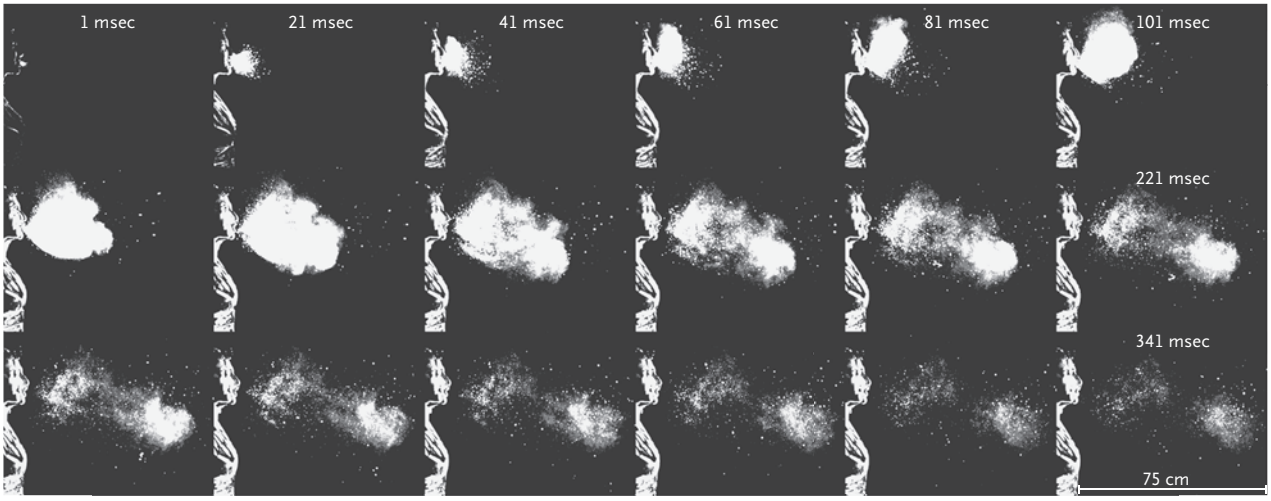
IMAGES IN CLINICAL MEDICINE

Lindsey R. Baden, M.D., *Editor*

A Sneeze



A human sneeze can eject droplets of fluid and potentially infectious organisms. The image sequence captures, in increments of 20 msec, the emission of a sneeze cloud produced by a healthy person. The sneeze was produced naturally, without the introduction of additives, colorants, or contaminants for visualization. High-speed video (Video 1, normal speed; Video 2, slowed down by a factor of 67), recorded at 1000 frames per second, shows a turbulent cloud that consists of hot and moist exhaled air, mucosalivary filaments and drops, and residues from droplet evaporation (nuclei). The ejection lasts up to 150 msec (top row) and then transitions into a freely evolving turbulent puff cloud (middle and bottom rows). The largest droplets rapidly settle within 1 to 2 m away from the person. The smaller and evaporating droplets are trapped in the turbulent puff cloud, remain suspended, and, over the course of seconds to a few minutes, can travel the dimensions of a room and land up to 6 to 8 m away.

Lydia Bourouiba, Ph.D.

MIT Fluid Dynamics of Disease Transmission Laboratory
Cambridge, MA
lbouro@mit.edu

High-speed videos are available at NEJM.org

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