

## ABSTRACT

# General mortality and emergency hospital admissions for respiratory and cardiovascular diseases during A/H1N1v pandemic influenza in Parma

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Influenza epidemics occur with a typical seasonal pattern, involving the northern hemisphere countries with epidemic peaks in the period from October to March. Several studies have highlighted the association between influenza outbreaks and an increase of urgent admissions for respiratory and cardiovascular diseases, and with excess mortality, although this analysis should also take into account environmental conditions, like atmospheric temperature and concentration of air pollutants [1-3]. During the pandemic Influenza of 2009, the circulation of A/H1N1v in the province of Parma, was monitored through the sentinel network of local general practitioners (GPs) coordinated by the Regional Reference Center, at the Section of Hygiene of the Department of Public Health, where all the virological investigations were carried out.

Two different analysis were conducted using a database built on a daily basis. A temporal analysis based on Diagnosis Related Groups (DRGs) selected (79-80, 87-90, 92-93, 96-97, 99-100, 121-123, 138-140, 143) and on mortality data was conducted to check for the possible increase and/or deviation from the mean values of the period. The number of the subjects (corresponding to the selected DRGs, either respiratory or cardiovascular) admitted each day was use for the analysis. Data on daily mortality for all causes excluding the traumatic causes,

in the resident population with age greater than or equal to 18 years were collected at Parma AUSL Mortality Register (a). The difference between the mean daily values of DRGs selected, taking into account environmental variables (mean atmospheric temperature, mean daily concentration of particulate matter – PM10 and nitrogen dioxide – NO<sub>2</sub>), was checked to compare the different possible impact of pandemic virus in comparison with epidemic viruses circulated in seasons 2001-2009 (b). In total 205 viruses (21.7%) were typed. The virus A/H1N1v circulated at the local level for a longer period of time than the mean of the epidemic seasons (164 days vs. 105 days). This period was characterized by mean temperatures higher (19.2 vs. 6.6) and concentrations of PM10 and NO<sub>2</sub> lower (33.8 vs. 56.2 and 40.7 vs. 56.4) with differences statistically significant (Anova LSD post hoc). Both total mortality and urgent hospitalizations showed no significant changes compared to the mean of the period. Moreover, the pandemic virus, compared with epidemic viruses circulated in the 8 previous seasons didn't show a greater impact on health services of emergency. However, we must wait for the conclusion of the current season (2010-2011) in which the A/H1N1v virus is still circulating in our territory and the environmental framework is characteristic of the normal seasons epidemic.

## References

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- [3] Rizzo C, Bella A, Viboud C, et al. *Trends for Influenza-related Deaths during Pandemic and Epidemic Seasons, Italy, 1969-2001*. Emerg Infect Dis 2007;13:694-9.