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Traveler Information

PULMONARY DISEASE AND AIR TRAVEL

INTRODUCTION

Travelers with significant pulmonary conditions should consult a health care provider well before the departure date for assessment of needs, basic planning, immunizations and medications that might be needed, and information on flying with oxygen or other medical devices. Persons who become short of breath when walking should arrange for help at airports and hotels, and request a wheel chair if needed. Travelers should also ensure that they have adequate medical insurance and consider obtaining evacuation insurance.

RISKS OF TRAVEL

Air Travel

Reduced air pressure in airplane cabins causes the blood oxygen level to fall. Persons who already have low blood oxygen levels due to a pulmonary condition may experience a further decline in blood oxygen, causing shortness of breath and discomfort.

Persons with stable pulmonary conditions (such as well-controlled asthma) will likely tolerate the lower oxygen levels in the aircraft, unless a critical risk factor is already present at sea level. Persons with unstable pulmonary conditions should delay flying until the condition has stabilized.

When not to fly

Persons with any of the following conditions should not travel by air:

- Pneumothorax (collapsed lung) within the past 2-3 weeks
- Pleural effusion (excess fluid occurring between the pleural layers) within the past 2 weeks
- Major chest surgery within the past 10-14 days
- Active tuberculosis
- Major hemoptysis (coughing up bloody sputum or mucus)
- High supplemental oxygen requirements at sea level greater than 4 L/minute

The following conditions might cause difficulties as well:

- A history of previous air travel intolerance
- Severe chronic obstructive lung disease (COPD)
- Severe asthma
- Severe restrictive lung disease (reduced lung volume)
- Cystic fibrosis
- Bullous lung disease
- Preexisting requirement for oxygen or ventilator support
- Recent hospitalization for acute respiratory illness (within 6 weeks)
- Active lower respiratory infection
- History of venous thromboembolism or risk of venous thromboembolism

High Altitude Travel and Scuba Diving

Persons with severe pulmonary disease should not scuba dive or participate in high altitude travel.

PRE-TRAVEL PLANNING

Basic Planning Measures

Travelers should:

- Plan a pre-travel consultation at least 4-6 weeks before departure.
- Notify the health care provider or travel medicine provider of any prior intolerance of air travel.
- Carry a letter with physician's official letterhead that lists medical conditions, medications prescribed, and any medical supplies such as oxygen, CPAP machines, or nebulizers.
- Pack sufficient medications for the trip (plus extras in the event of delays); carry medications in original containers in carry-on luggage and carry a copy of the prescriptions.
- Provide the travel medicine provider with medical history and baseline laboratory results.
- Immunizations should be up to date prior to travel. Immunizations that are especially important include influenza (inactivated) and pneumococcal vaccines.
- Clarify health insurance coverage internationally.
- Obtain supplemental insurance and evacuation insurance if needed.
- Identify a medical provider at the destination country that can manage the underlying pulmonary disease.
    - The traveler with a pulmonary condition must have a clear plan of action in the event that complications arise during travel, including how to handle emergencies at any time of the day or night, who to contact, and how he/she will be transported to a preferred physician or hospital.
- Pack a first aid/medical kit with particular consideration for underlying pulmonary disease (see *Packing Personal Medications*).
    - Consider carrying certain additional medications, including a course of oseltamivir (Tamiflu) for influenza-like illness, antibiotics for respiratory tract infections, and steroids for asthma exacerbations, as well as an albuterol inhaler (if applicable).
    - Carry an inhaler in the carry-on bag, as well, even if not routinely used.
    - Consider carrying a face mask for travel to areas with severe air pollution.
- Wear a medical alert bracelet or carry medical information identifying the underlying problem.
- Explore information resource including booklets for travel with pulmonary disease:
    - See British Lung Foundation (www.blf.org.uk/Page/Travel).

Flying with Oxygen and Medical Equipment or Devices

Persons needing oxygen should carry their own supply and verify that supplemental oxygen is available if needed. Some individuals who are not oxygen-dependent on the ground may require oxygen during air travel due to the lower cabin pressure and oxygen levels. These persons should also verify that supplies of oxygen are available at the destination.

Portable oxygen concentrators (POC) may not be allowed on all flights, so travelers should contact the airlines well ahead of the flight. In-flight oxygen can be arranged by contacting the airline more than 2 days before the flight. Even if using the airline's oxygen while inflight, however, the traveler must arrange for supplemental oxygen during transfers, layovers, and at destination. A physician's prescription is required for in-flight oxygen; it must state the flight duration, whether oxygen is to be used intermittently or continuously, and the flow rate at 8,000 ft, with extra supply in case of flight delays.

If travelers or their health care providers have concerns about fitness for air travel or the need to obtain a medical certificate before travel, the medical unit affiliated with the specific airline is a valuable source for information. Travelers can contact TSA Cares Help Line (toll-free at 855-787-2227) to obtain information on how to prepare for the airport security screening process with respect to a particular disability or medical condition.

Device	Examples/Types of product	Airline allowance or provision	Security screening process	Comment
Bronchodilator inhaler	Metered dose inhalers (MDI)	**Allowed in carry-on after screening.** **Use during flight**: May be used	**Subject to screening.** If 3 oz (100 mL) or less, carry inside Ziploc plastic bag with other meds and prescription or letter from doctor.	Requires prescription. Ensure carriage of sufficient quantities for entire trip, taking into account potential delays.

		during flight. Not provided by airlines.	If more than 3 oz (100 mL), carry separately, with prescription or letter from doctor.	
Nebulizer	Air compressor/ultrasonic device for delivery of aerosolized solutions for inhalation	**Allowed in carry-on after screening.** **Use during flight**: Airline policies may differ as to whether a nebulizer can be used during flight. Some airlines can provide nebulizers for in-flight use and patients should check with the carrier when booking.	**Subject to screening.** Nebulizer will be x-rayed: Nebulizer must be removed from carrying case (tubing and face masks may remain in case). Traveler may provide a clear plastic bag in which to place the nebulizer during x-ray. Liquids[1] for nebulizer must meet requirements for liquids that are medically necessary: If 3 oz (100 mL) or less, carry inside Ziploc plastic bag with other meds, and prescription or letter from doctor, for screening. If more than 3 oz (100 mL), carry separately, with prescription or letter from doctor and inform TSA agent prior to screening.	Contact airline prior to travel to ascertain whether the nebulizer can be used in flight. If not, consider a pre-treatment prior to boarding. Charge portable devices prior to travel.
Portable oxygen concentrator (POC)[2]	FAA-approved POCs[3]: AirSep FreeStyle AirSep Freestyle 5 AirSep LifeStyle AirSep Focus (Caire) SeQual eQuinox/Oxywell (model 4000) Delphi RS-00400/Oxus RS-00400 Devilbiss Healthcare iGo Inogen One (G2 or G3) International Biophysics	**Allowed on board after screening. Must display manufacturer's label showing device meets FAA requirements.** **Use during flight**: Not all airlines allow use of POCs in flight. Some airlines may require use of the airline's onboard oxygen. Others may allow passengers to use their own POC while on the runway but require that they switch to the plane's oxygen during flight.	**Subject to screening.** If a passenger can disconnect from his or her POC, it is recommended that the passenger check the equipment whenever possible. If the passenger can disconnect during screening, but is bringing his or her POC in his or her carry-on baggage, the equipment will either undergo x-ray screening or inspection. If the passenger's respiratory equipment cannot be x-rayed and an inspection is done, it also will be tested for traces of explosives. If explosive material is detected, the passenger will have to undergo additional screening. If a passenger cannot disconnect, or chooses not	Check with the airlines as to whether POCs can be used in flight, if a specific form is required (or a physician's order), and if oxygen is available on board. A physician's order is required to carry oxygen. Most POCs are not considered hazardous materials. If oxygen is needed on the ground, travelers must arrange their own oxygen supplies. Batteries must be protected from short circuit and physical damage. The POC must be placed underneath the seat in front of the user so that the overheating warning lights can be seen and/or audible warning signal heard.

	LifeChoice/Inova Labs LifeChoice Invacare XPO2 Invacare SOLO$_2$ Oxlife Independence Oxygen Concentrator Precision Medical EasyPulse Philips Respironics EverGo Philips Respironics SimplyGo SeQual Eclipse SeQual SAROS VBox Trooper		to be screened by imaging technology or a walk-through metal detector, the passenger will be screened using a thorough patdown procedure instead. A patdown procedure is also used to resolve any alarms of a metal detector or anomalies identified by imaging technology.	Most airlines supply face masks for oxygen that are uncomfortable. Personal nasal prongs, extra connectors, and small scissors should be carried aboard as a back-up. U.S. companies that rent FAA-approved portable oxygen concentrators: • OxygenToGo (http://oxygentogo.com) • Advanced Aeromedical (http://aeromedic.com)
CPAP-type devices[2]	CPAP: Delivers constant amount air pressure in centimeters of water pressure via CPAP mask. APAP or AutoCPAP: Titrates air pressure to determine optimum level. BiPAP or bi-level: Positive airway pressure helps to keep upper airways of lungs open by providing flow of air delivered through a face mask.	**Allowed on board after screening; device must display manufacturer's label showing device meets FAA requirements.** **Use during flight**: Airline policies vary. Travelers should contact all airlines traveled for their policies. In the U.S., CPAP is not counted as a carry-on item for air travel. Some locations in Asia and Europe will count it as a carry on.	**Subject to screening.** The passenger should inform an officer of the CPAP, BiPAP, or APAP and any special requirements before the screening process begins. All CPAPs, BiPAPs, and APAPs must be screened by x-ray. If the x-ray cannot see through all parts of the CPAP, BiPAP, or APAP, additional screening may be required. Passengers are required to remove CPAPs, BiPAPs, and APAPs from carrying case (face masks and tubing can remain in the case). A passenger can provide a clear plastic bag in which to place the CPAP, BiPAP, or APAP during x-ray screening; however, an officer may need to remove the CPAP, BiPAP, or APAP from the bag to test for traces of explosives.	Requires prescription. • Travelers should check the voltage of the destination. A plug adapter may be needed. • Pack spare parts. Most CPAP and bi-level machines are designed to operate on both AC and DC battery currents. In the U.S., the AC current from wall outlets is 110 volts, and most batteries produce 12-volt DC current. Overseas, the AC current is usually 220 or 240 volt.

[1]Medically required liquids are permitted to be brought on board an aircraft utilizing the 3-1-1 rule for carry-ons: allows liquids of 3.4 oz

or less in bottles in 1 quart-sized plastic zip-top bag per traveler. Medically necessary amounts greater than 3.4 oz are allowed in carry-on but must be declared to the TSA agent prior to screening. Liquids, gels, and aerosols are typically screened by x-ray and medically necessary items in excess of 3.4 oz will receive additional screening.

[2]In the U.S., air carriers with 19 or more seats must permit a person with a disability to use a ventilator, respirator, continuous positive airway pressure (CPAP) machine, or an FAA-approved portable oxygen concentrator (POC) as long as it meets applicable FAA requirements.

[3]Travelers with a POC not on the FAA-approved list may still wish to bring it along for use at the destination and rent a POC for use in flight.
