

INFLUENZA SURVEILLANCE DURING A PANDEMIC

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A Working Group set up



- WG set up by ECDC in 2006
- First meeting WG, 15-17 January 2006
- Uppsala Workshop, May 2006
- Second meeting WG, 3-4 May 2007

Background considerations



- Requirements of surveillance during a pandemic will be greater than during a normal influenza season
- Expectations will run ahead of what can be delivered
- Many conventional influenza surveillance systems will be compromised

First WG meeting, January 2006



- Set of surveillance objectives and needs during an influenza pandemic
- Objectives proposed for the different WHO pandemic phases and EU alert levels
- Revision of which surveillance systems can cover each objective
- Some areas for further development were identified
- First draft paper

Second WG meeting, May 2007



Focus on what?

- Phase 6
- What surveillance activities and outputs should be expected of all EU and EEA countries
- What can be done by a few countries or at an EU level

Second draft paper

- Resource for EU countries and ECDC to identify surveillance activities for a pandemic and to guide the planning
- To seek agreement on technical developments and data sharing

Surveillance objectives in phase 6



1	Early detection of pandemic influenza virus activity in European countries
2	Collection of virus isolates
3	Collation of key clinical and epidemiological data on the impact of the pandemic virus
4	Provision of data for forecasting future levels of activity using real time modelling
5	Evaluation of effectiveness and safety of interventions

1. Early detection of pandemic influenza virus activity in European countries



- Year-round surveillance
- Surveillance of outbreaks
- Rapid expert viral testing (CNRL and NICs)

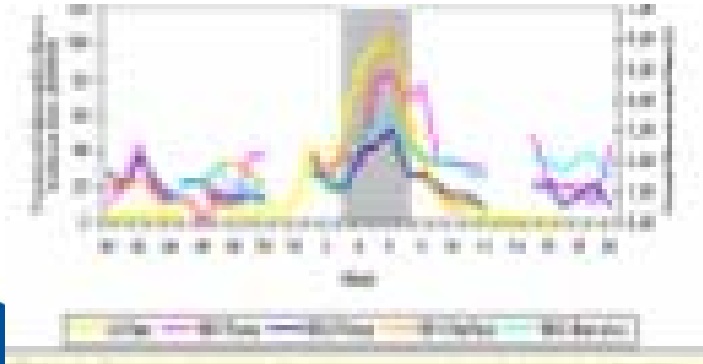
Year-round surveillance, inter-season Electronic Bulletin



European Influenza Surveillance Scheme

- Published since week 23/2006 (N=18)
- Published every two weeks
- Only **VIROLOGICAL** data is included in the Bulletin
- Reporting completeness needs to be improved (e.g. only 12 (41%) countries reported 5 or more weeks of data in 2006)

Outbreak surveillance



European Commission
Directorate-General for Health and Consumers

AN EVALUATION OF SCHOOL ABSENTEEISM IN THE NORTHERN REGION OF FRANCE: A PILOT STUDY

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INTRODUCTION

Influence is a key factor of public health, based on the epidemiological and the social setting of health care systems. Consequently, influenza is a key report and source of morbidity and mortality. During the past decade, influenza activity has been a significant driver of morbidity and mortality of school children, of the general population and of the pig population. A fact which is only the tip of the influenza virus' iceberg is its ability to trigger the emergence of novel influenza A viruses which get transmitted via swine to the domestic sector of influenza in the human chain, making zoonotic the transmission of a human and pig virus possible. Influenza is the leading respiratory tract infection in France. This study was set in the Northern region, the Paris Basin. The pilot study of the Northern Region of France will be conducted in the following way:

- Create a national absenteeism monitoring system in the Northern region (5/12 year old of adults (and Middle School) > 75 years old, outside of the Northern region).
- Compare the rates of absenteeism with the incidence of the seasonal influenza, in order to evaluate the influenza virus' impact in the Northern region.

MATERIAL AND METHODS

Three schools were selected from each district of the Northern region of France to be the pilot study. The study was conducted in the Northern region of France (FR) and used Middle School of (FR22). Weekly data is recorded by the schools.

Total number of school children was noted in the Northern region (5/12 year old of adults) in the beginning of each school year (1st week).

Total number of school children was noted in the Northern region in the beginning of each school year (1st week).

The rates of weekly rates of absenteeism were noted in the Northern region (5/12 year old of adults) in the beginning of each school year (1st week).

Influenza virus activity was noted in the Northern region (5/12 year old of adults) in the beginning of each school year (1st week).

Furthermore, influenza virus activity was noted in the Northern region (5/12 year old of adults) in the beginning of each school year (1st week).

Figure 1: Evolution of the influenza virus activity in the Northern region of France from 1997 to 2007.

RESULTS

Table 1: Evolution of school absenteeism rates in the Northern region of France from 1997 to 2007.

Year	Evolution of school absenteeism rates in the Northern region of France from 1997 to 2007	Evolution of school absenteeism rates in the Northern region of France from 1997 to 2007
1997		
1998		
1999		
2000		
2001		
2002		
2003		
2004		
2005		
2006		
2007		

Only four schools presented a significant ($p < 0.05$) and a strong positive linear association (Pearson Coefficient > 0.700) between the weekly rate of school absenteeism and the provisional influenza like illness rate.

Figure 2: Evolution of school absenteeism rates in the Northern region of France from 1997 to 2007.

CONCLUSIONS

The study was a pilot study of the Northern region of France, and it is the first study of its kind. It is the first study of its kind, and it is the first study of its kind. It is the first study of its kind, and it is the first study of its kind. It is the first study of its kind, and it is the first study of its kind.

BIBLIOGRAPHY

1. WHO. The World Health Organization. Geneva, 2002.
2. WHO. The World Health Organization. Geneva, 2003.
3. WHO. The World Health Organization. Geneva, 2004.
4. WHO. The World Health Organization. Geneva, 2005.
5. WHO. The World Health Organization. Geneva, 2006.
6. WHO. The World Health Organization. Geneva, 2007.

ACKNOWLEDGMENTS

The authors would like to thank the following people for their contribution to the project:

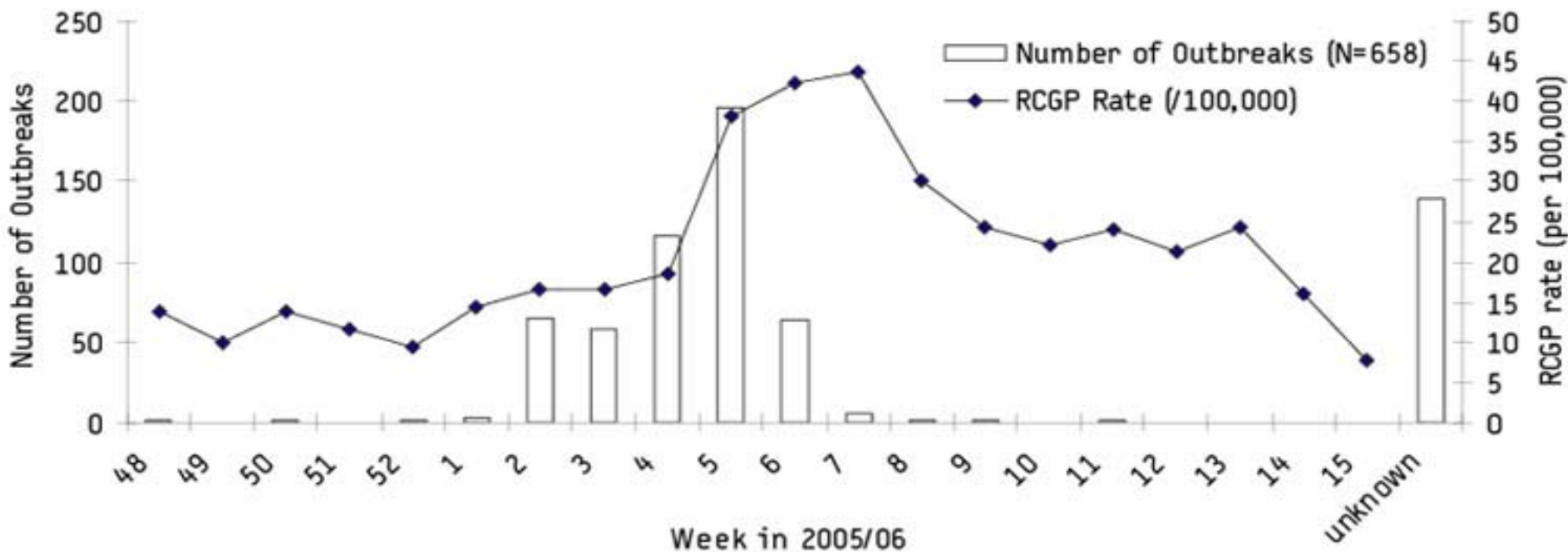
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FIGURE 2A

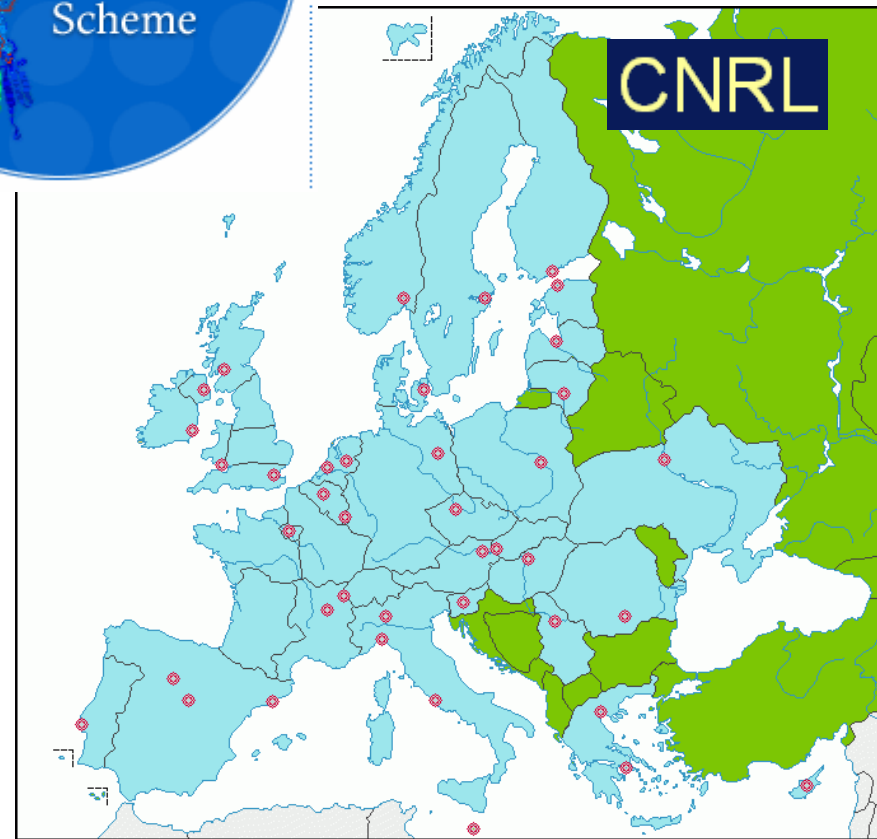
Comparison of RCGP* rate with distribution of outbreaks in England and Wales influenza season 2005/06



Zhao H, Joseph C, Phin N, . Outbreaks of influenza and influenza-like illness in schools in England and Wales, 2005/06. *Euro Surveill* 2007;12(5)[Epub ahead of print]. Available online: <http://www.eurosurveillance.org/em/v12n05/1205-222.asp>

2. Collection of virus isolates

- Development/refinement of diagnostics
- Genotypic characterisation and assessment of evolution
- Vaccine development
- Antiviral susceptibility



3. Collation of key clinical and epidemiological data on the impact of the pandemic virus



- Assess clinical severity
- Case fatality and health care needs
- Assess epidemiological parameters of transmission including R_0 and age distribution
- Assess occurrence of complications including bacterial super-infection and antibiotic resistance

Investigation of first few hundred cases, UK approach



Patient Details	UK Travel Exposure	Overseas Exposure
Animal Exposure	Occupational Exposure	Human Exposure
Case Number: 1	Save	Cancel

Case Owner: Yorkshire (South) [EUELC\AVL433]



Cfl Lab Number	Confirmatory Test	Date of Test	Confirmatory Results	Comments

Report by: Country	For PCT report: PCTs in SHA	Limit records to: Country
Time modality: Date of onset		Region
Period: September 2006 to: December 2006		SHA/Health Board
		PCT
		Sex: Male
		Age band: 45 to 64
		Diagnostic status: Confirmed: clinical case
		Clinical status
Submit	Export to Excel	

4. Provision of data for nowcasting and forecasting using real time modelling



- Provide information on near future levels of activity, estimates on persons
 - Infected with the pandemic strain
 - Requiring care (hospitalisation, antivirals)
 - Dying

- Adjusting for
 - Assumptions about the behaviour of the new pandemic strain
 - Available surveillance and monitoring data

5. Evaluation of effectiveness and safety of interventions



- Antivirals
- Vaccines (pre-pandemic and pandemic specific)
- Public health and social distancing measures

Suggested Developments (Draft work plan 2008)



- Work under the Group to continue
- Agreement on core data to be gathered from first cases and how to do it
- Agreement on share protocols and outputs, through ECDC
- Mechanism for monitoring vaccine effectiveness (ECDC call for tender)
- Protocols for determining and monitoring antiviral effectiveness (ECDC call for tender)
- Project on the interface between real time modelling and surveillance
- List of minimum requirements for laboratory (WHO) and clinical surveillance for all MS
- More work with WHO, CDC and other partners

WG participants



Member States and countries experts

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Gudrun Landlaeknir (Island)
Amparo Larrauri (Spain)
Anne Mazic (Denmark)
Joan O'Donnell (Ireland)
Darina O'Flanagan (Ireland)
Olga Sadikova (Estonia)
Maria José Sierra Moros (Spain)
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Thedi Ziegler (Finland)

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Thank you!

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