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## Coughing and Masks

Julian Wei-Tze Tang, M.D., and Gary Settles, Ph.D.

N Engl J Med 2009; 361:e62 | December 24, 2009 | DOI: 10.1056/NEJMicm0904279

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Coughing can transmit infectious agents, such as influenza virus, and it has been assumed that wearing a mask limits transmission of these agents. Schlieren optics can effectively visualize the dispersion of expelled air during coughing. Both the standard surgical mask (Panel A) and the N95 mask (or respirator) (Panel B) provide a barrier that helps to halt the forward momentum of the cough plume. Without the barrier provided by a protective mask, a cough can propel a strong turbulent jet of air a distance of 1 to 2 m from the mouth (Video 1). Although there is some leakage around the sides and through the front of both the surgical and the N95 masks, most of the escaped effluent is carried upward in the rising thermal plume (Videos 2 and 3), reducing the risk of transmission. The N95 mask provides a better seal than the surgical mask, but as can be seen in the video, it still does not completely contain the cough

## Video

Real-Time Schlieren  
Imaging of Coughing.

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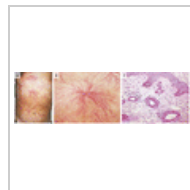
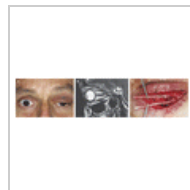
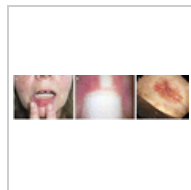
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effluent.

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