

## Insights into environmental conditions that affect highly pathogenic bird flu virus survival

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On the eve of the 2010-11 influenza flu season, scientists and engineers have identified the environmental conditions and surfaces that could enable a highly pathogenic (H5N1) bird flu virus to survive for prolonged periods of time — at least two weeks and up to two months. Among them: The virus appears to thrive at cooler temperatures and low humidity. The study, which could lead to new strategies for preventing the flu virus from spreading, appears in ACS' *Environmental Science & Technology*.

Joseph Wood and colleagues note that the highly pathogenic (H5N1) avian influenza virus so far has been rare but dangerous in humans, with mortality rates of about 60 percent. Although the H5N1 virus may spread to humans by direct contact with infected birds or other virus-contaminated material, health experts are concerned that the virus could evolve to develop the ability to spread from person to person, and cause serious outbreaks. However, there is little information on how different environmental conditions and materials affect H5N1's survival.

The scientists investigated the ability of a strain of highly pathogenic H5N1 originating from Viet Nam to survive on a variety of materials under different environmental conditions, including changes in temperature, humidity, and simulated sunlight. The materials included glass, wood, steel, soil, and chicken feces. They found that H5N1 survived longer (up to two weeks) at cooler temperatures — around 39



degrees Fahrenheit — but lasted only up to one day at room temperature. The virus also tends to persist at low humidity and no sunlight and on certain surfaces, including glass and steel.

Although when exposed to simulated sunlight, the virus survived longer on soil and chicken feces compared to the other materials. It could potentially survive for up to two months on those materials, they estimate. At low temperatures and low humidity, the virus actually survived longer on steel, glass, and soil than in chicken feces, a common source for spreading the virus. "Measures taken to contain and inactivate the virus, especially in these areas or conditions, may be warranted," the article notes.

**More information:** "Environmental Persistence of a Highly Pathogenic Avian Influenza (H5N1) Virus", *Environmental Science & Technology*.

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