Seasonal and pandemic patterns of Influenza in Portugal

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on behalf of the Laboratory Network for Diagnosis of Influenza A(H1N1)2009 infection.

Background
The National Influenza Reference Laboratory has been collecting data on influenza activity in Portugal since 1927 through the National Influenza Surveillance Programme, including information on clinical and virological characteristics of the disease, allowing the estimation of weekly incidence rates for influenza-like illness. This information has not only been used by the National Health Authorities for the management of the disease, in its several aspects, but has also been contributing to the study of influenza by the World Health Organisation. Particularly during the past decade, the world had been preparing for a long awaited influenza pandemic, which characterised could not be forgotten but was feared to have potentially devastating consequences. In April 2009 a new strain of Influenza A(H1N1) virus of swine origin disseminated throughout the world, resulting in the first pandemic of the XXI century. To face this increasing number of cases being reported, a Network of Laboratories dedicated to the diagnosis of the new Influenza A(H1N1) pandemic virus was activated in our country. Data on Influenza collected over the past two influenza seasons, through the National Influenza Surveillance Programme and the Laboratory Network for Diagnosis of Influenza A(H1N1)2009 infection, is presented and compared. 

Materials and Methods

Components of the Influenza Surveillance System
The Influenza surveillance system in Portugal is fed by two independent notification structures: the National Influenza Surveillance Programme and the Laboratory Network for Diagnosis of Influenza A(H1N1)2009 infection:

1. The National Influenza Surveillance Programme: it represents the Sentinel Medical Practitioners and the Network of Emergency Rooms. Combined, they offer the estimation of morbidity associated with the disease through the weekly dissemination of Influenza-like Illnesses (ILI) cases in Portugal, which is closely monitored on the population and determines to identify and characterize the Influenza virus circulating and quantify their presence in the population during the period of Influenza activity, with the Information generated, to contribute to the improvement of the health services on prevention measures and therapeutic guidelines.

2. The Laboratory Network for Diagnosis of Influenza A(H1N1)2009: this network is currently composed of 65314 ILI cases reported through the National Influenza Surveillance Programme. Seasonal Influenza viruses were detected at the Laboratory Network for Diagnosis of Influenza A(H1N1)2009 infection during the 2008/2009 winter season was characterised by a high influenza activity. The epidemic period lasted for 8 consecutive weeks, from week 46/2008 to week 53/2009, with a maximum of 136.4 cases per 100 000 inhabitants in week 49/2008 (Fig 1). In the 2009/2010 season, the ILI incidence rates were mainly reported through this Network in the first 2 weeks of the epidemic period (Fig 2). The percentage of influenza-positive cases was higher during the 2008/2009 season for all the age groups considered (Fig 3). However, in terms of mortality per age group, both seasons follow the same dynamics (Fig 4).

Influenza – Results of the National Influenza Surveillance Programme

The presence of influenza virus was determined in 411 (55%) of 747 ILI cases analysed during 2008/2009 (Fig 5, the majority of which of the A(H1N1) subtype (61%); A(H3N2) and B influenza viruses circulating in Portugal during the 2008/2009 season were replaced by the new Influenza A(H1N1)2009 virus during the 2009/2010 season (Fig 6). For further details on signs/symptoms reported and antigenic and genetic characterisation of isolates based on the haemagglutinin and on the neuraminidase, please visit posters nos. P-119, P-120, P-121, respectively.

Influenza - Results of the Laboratory Network for Diagnosis of Influenza A(H1N1)2009

Information collected through this Network showed identical results to those obtained from the National Influenza Surveillance Programme. Seasonal Influenza viruses were detected at the beginning of the season, being replaced by the new Influenza A(H1N1)2009 pandemic virus. A high positive outcome of the integration of this data onto the surveillance system was that it was possible to identify influenza virus subtype A(H1N1) and A(H3N2) circulating, which were not detected (Fig 7).

Comments
Facing the circulation of a new virus and the threat that this could impose to the population and to the health care system, the total number of ILI cases reported and analysed in our country during the 2008/2009 winter located in numbers not seen in previous influenza epidemics. It is a fact that the 2008/2009 winter season was characterised by a high ILI incidence, the World Health Organization declared a pandemic (A/H1N1/2009) resulted in the need for an adequate response from all the health system, in which the global dissemination of the new virus subtypes occurred. ILI cases were reported in parallel by the two networks.

1 Provisory ILI incidence rate / 100 000 inhabitants


Table II. No. of ILI cases collected and analysed during 2008/2009 and 2009/2010

Fig 1. Provisory weekly incidence rates for ILI calculated from the data collected by the Sentinel Medical Practitioners.

Fig 2. Distribution of influenza-positive ILI cases per age group.

Fig 3. Provisory weekly incidence rates for ILI calculated from the data collected by the Laboratory Network Practitioners.

Fig 4. Virological results reported through the NISP Network:

Fig 5. Number of ILI cases reported through the NISP Network during 2008/2009 and 2009/2010

Fig 6. Distribution of Influenza-positive ILI cases per age group.

Fig 7. Virological results reported through the Laboratory Network:

Fig 8. Provisory incidence rates for ILI.

Fig 9. Provisory incidence rates for ILI.

Fig 10. Provisory incidence rates for ILI.