

# The vaccination campaign against 2009 pandemic influenza A(H1N1) and its continued importance in view of the uncertainty surrounding the risk associated with the pandemic

S Tsiodras (tsiodras@med.uoa.gr)<sup>1,2</sup>, V Sypsa<sup>3</sup>, A Hatzakis<sup>3</sup>

1. Hellenic Centre for Disease Control and Prevention, Athens, Greece

2. Fourth Department of Internal Medicine, Athens University Medical School, Athens, Greece

3. Department of Hygiene, Epidemiology and Medical Statistics, Athens University Medical School, Athens, Greece

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**To the editor:** Low rates of vaccine uptake have been observed during the national immunisation campaign against the 2009 pandemic influenza A(H1N1) in Greece. Data from the national influenza A(H1N1) immunisation programme that started on 16 November 2009 in Greece reveal that as of 8 January 2010 approximately 360,000 persons have been vaccinated (3.2% of the population). Of these approximately 8% were aged 65 and older. A significant part of the population of high risk individuals has not been vaccinated yet. Unfortunately, the vast majority of the population (approximately 80%) does not intend to get vaccinated against the pandemic influenza, largely due to perceived safety concerns regarding the vaccine [1,2]. We comment on the current risk assessment of the evolution of the pandemic over the next few months and the potential benefits of improving the vaccination coverage.

According to a risk assessment of the pandemic situation published by the European Centre for Disease Prevention and Control, it is currently impossible to predict the exact number of pandemic waves and the time when they will develop in an individual country [3]. This depends on factors such as the level of symptomatic and asymptomatic infections. The clinical attack rate for seasonal influenza usually ranges between 5% and 10%, whereas the reasonable worst-case scenario for the clinical attack rate for the 2009 pandemic influenza is estimated to be approximately 20% [3]. Other important factors potentially affecting the evolution of this pandemic include the level of pre-existing immunity in the population, social factors (e.g. national holidays) and last but not least the rate of immunised individuals.

Carefully designed sero-epidemiological surveys may accurately describe the epidemic evolution although they usually come late. Mathematical models can be also used to estimate the approximate number of infected people [4]. We have recently described the use of telephone surveys in assisting in such estimations [1]. Using data from an ongoing telephone survey on influenza-like illness in Greek households [2] and the laboratory surveillance of the influenza

pandemic in Greece [5] we estimated a clinical attack rate of 11.6% (range of sensitivity analysis: 5.3-20.9%) for the Greek population and an overall attack rate (including asymptomatic infections) of 17.3% until week 52 of 2009. The clinical attack rates for individuals aged 0-17, 18-64 and ≥65 years were estimated at 31.0%, 8.2% and 5.1%, respectively. The corresponding age-specific attack rates, including asymptomatic infections, were estimated at 46.5%, 12.4% and 7.7%, respectively. As evident from the data, the attack rate is significantly higher in the younger ages (children and adolescents). Given the widespread transmission and development of immunity in this age group the pandemic may not have a chance to spread further due to herd immunity. However, this is only partially true firstly, because a complete barrier does not exist even with a level of immunity of 50% and secondly, because nobody can exclude the possibility of genetic mutation of the virus.

Greece and many other European countries with a slow response to their vaccination campaigns need to consider the following:

1. A significant proportion of the general adult population remains naïve to the infection at the current stage.
2. Independently of whether or not another pandemic wave will occur, it is anticipated that the virus will continue to circulate over the next months.
3. Clinical attack rates in the coming months may be higher in parts of the population that have not been heavily affected so far, i.e. among the over 18 year-olds.
4. Despite the presence of pre-existing immunity in a large part of the older population [6] a significant percentage remains susceptible to infection with the pandemic influenza strain. Given the fact that a considerable portion of this population has chronic health conditions, (over 40% of people aged 65 or older, according to our telephone survey) we expect such infections to be associated with higher rates of clinical complications and mortality [7,8]. Twenty-eight of 92 (30.4%) deaths

analysed in Greece so far concerned patients aged 65 years or older.

5. It is largely unclear how the virus will evolve. The transmissibility of the virus may increase as reported for the 1968 pandemic virus [9].

In conclusion, increasing the immunisation coverage is the only way to eliminate uncertainties about future wave(s) of pandemic influenza A(H1N1) and is anticipated to provide significant benefits in terms of protecting the health of individuals with high-risk conditions and older individuals. In view of the limited success of the vaccination campaigns in Greece and other European countries, considering new strategies to inform and persuade the public is necessary.

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