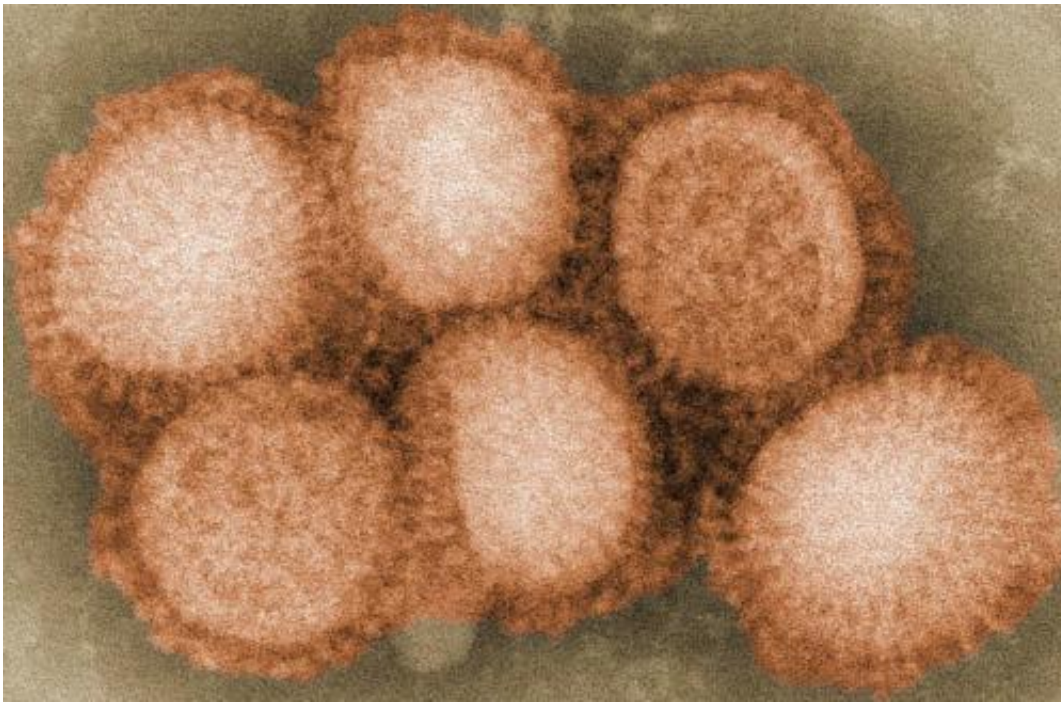


Simulation study shows that pandemic swine flu had a minor impact in Finland

March 24 2016



H1N1 virus. Credit: C. S. Goldsmith and A. Balish, CDC

Researchers have used modeling to estimate the true impact of infectious diseases, such as swine flu, when underreporting can mean the surveillance from time of the pandemic can miss the vast majority of infections that occur in the population.

New research published in *PLOS Computational Biology* by Mikhail Shubin et al from the National Institute for Health and Welfare uses

simulations to estimate the effect of the [swine flu pandemic](#) in Finland. This research offers a platform to assess the severity of flu seasons at various levels of the healthcare system, when previously the number of infected individuals has been uncertain.

The researchers built a low-scale simulation model of Finland that simulates the spread of influenza in the [population](#). The model accounts for the transmission of influenza in the population, the impact of vaccination, outcomes of varying severity and imperfect detection of flu.

The study shows that the impact on Finland was minor, as less than 10% of the population was infected with swine flu during the first two seasons in 2009-2011, with the highest incidences of the disease initially occurring in younger people.

Shubin et al's research also measures the impact of the vaccination campaign in which approximately half of the Finnish population were vaccinated by February 2010. They show that vaccinations significantly reduced the transmissibility of the virus as the proportion of the population infected during the second season was only 3%. This research shows that the second season could have started earlier and caused a larger outbreak, leading to 4-8 times more infections overall.

The study emphasises that statistical modelling and simulation can be used to evaluate incomplete infectious disease surveillance data in emerging infections.

More information: Shubin M, Lebedev A, Lyytikäinen O, Auranen K (2016) Revealing the True Incidence of Pandemic A(H1N1)pdm09 Influenza in Finland during the First Two Seasons—An Analysis Based on a Dynamic Transmission Model. *PLoS Comput Biol* 12 (3): e1004803. [DOI: 10.1371/journal.pcbi.1004803](https://doi.org/10.1371/journal.pcbi.1004803)

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Citation: Simulation study shows that pandemic swine flu had a minor impact in Finland (2016, March 24) retrieved 23 April 2024 from <https://medicalxpress.com/news/2016-03-simulation-pandemic-swine-flu-minor.html>

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