

CHARACTERISATION OF RESPIRATORY DISEASE DURING THE 2010/2011 INFLUENZA WINTER SEASON IN PORTUGAL: CONTRIBUTE OF THE LABORATORY NETWORK FOR THE DIAGNOSIS OF INFLUENZA A(H1N1)2009 INFECTION



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Objectives:

During the 2009/10 influenza pandemic, a network of 13 laboratories located in mainland Portugal, Madeira and Açores was activated for the diagnosis of the new influenza A(H1N1)2009 pandemic strain (Despacho do Ministério da Saúde nº 16548/2009). During 2010/11 the network also started to implement methodologies for the detection of other respiratory pathogens, thus contributing to the laboratory diagnosis of respiratory disease in Portugal. This data is published weekly in the influenza virological surveillance bulletin (http://www.insa.pt/sites/INSA/Portugues/Documents/Grip_e2.pdf). This study describes the results obtained during this period.

Methods:

From the 13 laboratories, 9 reported cases of respiratory disease during the 2010/11 winter. These laboratories are not only capable of performing influenza A(H1)2009 diagnosis but also implemented methodologies for the detection of influenza B viruses (6 laboratories), influenza A (H1 and H3) seasonal viruses (4 laboratories), and other infectious agents associated with respiratory disease: adenovirus, coronavirus, rhinovirus, respiratory syncytial virus, metapneumovirus, parainfluenza virus, *H. influenzae* and *S. pneumoniae* (3 laboratories).

Conclusions:

Portuguese National Health Authorities are planning to develop and implement an integrated surveillance system for Severe Acute Respiratory Infection in the near future, where the Portuguese network is expected to play a major role. Continuous laboratory participation and further advances in its diagnostic capabilities are essential to improve the surveillance of respiratory infection in Portugal.

Results:

Influenza A(H1N1)2009

The 9 laboratories reported a total of 1512 respiratory disease cases, from week 46/2010 to week 16/2011 (peak of 236 cases (15.6%) during week 3/2011), the majority of which (42.5%) were adults between 15-44 years (Figure 1). Influenza A(H1N1)2009 was tested in 1496 cases, 38.2% of which were positive (Figure 2).

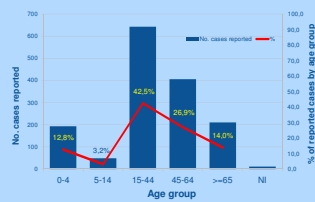


Figure 1 – Number and percentage of cases reported by age group. NI – no information.

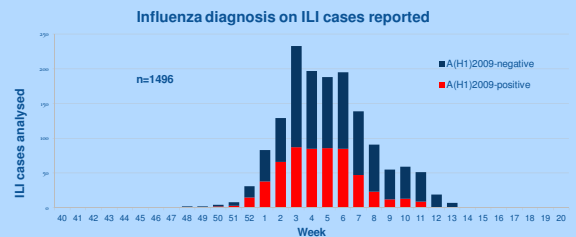


Figure 2 – Weekly distribution of ILI cases reported and tested for pandemic influenza. Laboratory results are shown.

Seasonal influenza viruses

were also tested on 507 cases, 16 of which were found positive (2 A(H3) and 14 type B) (Figure 3).

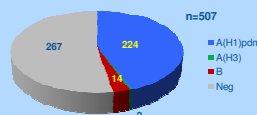


Figure 3 – Number of cases tested for both seasonal and pandemic influenza. Laboratory results are shown

Other respiratory agents were tested on 284 cases, 12.7% of which were positive (1 adenovirus, 3 coronavirus, 1 metapneumovirus, 12 rhinovirus, 9 RSV, 1 *H. influenzae*, 1 *S. pneumoniae*, and 7 mixed infections) (Figure 4).

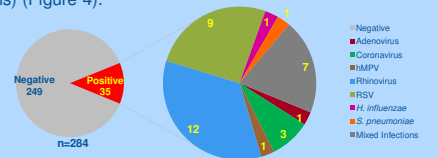


Figure 4 – Number of cases tested for other respiratory pathogens

Signs and Symptoms of influenza

Table 1 – Signs and Symptoms associated with a higher risk of having influenza

Sign/symptom	Influenza			
	Odds ratio (crude)	95% CI	Odds ratio (adjusted)	95% CI
Sudden onset	1.14	0.55-2.39	1.17	0.30-4.52
Fever	6.38	1.27-9.49	6.38	1.95-20.83
Cough	1.02	0.38-2.87	0.62	0.15-2.51
Sorethroat	1.41	0.61-3.23	1.41	0.30-6.69
Respiratory difficulty	0.96	0.28-3.26	0.99	0.23-4.27

The association analysis between the clinical symptoms (fever, sudden onset, sorethroat, respiratory difficulty) and the influenza-positive laboratory result showed a higher positive correlation with fever (OR 6.38, 95%CI 1.95-20.83) (Table 1).

Information on influenza vaccination with the 2010/2011 trivalent vaccine was available for 308 (20.4%) of all cases reported, 33 (10.7%) of which were vaccinated. All vaccinated individuals were negative for influenza.

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