

# LIVESAY EXPEDITIONS & ADVENTURES

## Air Travel

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Travelers often have concerns about the health risks of flying in airplanes. Illness that occurs as a direct result of air travel is uncommon, but the main concerns are—

- Exacerbations of chronic medical problems due to changes in air pressure, humidity, and oxygen concentration
- Relative immobility during flights (risk of thromboembolic disease)
- Close proximity to other passengers with certain communicable diseases
- Spraying of airplane cabins with insecticides (disinsection) prior to landing in certain destinations

## Exacerbation of Chronic Disease

During flight, the aircraft cabin pressure is usually maintained at the equivalent of 1,500–2,500 m (5,000–8,000 ft) above sea level. Most healthy travelers will not notice any effects. However, for travelers with cardiopulmonary diseases (especially those who normally require supplemental oxygen), cerebrovascular disease, anemia, and sickle cell disease, conditions in an aircraft can increase the risk of exacerbations of their underlying conditions. Aircraft cabin air is typically very dry, usually 10%–20% humidity, which can cause dryness of the mucous membranes of the eyes and airways.

People with chronic illnesses, particularly those whose conditions may be unstable, should be evaluated by a physician to ensure they are fit for travel. For those who require supplemental in-flight oxygen, the following must be taken into consideration:

- Federal regulations prohibit airlines from allowing passengers to bring their own oxygen aboard; passengers requiring in-flight supplemental oxygen should notify the airline at least 72 hours before departure.
- Information regarding the screening of respiratory equipment (e.g., oxygen canisters or Portable Oxygen Concentrators [POCs]) at airports in the United States and regulations regarding oxygen use on aircraft can be found at [www.tsa.gov/travelers/airtravel/](http://www.tsa.gov/travelers/airtravel/).
- Airlines may not offer in-flight supplemental oxygen on all aircraft or flights; some airlines permit only POCs.
- Travelers must arrange their own oxygen supply while on the ground, at departure, during layovers, and on arrival. The National Home Oxygen Patients Association provides a brochure, *Airline Travel with Oxygen* (available at [www.homeoxygen.org/airtrav.html](http://www.homeoxygen.org/airtrav.html)) to assist patients who require supplemental oxygen during travel.

## Barotrauma during Flight

Air in the middle ear and sinuses, as well as intra-abdominal gas, expands during ascent. Air in the middle ear and sinuses can usually equalize during ascent. More problems occur as the low-pressure air within these spaces needs to be equalized by air that flows in the eustachian tube or sinus passages.

The following suggestions may help avoid potential barotrauma:

- People with ear, nose, and sinus infections or severe congestion may wish to temporarily avoid flying to prevent pain and injury. This is particularly true for infants and toddlers, in whom obstruction occurs more readily.
- Oral pseudoephedrine 30 minutes before flight departure or a nonsteroidal anti-inflammatory agent may alleviate symptoms.
- Travelers sensitive to abdominal bloating should avoid carbonated beverages and foods that can increase gas production.
- Patients who have had recent surgery, particularly intra-abdominal, neurologic, intrapulmonary or intraocular procedures, should consult with their physicians before flying.

## Ventilation and Air Quality

All commercial jet aircraft built after the late 1980s and a few modified older aircraft recirculate 10%–50% of the air in the cabin mixed with outside air. The recirculated air passes through a series of filters 20–30 times per hour. In most newer model airplanes, the recycled air passes through high-efficiency particulate air (HEPA) filters, which capture 99.9% of particles (bacteria, fungi, and larger viruses) between 0.1 and 0.3 microns. Air flow occurs horizontally across the plane in limited bands, and air is not forced up and down the length of the plane.

## In-Flight Transmission of Communicable Diseases

Communicable diseases may be transmitted to other travelers during air travel, therefore—

- Persons who are acutely ill, or still within the infectious period for a specific disease, should be discouraged from traveling.
- Travelers should be reminded to wash their hands frequently and cover their noses and mouths when coughing or sneezing.

If a passenger with a communicable disease is identified as having flown on a particular flight (or flights), passengers who may have been exposed will be contacted by public health authorities for possible screening or prophylaxis.

For certain communicable diseases, public health authorities will obtain contact information from the airline for potentially exposed travelers so they may be contacted and offered appropriate intervention. To assist in this process, travelers can provide airlines with current contact information such as a telephone number and state of residence. Travel agencies will not share passenger contact information with the airline or public health authorities.

## Tuberculosis

Although the risk of transmission of *Mycobacterium tuberculosis* on board aircraft is low, international TB experts agree that contact investigations for flights >8 hours are warranted when the ill traveler meets WHO criteria for being infectious during flight. The concern is greatest when a person may have flown with a highly resistant strain of TB. People known to have infectious TB should not travel by commercial air (or any other commercial means) until criteria for no longer being infectious are met. State health department TB controllers are valuable resources for advice ([www.pfh.org/links.htm#State-Health](http://www.pfh.org/links.htm#State-Health)).

## *Neisseria meningitidis*

Meningococcal disease is potentially rapidly fatal, thus rapid identification of close contacts and

provision of prophylactic antimicrobials are critical. Antimicrobial prophylaxis should be considered for—

- household members traveling with a patient,
- travel companions with close contact, and
- passengers seated directly next to the ill traveler on flights of >8 hours.

## **Measles**

Most measles cases diagnosed in the United States are imported from countries where measles is endemic.

- An ill traveler is considered infectious during a flight of any duration if he or she traveled during the 4 days before rash onset through 4 days after rash onset.
- Intervention may prevent or mitigate measles in susceptible contacts if—
  - MMR vaccine is given within 72 hours of flight exposure or
  - Immunoglobulin is given within 6 days of flight exposure.
- International travelers should ensure they are immune to measles prior to travel.

## **Influenza**

Transmission of the influenza virus aboard aircraft has been documented, but data are limited. Transmission is thought to be primarily due to large droplets; therefore, passengers seated closest to the source case are believed to be most at risk for exposure (see the [Influenza](#) section in Chapter 2 and [www.cdc.gov/flu](http://www.cdc.gov/flu) for more information).

The avian influenza virus (H5N1) has infected hundreds of humans since 1997, primarily associated with direct contact with infected birds or bird products. No cases have yet been associated with air travel. See [www.cdc.gov/travel](http://www.cdc.gov/travel) for more general information and up-to-date, specific guidelines for travelers and the airline industry.

## **Severe Acute Respiratory Syndrome (SARS)**

SARS can potentially be transmitted anywhere people are gathered, including aircraft cabins. The last known case of person-to-person transmission occurred in 2003. If SARS were to re-emerge, [www.cdc.gov/travel](http://www.cdc.gov/travel) will provide up-to-date information for travelers and flight crews.

## **Disinsection**

To reduce the accidental spread of mosquitoes and other vectors via airline cabins and luggage compartments, a number of countries require disinsection of all inbound flights. WHO and the International Civil Aviation Organization (ICAO) specify two approaches for aircraft disinsection—

- Spraying the aircraft cabin with an aerosolized insecticide (usually 2% phenothrin) while passengers are on board
- Treating the aircraft's interior surfaces with a residual insecticide while the aircraft is empty

Some countries use a third method, in which aircraft are sprayed with an aerosolized insecticide while passengers are not on board.

Disinsection is not routinely done on incoming flights to the United States. Although disinsection, when done appropriately, was declared safe by the WHO in 1995, there is still much debate about the

safety of the agents and methods used. Guidelines for disinsection have been updated for the revised International Health Regulations ([www2a.cdc.gov/phlp/docs/58assembly.pdf](http://www2a.cdc.gov/phlp/docs/58assembly.pdf)) (PDF). Many countries, including the United States, reserve the right to increase the use of disinsection in case of increased threat of vector or disease spread. An updated list of countries that require disinsection and the types of methods used are available at the U.S. Department of Transportation website: (<http://ostpxweb.ost.dot.gov/policy/safetyenergyenv/disinsection.htm>).

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