

A retrospective serological survey on pandemic H1N1 influenza virus in the canine population of Northern and Central Italy

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Since its global emergence in April 2009, pandemic H1N1 [A(H1N1)pdm09] influenza A infection in humans has peaked twice in Italy (November 2009 and January 2011). We recently reported serological evidence for infection of pet dogs in Italy by A(H1N1)pdm09 during the first peak in 2009. To further investigate the A(H1N1)pdm09 situation in dogs we undertook a second serological study on samples originating from dogs residing in Central and Northern Italy between January 2010 and February 2011. The sample size was calculated using a hypergeometric exact probability formula in order to achieve a 0.95 probability of detecting at least one positive case assuming a low minimum expected prevalence of 2% and specificity and sensitivity values as per screening test characteristics. The sample selection approach adopted in this study attempted to ensure an unbiased geographical and temporal representation of the samples available. Based on a proportional allocation scheme, we randomly selected 642 sera weighting the selection on the influence of each region in terms of sample submission. The screening of the serum collected from 642 dogs identified nine positive samples in cELISA, five of which (0.77%, 95% C.I. 0.25-1.8) were confirmed by haemagglutination inhibition test. Our findings indicate that the virus was circulating to some extent in the domestic dog populations from which the samples originated. It appears, at least in our study group, that all the positives identified are associated with the first 2009 influenza peak as no positives were identified in dogs born in 2010 or in the period from April 2010 to February 2011. However, to clarify this observation and to determine whether A(H1N1)pdm09 infection in dogs continues, further epidemiological studies are required.