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Human Adenovirus 14a: A New Epidemic Threat

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The human adenoviruses cause a broad spectrum of illnesses: pharyngoconjunctival fever, keratoconjunctivitis, pneumonia, hemorrhagic cystitis, gastroenteritis, acute respiratory disease, severe disseminated disease, cardiomyopathy, and encephalitis. Populations commonly at risk for adenoviral illness include military recruits, young children, and especially those who are immunocompromised. Fifty-two serotypes of human adenovirus exist. Two reports of outbreaks of a new human adenovirus (Ad) serotype 14a strain were reviewed in the Journal of Infectious Diseases, May 15, 2009 (1, 2): One involved an outbreak at a US Air Force camp in 2007, and the other involved community outbreak in Oregon from 2005 to present.

Ad14 (strain deWit) was first isolated from Dutch military recruits with acute respiratory disease in the 1950s and Ad14 became more prevalent in the United States in 2005. The abrupt emergence of Ad14 in US military populations was reported in 2006. On the basis of differences in restriction enzyme digestion patterns, Louie et al. designated the new strain Ad14a. This new Ad14a strain has been associated with more severe disease and may have a competitive advantage in its spread.

However, antibody tests for Ad14a were performed in 1147 military recruits at a US Air Force camp with fever and respiratory tract symptoms; 557 (48%) were infected by Ad14a. Disease was generally not severe in this cohort: only 28 (5%) were hospitalized (with one death) (2). Ad14a illness is mitigated by preexisting immunity. In the US Air Force study, previous natural infection with Ad7 may have protected against severe Ad14a illness requiring hospitalization (2).

Given its association with more-severe disease in some reports, when Ad14a is detected in a medical facility, infection-control professionals may choose to employ patient isolation and special precautions to reduce the risk of nosocomial transmissions. For patients with severe infections, clinicians may be more aggressive in using antiviral therapy.

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[1. Lewis PF, et al. A community-based outbreak of severe respiratory illness caused by human adenovirus serotype 14. J Infect Dis. 199:1427-34.](#)

[2. Tate JE, et al. Outbreak of severe respiratory disease associated with emergent human adenovirus serotype 14 at a US Air Force training facility in 2007. J Infect Dis. 199:1419-1426.](#)

[3. Louie JK, et al. Severe pneumonia due to adenovirus serotype 14: a new respiratory threat? Clin Infect Dis. 46:421-5.](#)