

# Adenovirus

## Traveler Summary

### Key Points

- Adenovirus infection, caused by adenoviruses, occurs worldwide and is acquired mainly via direct contact with infected objects, inhalation of infected aerosolized respiratory droplets, and the fecal-oral route.
- Risk is increased for children, military recruits living in crowded conditions, the elderly, and immunocompromised persons.
- Symptoms are usually mild and include cough, sore throat, pink eye, or fever.
- Consequences of infection rarely occur but can include brain inflammation, severe pneumonia, and death.
- Prevention includes observing good respiratory hygiene (cough and sneeze etiquette) and hand hygiene (frequent, thorough handwashing).
- Adenovirus vaccine (live) is routinely given to military recruits as 1 dose during initial training but is not approved for routine use or for travel.
- Vaccine side effects are usually mild and include nasal congestion, cough, headache, abdominal pain, vomiting, and diarrhea.
- Duration of vaccine protection is unknown; no booster dose is recommended.

### Introduction

Adenovirus infections usually occur in infants and children worldwide and are the most common cause of respiratory tract infections. Many different strains of adenovirus cause human infections; following infection, long-lasting immunity against the specific strain occurs. Some strains can cause persistent, symptom-free infections in the tonsils, adenoids, and intestines. Transmission is mainly via direct contact with infected objects or inhalation of infected aerosolized droplets (e.g., from coughs or sneezes). Military recruits are at particular risk of infection, likely due to close living quarters, hygiene, and fatigue.

### Risk Areas

Adenovirus infections occur worldwide throughout the year; however, outbreaks of adenovirus-associated respiratory disease occur most commonly in the late winter, spring, and early summer. Although more common in military recruits, adenoviruses have also been isolated from civilian adults with acute respiratory disease (ARD), especially in the northeastern US.

### Transmission

Adenoviruses are mainly transmitted from person to person via direct contact (e.g., touching infected objects and then touching the eyes), inhalation of infected aerosolized droplets (e.g., from coughs or sneezes), exposure to infected tissue or blood, and the fecal-oral route; transmission from the ingestion of contaminated water occasionally occurs. Adenoviruses are quite stable (even under adverse environmental conditions) and may remain infectious on contaminated surfaces and medical instruments for prolonged periods.

### Risk Factors

Risk exists mainly for children; however, all ages are susceptible to infection. Military recruits are at increased risk probably due to fatigue and crowding in barracks, training centers, tent cities, and deployment-staging areas, especially in locations with shared items (e.g., resuscitation mannequins and water fountains). Infants, the elderly, and persons with underlying medical conditions and immunocompromising conditions are at increased risk for severe illness. On aircraft, risk of infection exists (although very low) for persons sitting within a 2-seat range (in back, front, and beside) of an infectious traveler.

### Symptoms

Symptoms most commonly appear 2 to 14 days following exposure and include runny nose, nasal congestion, sore throat, cough, fever, or diarrhea, usually lasting 3 to 5 days.

### Consequences of Infection

Serious illness rarely occurs, but complications can include brain, stomach, or bladder inflammation, and severe pneumonia. Persons with existing respiratory or cardiac disease and weakened immune systems are more susceptible to severe illness and death.

## Need for Medical Assistance

Most infections are mild and require only symptomatic treatment. Persons who develop serious symptoms of adenovirus infection should seek immediate medical attention. Antiviral drugs are generally ineffective against adenovirus infections.

## Prevention

### Nonvaccine

Observe respiratory hygiene (cough and sneeze etiquette) and hand hygiene (frequent, thorough handwashing). In a military setting, bunk spacing should also be observed. Avoid close contact with persons who are ill.

### Vaccine

Adenovirus vaccine (live) is given routinely to military recruits aged 17-50 years but is not approved for routine use or travel.

Live viruses are shed in the stool for up to 28 days after vaccination, potentially exposing close contacts and causing disease; vaccinees should exercise caution during this time when in contact with children younger than 7 years, persons with weakened immune systems, or pregnant women. Proper personal hygiene, including hand hygiene (frequent, thorough handwashing), especially after using the bathroom, can minimize risk.

### Side Effects

The most common vaccine side effects of adenovirus vaccine (occurring within 2 weeks of vaccination) are mild and include headache, muscle aches, nasal congestion, nausea, fever, abdominal pain, diarrhea, and vomiting. Serious side effects are rare but can include blood in the urine or stool, stomach or intestinal inflammation, and pneumonia within 6 months after vaccination. Guillain-Barré syndrome and life-threatening allergic reactions have also been reported following adenovirus vaccination in a military population.

Persons with underlying medical conditions or who have concerns about the vaccine should speak to their health care provider before vaccine administration.

### Timing

Adenovirus vaccine is given in 1 dose (2 tablets). The tablets should be swallowed whole (one after another or together) and not chewed or crushed.

Duration of vaccine protection following vaccination is unknown, but data indicate that antibody levels remain high for 6 years after vaccination. A booster dose is not recommended.

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