

# Does new swine flu virus kill by causing a 'cytokine storm'?

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The swine flu outbreak that began in Mexico and continues to spread around the globe may be particularly dangerous for young, otherwise healthy adults because it contains genetic components of the H5N1 avian influenza virus, which can induce a "cytokine storm," in which a patient's hyper-activated immune system causes potentially fatal damage to the lungs. Research studies and review articles exploring the regulation of cytokine responses in the lung and how infection-related dysregulation can cause a cytokine storm have been published in *Viral Immunology*, a peer-reviewed journal published by Mary Ann Liebert, Inc.

A cytokine storm occurs when the body's immune system over-reacts to an intruder, such as a virus, by producing high levels of cytokines, which are signaling chemicals that help mobilize immune cells capable of removing infectious agents from the body. When too many cytokines are produced, they can stimulate an [inflammatory response](#) in which the accumulation of immune cells and fluid at the site of infection may prevent affected tissues and organs such as the lungs from functioning properly and may even cause death.

[H5N1](#) avian influenza virus—parts of which are present in the Mexican H1N1 swine flu virus causing the current outbreak—tend to cause an unusually high proportion of deaths among healthy young adults with well-functioning immune systems who become infected, most likely due to this cytokine storm phenomenon. The Spanish influenza pandemic of 1918, for example, was particularly deadly for young healthy adults.

David L. Woodland, PhD, Editor-in Chief of Viral Immunology, and President and Director of the Trudeau Institute, Inc. (Saranac Lake, NY), emphasizes that much is still not known about the current [influenza outbreak](#) and the human/avian combination virus causing it. "We do not know how long ago this [virus](#) emerged, how deadly it is, whether it has pandemic potential, how the severity of infection relates to patient age, and why some infected patients die—whether a cytokine storm is responsible for these deaths," says Woodland.

What we do know, he adds, is that some H1N1 viruses have pandemic potential and that historical evidence supports the possibility that young healthy adults may be especially susceptible to more severe infection and poor outcomes due to the ability of a strong [immune system](#) to initiate a cytokine storm.

More information: [www.liebertpub.com/vim](http://www.liebertpub.com/vim)

Source: Mary Ann Liebert, Inc.

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