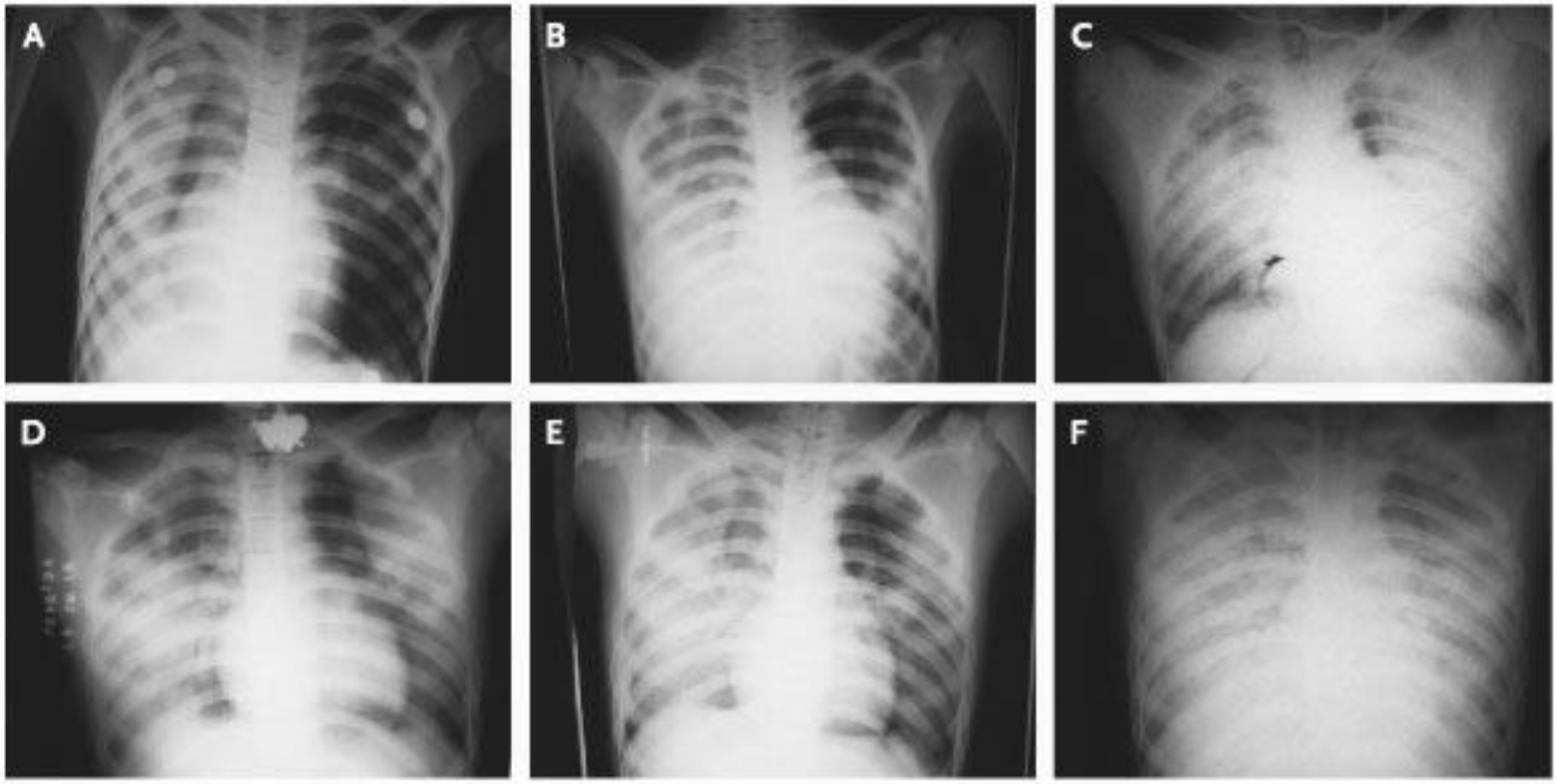
H5N1 - Άνθρωποι

- Καταιγίδα κυτταροκινών
- H5N1 patients had significantly higher levels of 6 out of 7 cytokines measured

  •**Nature Med 09/2006**

- Similar to 1918 H1N1 strain

Ακτινολογικές εικόνες H5N1



Avian influenza H5N1
Επιπλοκές

- 89 % θνητότητα σε παιδιά
  - < 15 ετών
    - 9-10 ημέρες νόσου
    - Αναπνευστική δυσχέρεια
  - Σε αντίθεση με το 1997

Γρίπη πτηνών H5N1 & άν[illegible]οι

- Τα άγρ[illegible] α[illegible] κ[illegible]τοχή στις [illegible] ε[illegible] σε θρ[illegible]ς

ΜΥΘΟΣ

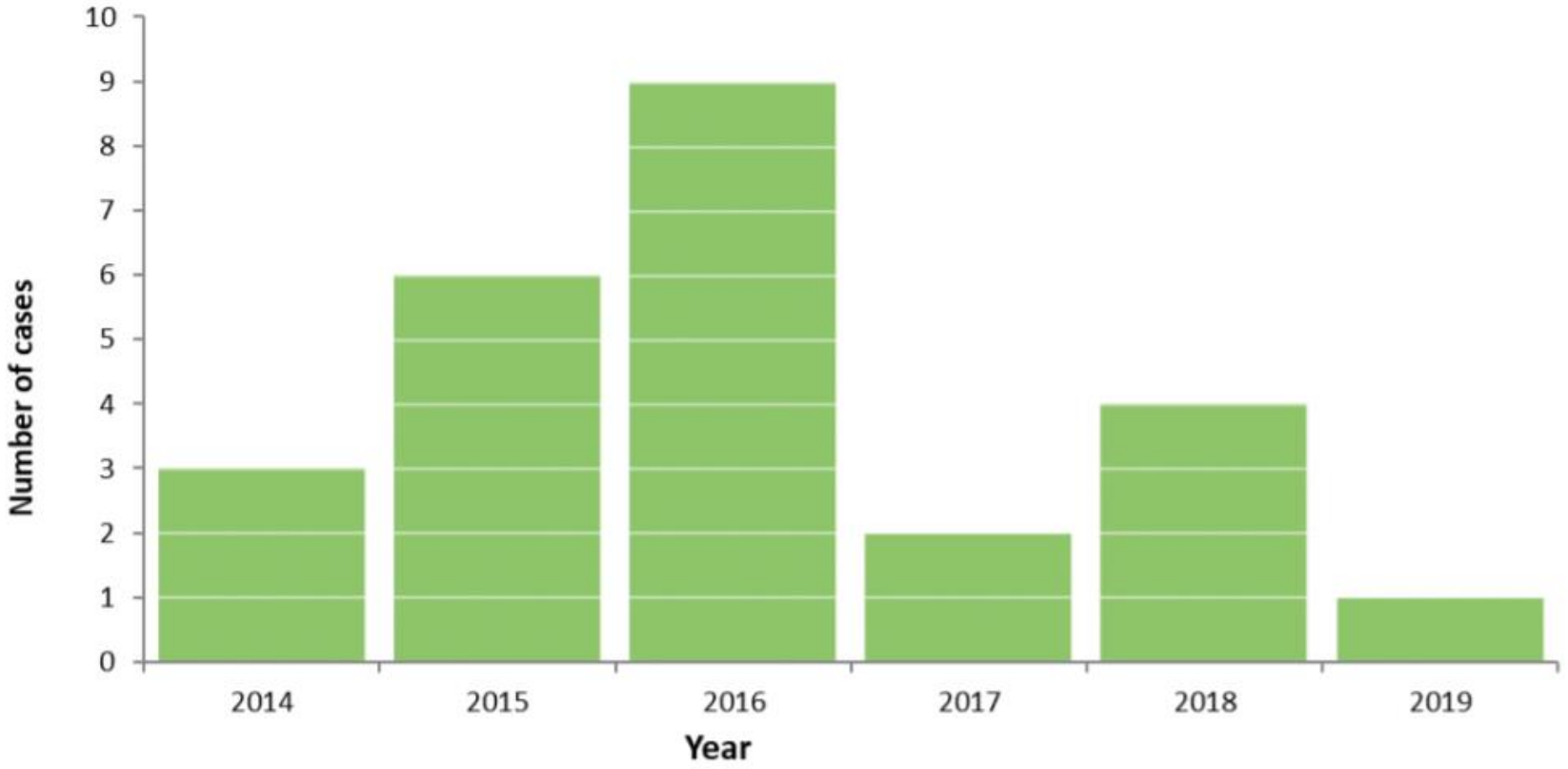
ΜΕΤΑΔΟΣΗ ΣΕ ΑΝΘΡΩΠΟΥΣ = στενή επαφή

Μετάδοση στον άνθρωπο = Στενή επαφή

ΠΡΟΣΟΧΗ ΣΤΑ ΠΑΙΔΙΑ !!!

Avian influenza H5N6 2014-19

n= 25, 15 deaths

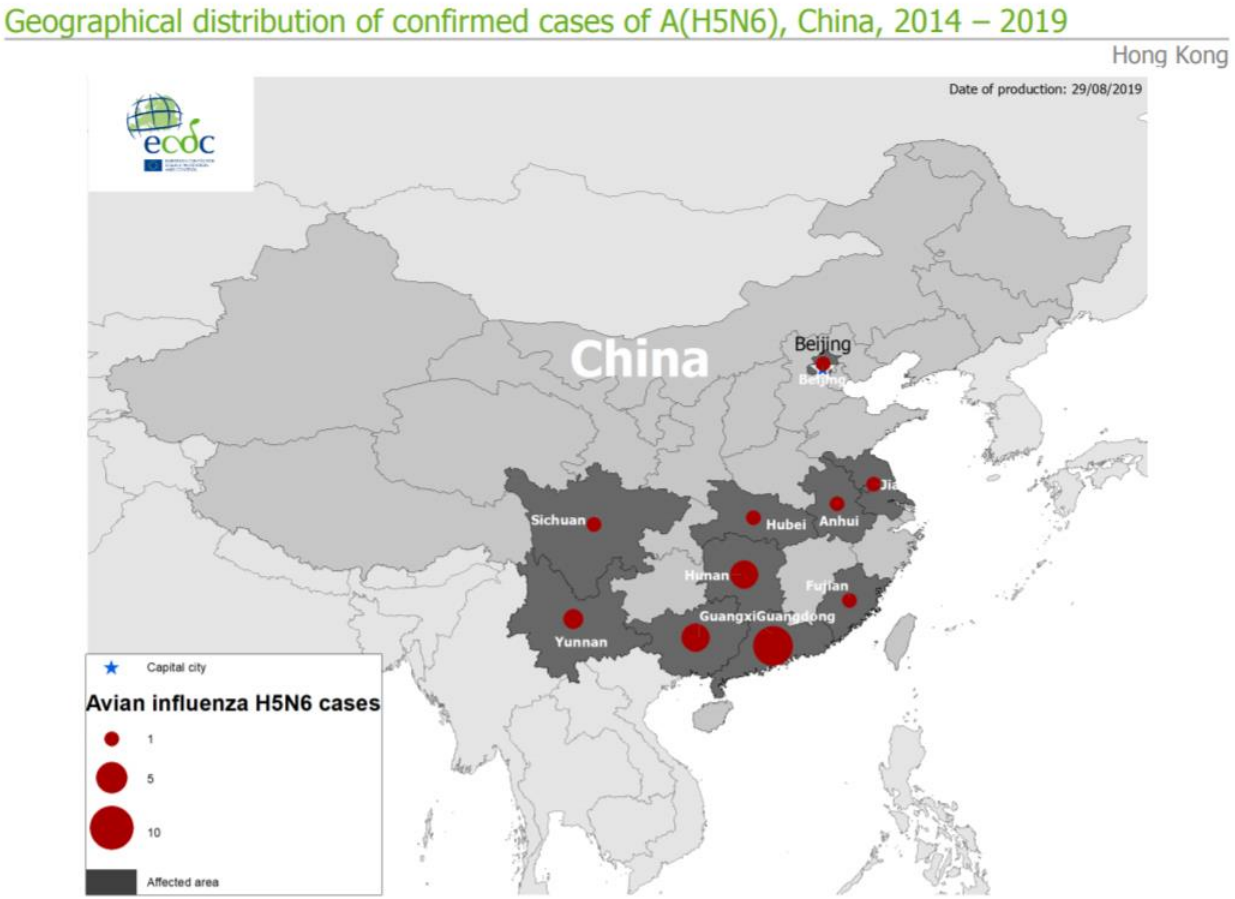


*If the date of onset is not available the date of reporting has been used

** the epicurve includes one case reported in the literature with year of onset in 2015

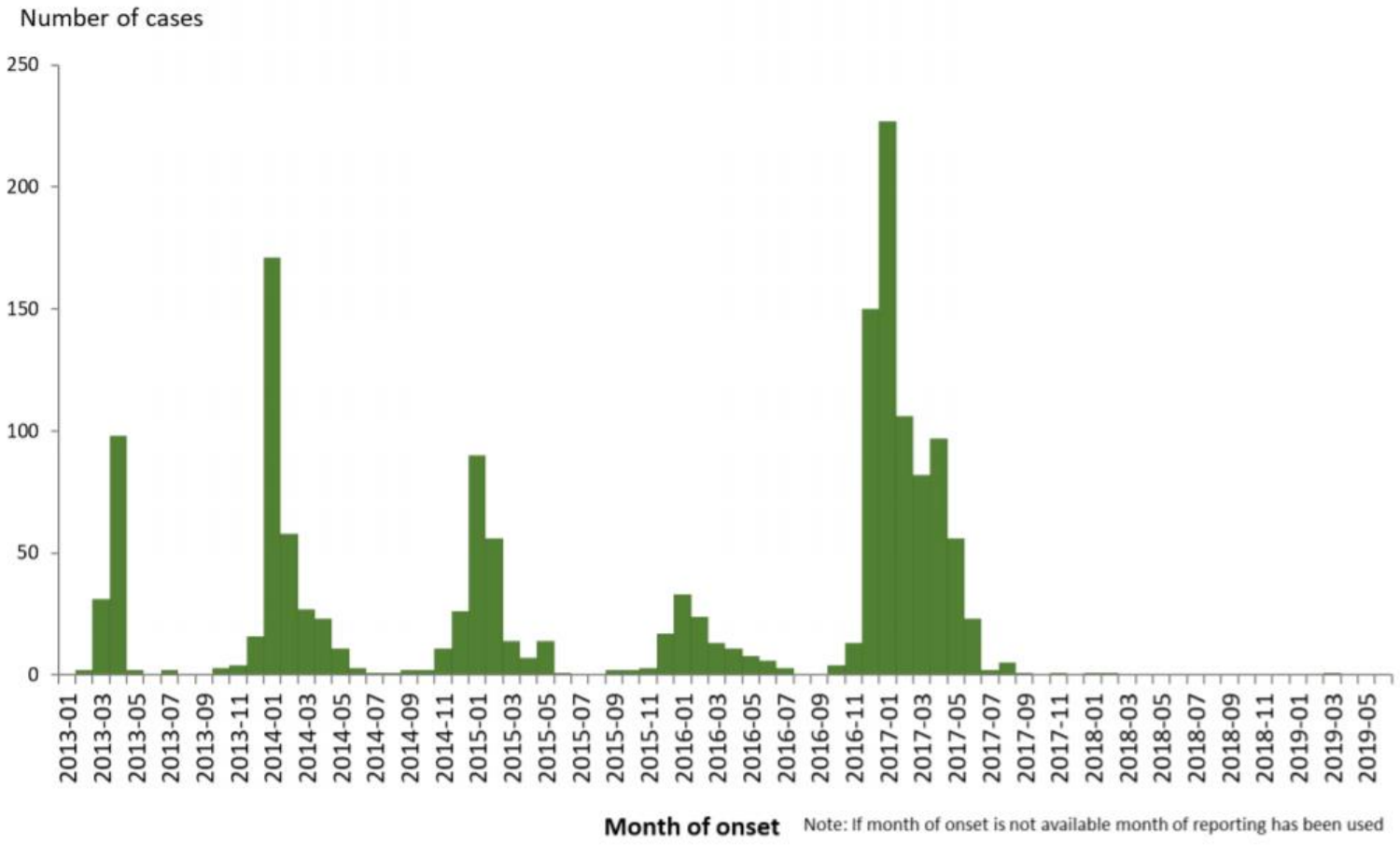
Avian influenza H5N6 2014-19

n= 25, 15 deaths



Avian influenza H7N9 2013-19

n= 1568, 615 deaths

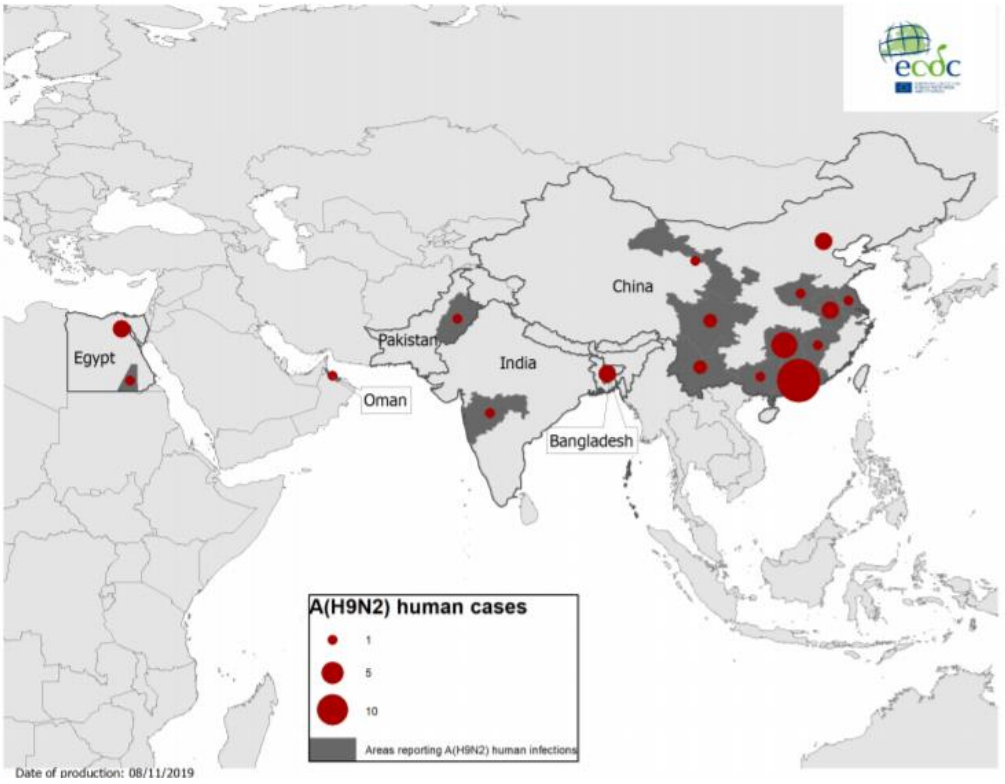


Avian influenza H9N2, 1998-19

n= 57, 1 deaths

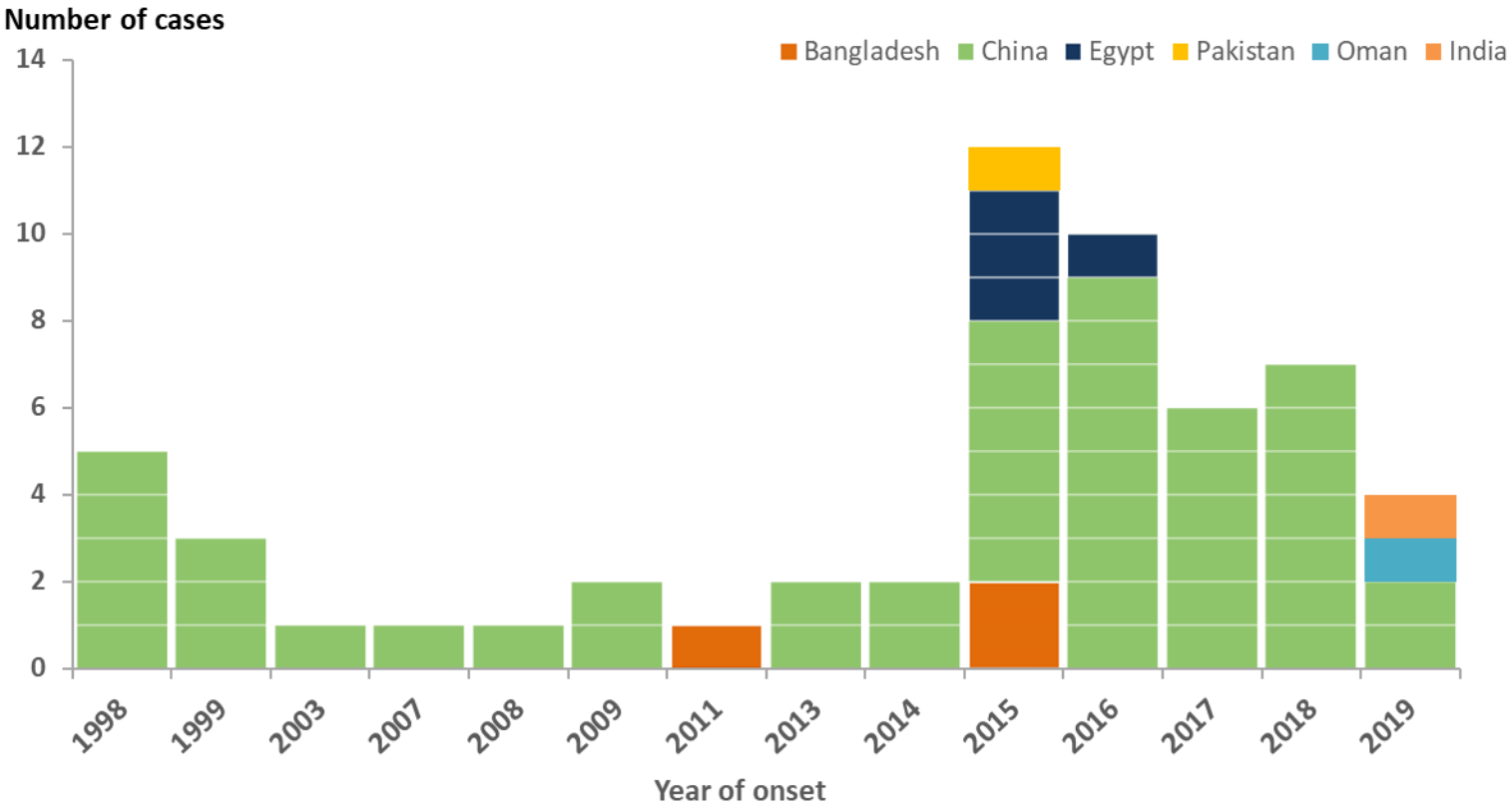
Geographical distribution of confirmed human cases of A(H9N2), 1998 - 8 November 2019

Source: ECDC



Avian influenza H9N2, 1998-19

n= 57, 1 deaths



Avian influenza 2019

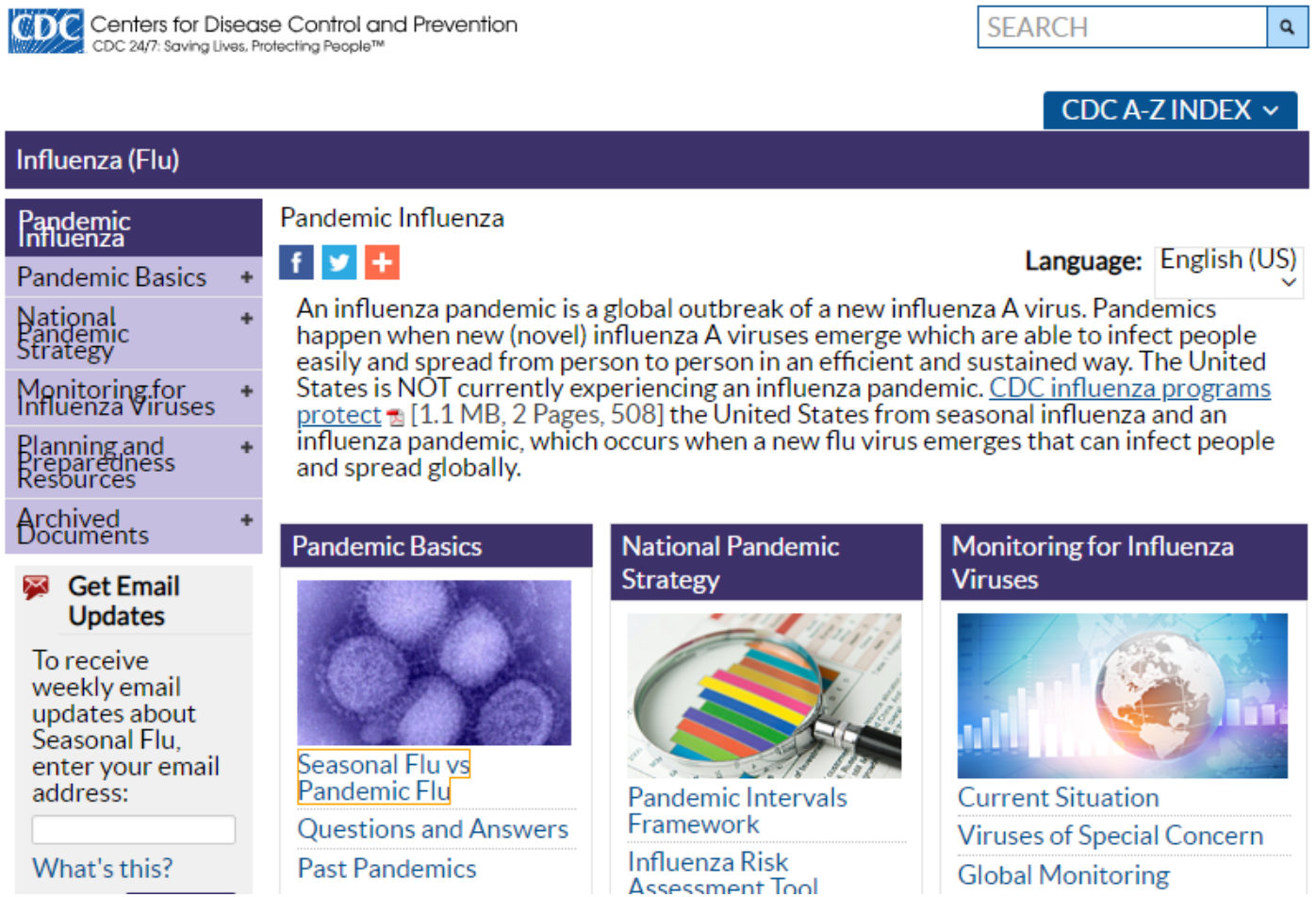
ECDC assessment

- Risk of zoonotic Tx to general public
  - very low
- Risk of travel related importation from Asia
  - Very low
- Surveillance of AI is important

Travelers and China

Table 3. Distribution of international air travellers from EU/EEA countries to and from China, by month, October 2011 to December 2015

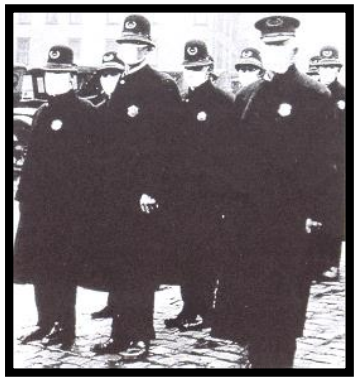
Pandemic influenza – 100 yrs after



Πανδημίες γρίπης
Μαθήματα από το παρελθόν

- 10 πανδημίες τα τελευταία 300 έτη

Pandemics 20th Century



1918: “Spanish”

50-100 mil. deaths

1957: “Asian”

1 mil. deaths

1968: “Hong Kong”

1 mil. deaths

H1N1

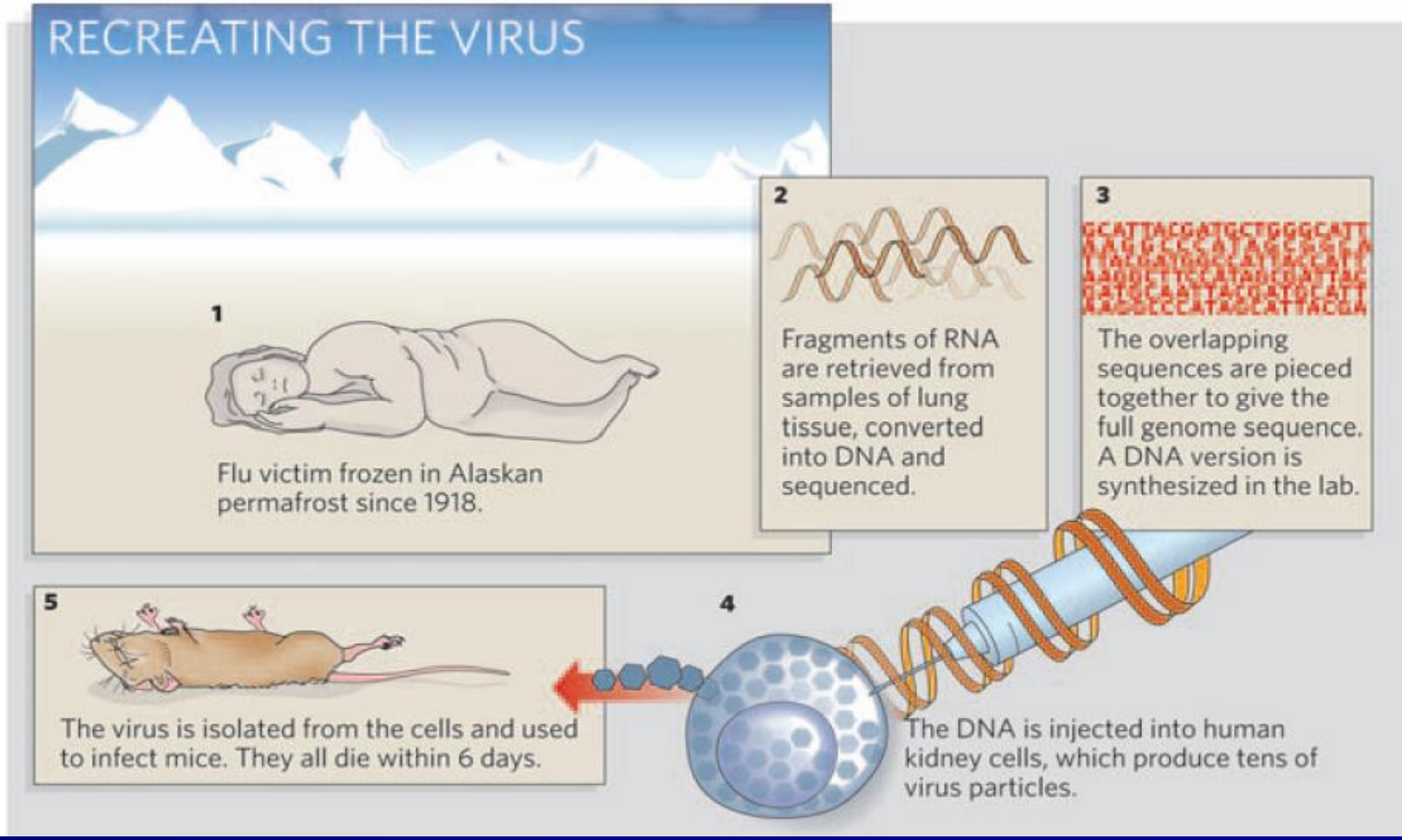
H2N2

H3N2

H1N1

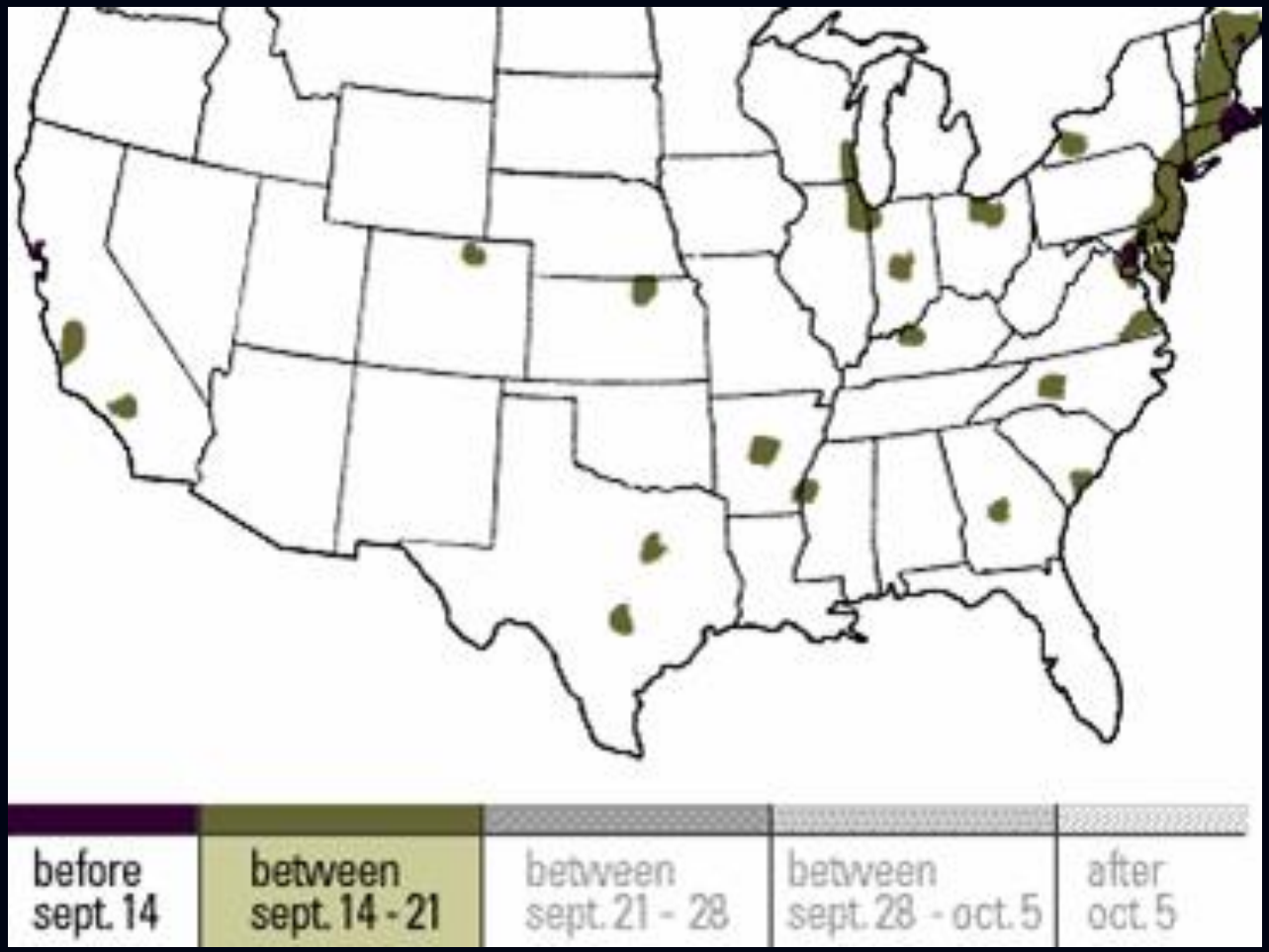
1920 1940 1960 1980 2000

1918 Influenza

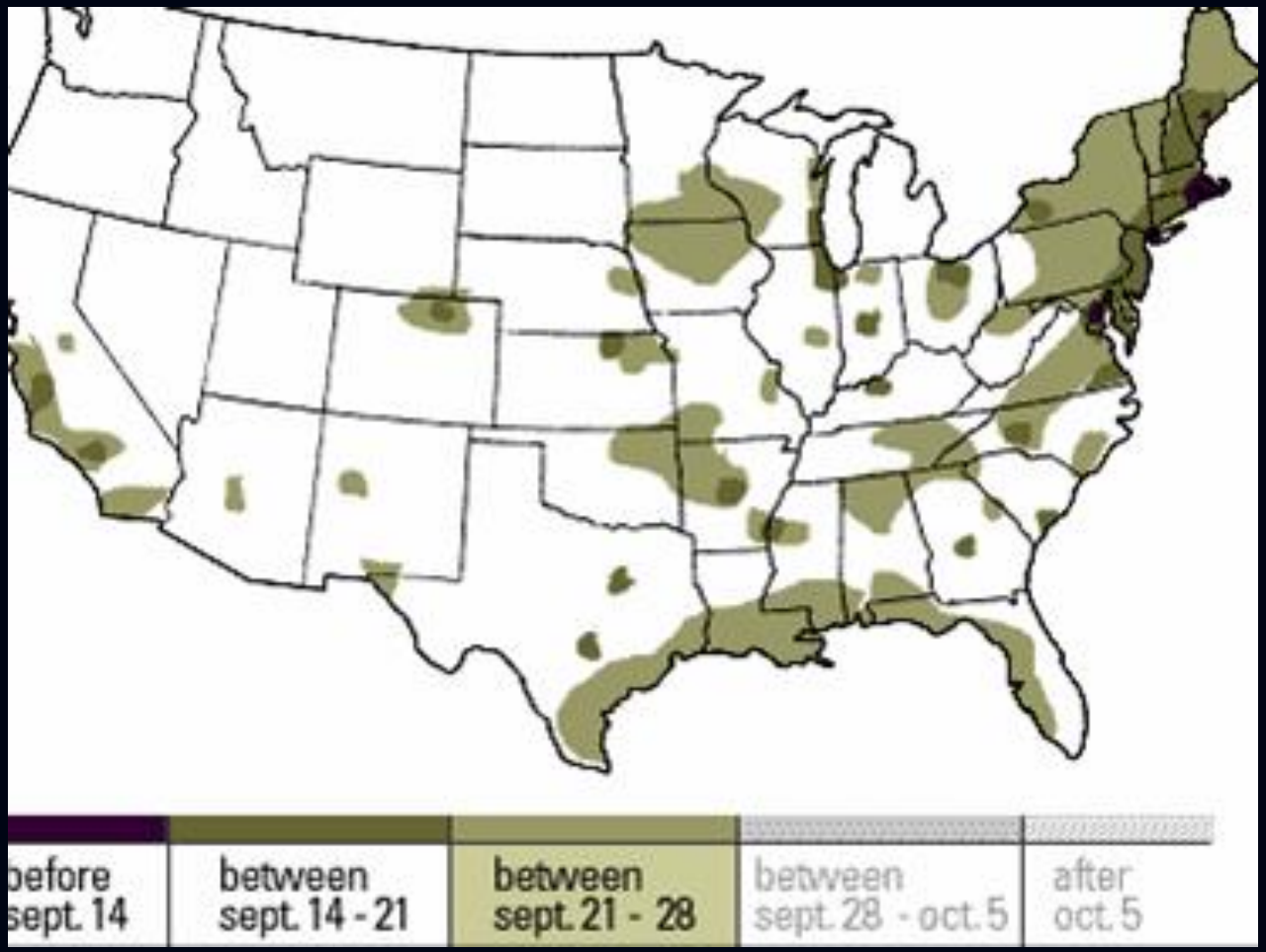


Taubenberger et al, Nature, 2005, Tumpey et al Science 2005

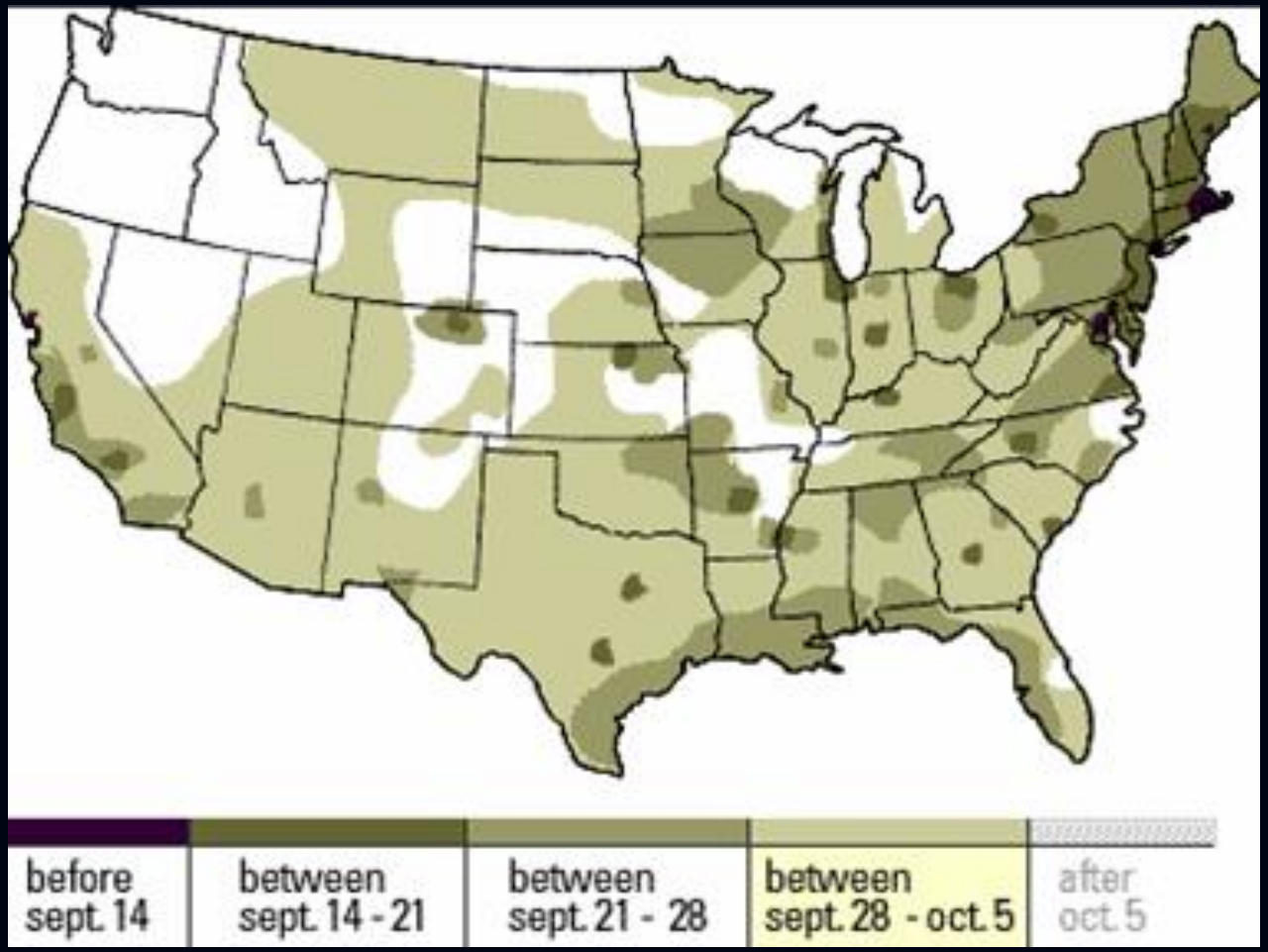
The 1918 Flu Pandemic in the U.S.



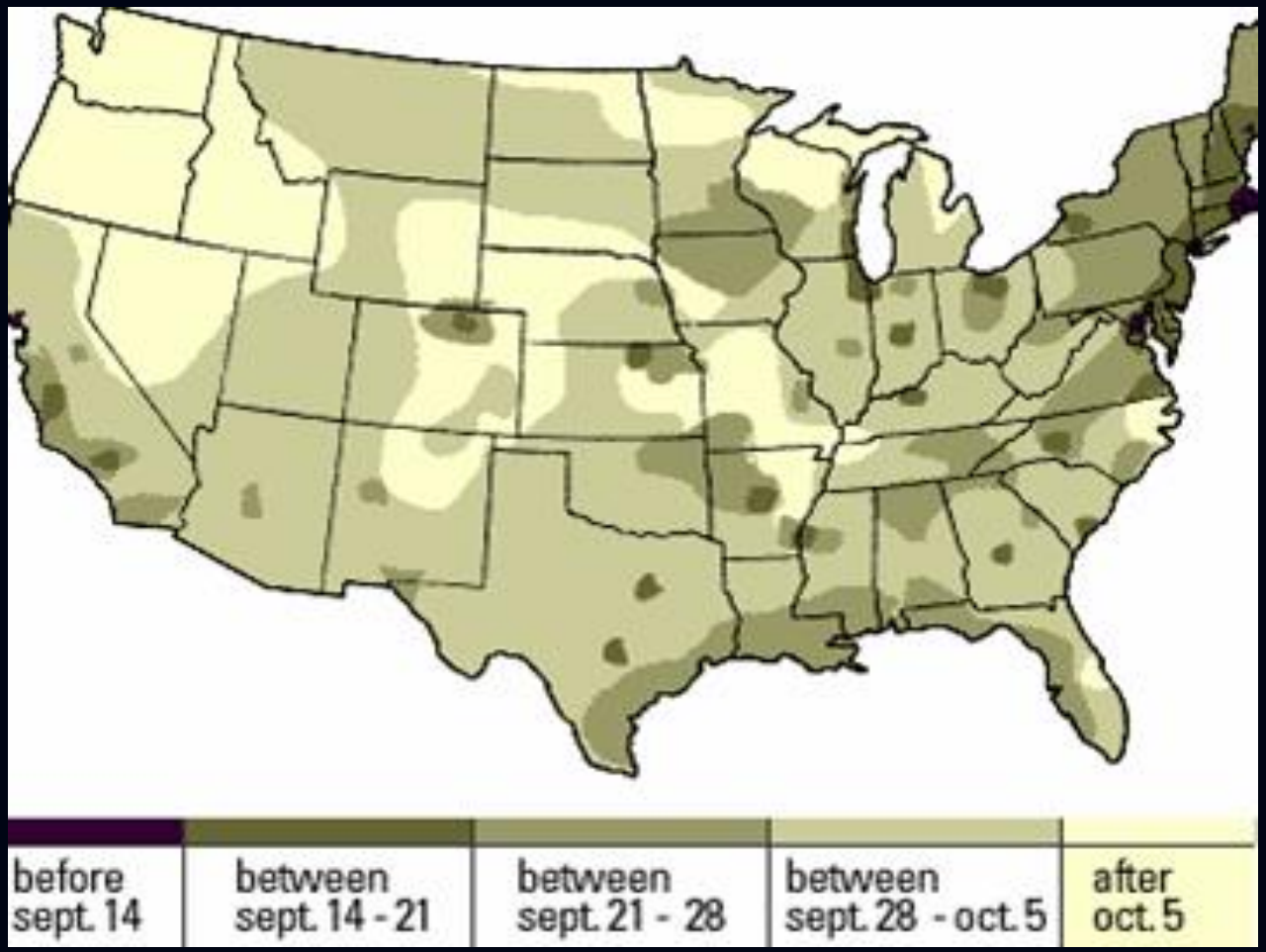
The 1918 Flu Pandemic in the U.S.



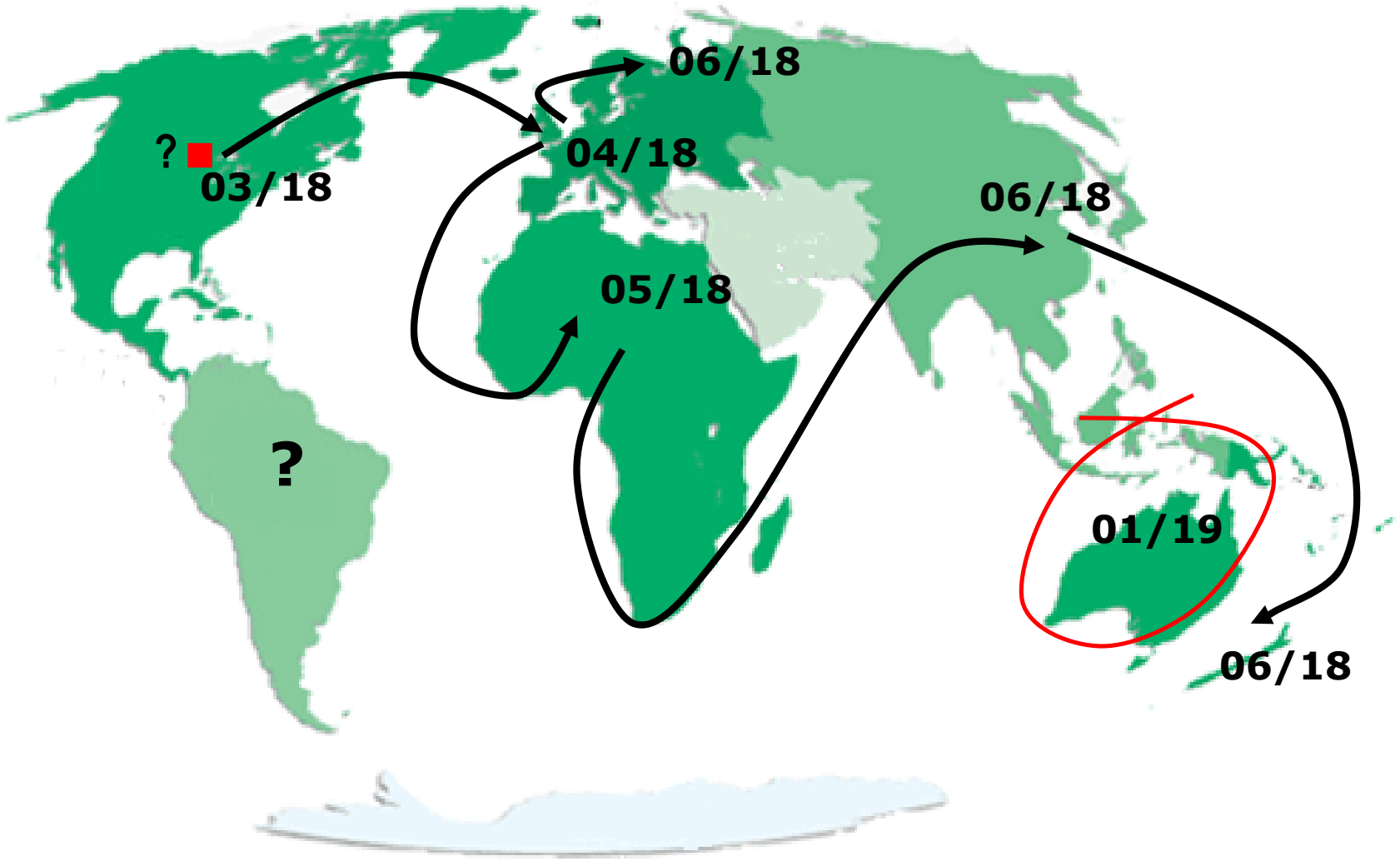
The 1918 Flu Pandemic in the U.S.



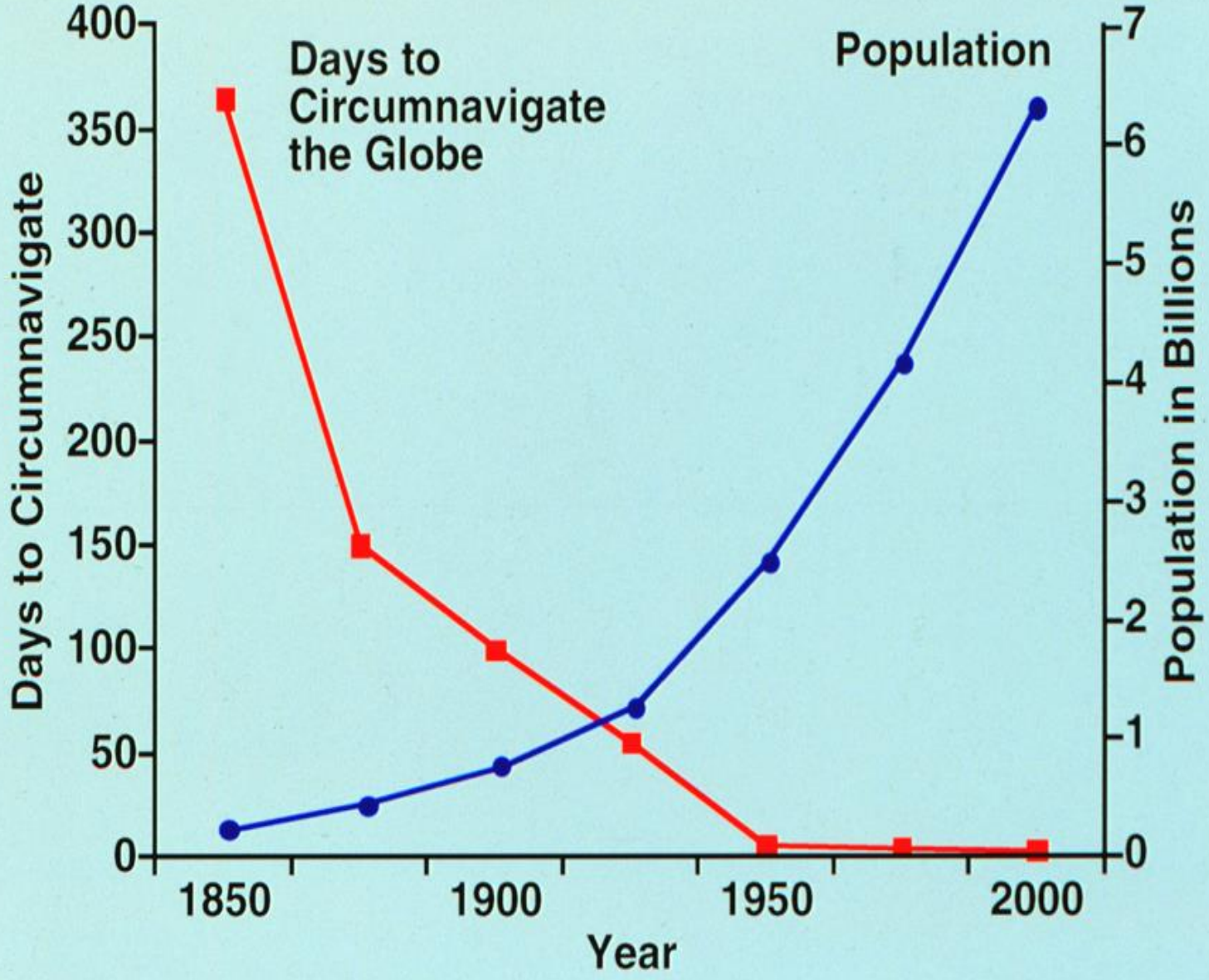
The 1918 Flu Pandemic in the U.S.



Geographic spread: 1918-19



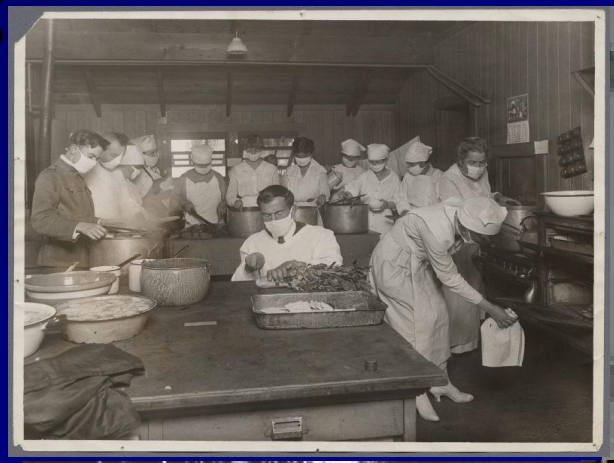
C.W. Potter, Textbook of Influenza, 1998

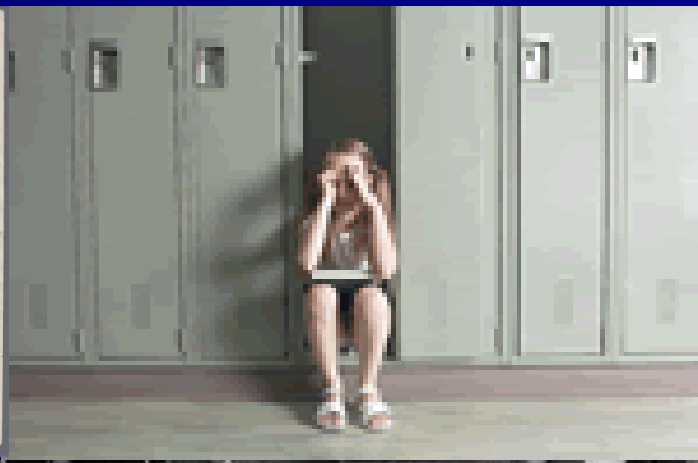

Days to Circumnavigate the Globe
Population
Days to Circumnavigate
Population in Billions
Year
400
350
300
250
200
150
100
50
0
7
6
5
4
3
2
1
0
1850
1900
1950
2000

Believe it or not,
flu could hit you even harder

ΠΑΝΔΗΜΙΑ - ΕΠΙΠΤΩΣΕΙΣ

- Κοινωνικές
- Οικονομικές
- Πολιτικές





Pandemic influenza – 100 yrs after

World Health Organization

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Influenza

Pandemic Influenza: an Evolving Challenge

2018 marks the 100th anniversary of one of the largest public health crises in modern history, the 1918 influenza pandemic known colloquially as "Spanish flu." The intensity and speed with which it struck were almost unimaginable – infecting one-third of the earth's population, which at the time was about 500 million people. By the time it subsided in 1920, tens of millions people are thought to have died.

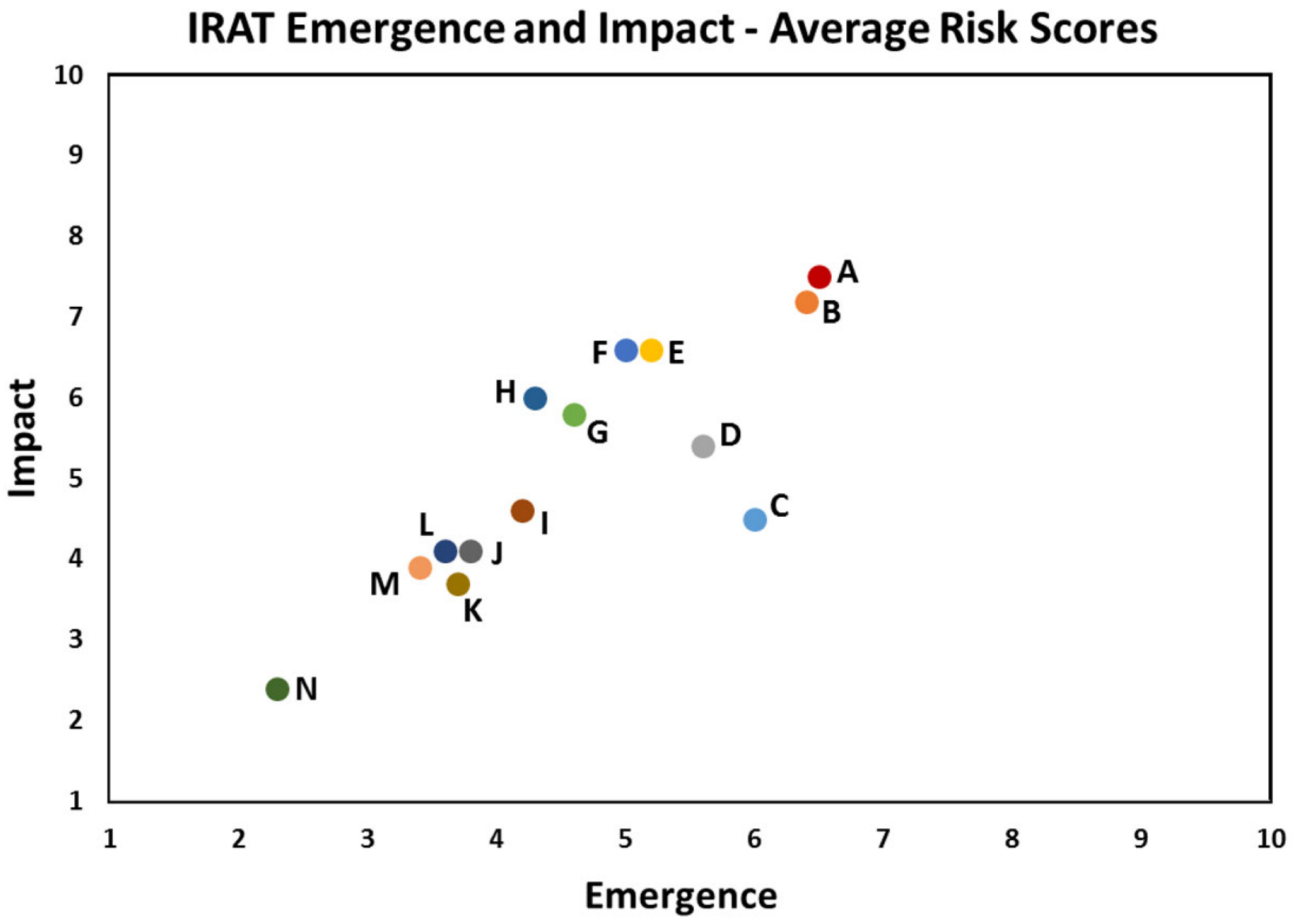
Although influenza has been with humankind for millenia, the global spread and impact is in many respects a function accelerated in modern times. Urbanization, mass migration, global transport and trade accelerate the spread of pandemics.

Pandemic influenza – IRAT

Pandemic influenza – IRAT

	Virus	Emergence Score	Impact Score
A	H7N9 [A/Hong Kong/125/2017]	6.5	7.5
B	H7N9 [A/Shanghai/02/2013]	6.4	7.2
C	H3N2 variant [A/Indiana/08/2011]	6.0	4.5
D	H9N2 G1 lineage [A/Bangladesh/0994/2011]	5.6	5.4
E	H5N1 Clade 1 [A/Vietnam/1203/2004]	5.2	6.6
F	H5N6 [A/Yunnan/14564/2015] – like	5.0	6.6
G	H7N7 [A/Netherlands/2019/2003]	4.6	5.8
H	H10N8 [A/Jiangxi-Donghu/346/2013]	4.3	6.0
I	H5N8 [A/gyrfalcon/Washington/41088/2014]	4.2	4.6
J	H5N2 [A/Northern pintail/Washington/40964/2014]	3.8	4.1
K	H3N2 [A/canine/Illinois/12191/2015]	3.7	3.7
L	H5N1 [A/American green-winged teal/Washington/1957050/2014]	3.6	4.1
M	H7N8 [A/turkey/Indiana/1573-2/2016]	3.4	3.9
N	H1N1 [A/duck/New York/1996]	2.3	2.4

Pandemic influenza – IRAT



Pandemic influenza – Preparedness

CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

A-Z Index

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Influenza (Flu)

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  - Global Planning
  - Federal Resources for Planning
  - CDC Pandemic Tools
  - State and Local Government Planning
- What CDC Does
- Archived Documents

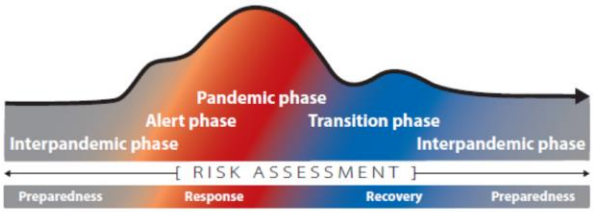
Global Planning

Español

Advance planning and preparedness are critical to help reduce the impact of a pandemic. The World Health Organization (WHO) guidance document "Pandemic Influenza Risk Management" outlines an "all-hazards" emergency risk management approach to pandemic influenza risk management. The guidance takes into account the lessons learned from the influenza A(H1N1) 2009 pandemic in order to create a pandemic influenza planning framework that would allow public health response efforts to be adapted for a more moderate event. WHO will use the global phases of a pandemic – Interpandemic, Alert, Pandemic, and Transition – to describe the spread of a novel influenza A virus. Different countries will face different pandemic phases at different times. The WHO guidance introduces a risk-based approach that would allow public health officials to develop flexible plans based on a national risk assessment while taking into consideration the WHO global risk assessment. To see how the WHO phases map to the CDC phases, see the table in the MMWR article "Updated Preparedness and Response Framework for Influenza Pandemics."

Figure 1 describes the overlap risk assessments and the continuum of the global pandemic phases.(508 Version).

Figure 1. The continuum of pandemic phases[a]



Pandemic influenza – Preparedness

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Influenza

- Influenza
- 70 years of influenza control
- Surveillance and monitoring
- GISRS and laboratory
- PIP Framework
- Vaccines
- Respiratory Syncytial Virus
- Avian and other zoonotic influenza
- Pandemic influenza preparedness
- Public Health Measures
- Patient care
- Information resources

Public health preparedness

WHO /Elena Longarini

The impact of pandemic influenza outbreaks on individuals and societies can be reduced by being well prepared. This means having a comprehensive plan, that has been tested and refined through conducting exercises, engaging the whole of society.

National plans should be flexible enough to respond to outbreaks of various intensity. Communication will be one of the most challenging tasks during an outbreak and it should be planned well in advance.

Pandemic Influenza Risk Management

Influenza pandemics are unpredictable but recurring events that can have consequences on human health and economic well-being worldwide. Advance planning and preparedness are critical to help mitigate the impact of a pandemic. This WHO guidance document, "Pandemic Influenza Risk Management" (PIRM), updates and replaces the "Pandemic Influenza Risk Management: WHO Interim Guidance" published in 2013.

Pandemic Influenza Risk Management - A WHO guidance (May 2017)

A checklist for pandemic influenza risk and impact management

This checklist is a tool to help national authorities to develop or update national pandemic influenza preparedness plans for managing the risk and impact of an influenza pandemic under the guiding principles of the 2017 WHO pandemic influenza preparedness framework - "Pandemic Influenza Risk Management". It updates and replaces the 2005 WHO checklist for influenza pandemic preparedness planning.

A checklist for pandemic influenza risk and impact management (Jan 2018)

Essential steps for developing or updating a national pandemic influenza preparedness plan

This document focuses on the processes of national pandemic influenza preparedness planning. The aim is to ensure that, when

About influenza

Infographic on seasonal influenza

Fact sheet on seasonal influenza

Fact sheet on avian influenza

Fact sheet: Global Influenza Surveillance and Response System (GISRS)

Influenza virus infections in humans (update October 2018)
pdf, 239kb
Differences among seasonal, pandemic, and zoonotic or variant influenza

Questions and Answers

Q&A: Seasonal influenza

Recommended composition of influenza virus vaccines (27 September 2019)
pdf, 250kb

Disease outbreak news on influenza

Latest disease outbreak news

Archive of avian influenza disease outbreak news

Pandemic influenza

Predictably unpredictable

WHO/SEARO/J.Perugia

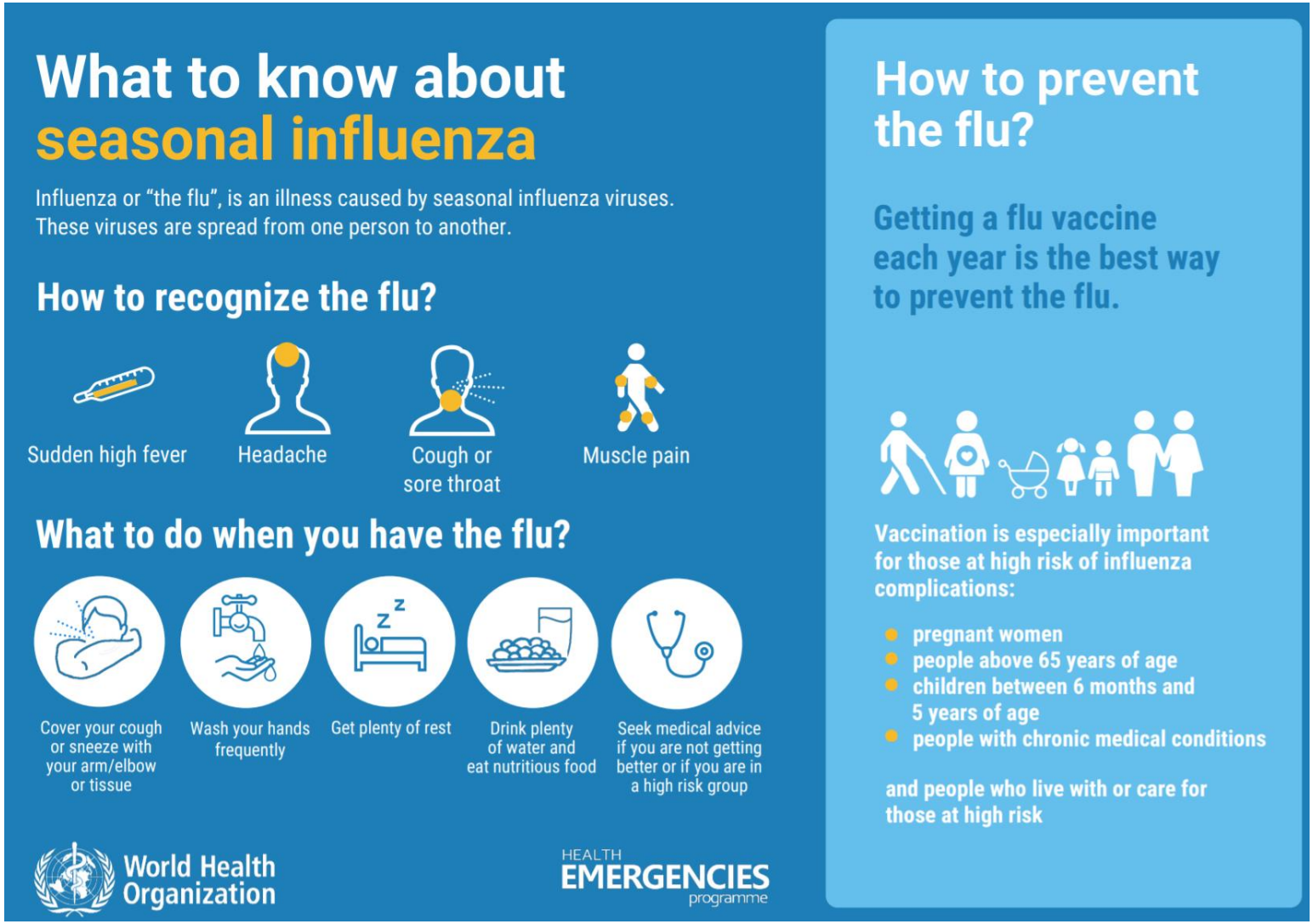
Predictably unpredictable

Influenza

Συνεχώς αναδυόμενη νόσος που «ρολάρει»

Seasonal & Pandemic influenza

preparedness is similar



Ο ετήσιος εμβολιασμός κατά της γρίπης είναι ο καλύτερος τρόπος προφύλαξης από τη νόσο

ΕΡΩΤΗΣΕΙΣ ;