

Major swine flu outbreak at US Air Force Academy, unique opportunity to study virus behavior

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With the 2009 influenza season upon us, characterization of the epidemiology and duration of shedding for the nH1N1 virus is critical. Investigators from the U.S. Air Force Academy and the U.S. Air Force School of Aerospace Medicine Epidemiology Consult Service capitalized on a unique opportunity to gain valuable insights about the natural behavior of the nH1N1 virus, including shedding patterns, during a recent large-scale swine flu outbreak at the U.S. Air Force Academy (USAFA). Their results are reported in an article published online on October 20, 2009 by the *American Journal of Preventive Medicine*. It is the first published study of its kind.

Findings from serial nasal washes indicated the presence of viable [virus](#) shedding among about one quarter of confirmed nH1N1 patients sampled on Day 7 from symptom onset. Further, being afebrile and asymptomatic did not guarantee the patient was no longer shedding viable nH1N1 virus; in fact, 19% of those who reported being symptom-free for greater than 24 hours were still found to have viable virus shedding.

While viable virus shedding does not necessarily mean the virus can be transmitted, these findings do indicate that the virus may persist even after the individual is feeling well and has returned to work. Furthermore, the results of this study may assist development of appropriate protocols for isolation in high-risk settings or if the scale

and/or severity of the current nH1N1 situation increases. The current study also provides groundwork to other investigators for further study of the shedding characteristics of the virus.

In July, this novel [H1N1](#) outbreak represented one of the largest recognized nH1N1 clusters at a U.S. college to date. Lead investigator Catherine Takacs Witkop, MD, MPH, of the U.S. Air Force Academy, comments, "Characterizing virus-host interactions and the epidemiology of nH1N1 is important in both planning assumptions and in defining effective control measures. Studies of seasonal influenza suggest that viral shedding occurs for as long as 7 days after symptom onset. No similar studies on shedding of nH1N1 have been published. In addition, there are no published studies of the epidemiology of nH1N1 infection among military training populations or institutions of higher education."

On June 25, 2009, 1376 new basic cadet trainees (BCTs) arrived at USAFA to begin a 6-week military training program prior to their first academic year. Between July 6 and 7, respiratory complaints increased and two cadets were identified as positive for influenza A. Due to a high level of suspicion that the responsible virus was nH1N1, identification, treatment and containment efforts were initiated immediately.

There were 134 confirmed and 33 suspect cases of nH1N1 infection identified with onset date from June 25 to July 24, 2009. Fever, cough and sore throat were the most commonly reported symptoms. Among the at-risk BCTs, 11% were infected during the outbreak period. Twenty-nine percent (31/106) of samples in patients with temperature

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