Travel Recommendations for Patients with PAH
Last Revised: November 2008

Travel, whether by road, rail, sea, or air, requires advanced planning in patients with PAH. Patients should review travel plans with their doctors as early as possible so that they can assist in coordinating these efforts. Specific issues that should be discussed include the need for supplemental oxygen, the amount of medication/supplies that should be packed, and the altitude during travel (if flying) and at the travel destination.

Oxygen and travel

Air travel and travel to high altitudes can result in a decrease in the blood oxygen level. Hypoxia, or a low blood oxygen level, may rapidly worsen PH. Thus, all PAH patients planning air travel or traveling to high altitude should discuss the possible need for oxygen with their PH specialist, even if they do not require supplemental oxygen at home. For those who will require oxygen while traveling, it is necessary to contact the travel carrier (i.e. railroad company, airline, etc.), oxygen vendor, and travel agency well ahead (at least 2-3 weeks) of the travel date to make arrangements. If a non-stop flight is unavailable, and continuous use of oxygen is needed, portable oxygen may need to be obtained for use at connecting airports or during layovers. Finally, arrangements for oxygen at the travel destination must also be carefully planned.

Specific questions to ask the travel carrier include:
1. Does the travel carrier offer oxygen?
2. What oxygen system, oxygen flow rates, and delivery devices (i.e. nasal cannula, masks, etc.) are available?
3. Which portable concentrators are allowed to be used in-flight?
4. How much advance notice is required to arrange for oxygen?
5. What is the charge to the traveler (this cost may not be covered by insurers)?
6. What assistance, if any, is available during transit (i.e. wheelchairs, handicapped access, baggage handling)?

Federal Aviation Administration regulations prohibit use of personal oxygen units during flight. Concentrators and empty oxygen tanks can generally be checked as luggage; airline personnel need to verify that they are empty. If oxygen is needed during flight, options include renting or purchasing an approved portable concentrator, or making arrangements with the airline to provide oxygen in-flight. Cost and availability of in-flight oxygen for purchase varies by carrier and can often be found by viewing their website or calling their toll-free number. Depending on frequency of travel, purchasing or renting a portable concentrator may be worthwhile. This may also be convenient if oxygen is needed even when not on the airplane. One option for rental of portable oxygen concentrators can be found at www.oxygentogo.com or call toll free 1-877-946-6436. Charges as of November 2009 (minimum 1 week) are in the range of $400 the first week and $300 for subsequent weeks, plus shipping costs of $30-$100. Check to see if the rental fee may be applied to the purchase price if a decision to purchase ensues; cost of typical portable concentrators is in the range of $5000. If you are bringing along a concentrator, be sure to bring a medical certificate from your doctor to confirm the need for a portable oxygen concentrator during flight and required liters per minute (LPM) flow rate. Notify the air carrier well in advance that you will be using a portable oxygen concentrator so that seating requirements and other logistics can be arranged.
Remember that aircraft electrical power is generally not available for portable oxygen concentrators. Therefore, make sure to have enough batteries for the duration of the flight as well as any unanticipated delays. Outlets are available in most gate areas.

**Preventing venous thrombosis (clot in leg veins)**

While traveling, staying seated for prolonged periods may increase the risk of developing blood clots and leg swelling. It is recommended that all PAH patients stand up and walk a short distance at least every 2 hours. If travelling by car, frequent stops will be necessary. Exercises to contract the leg muscles even while seated may be helpful to reduce risk of clot formation. Wearing support stockings during long flights may also reduce risk, and prevent uncomfortable swelling.

**Dealing with excess salt in the diet**

Traveling often entails eating in restaurants or in other settings where unanticipated excess sodium (salt) may be consumed. For patients with pulmonary hypertension who may have a tendency to retain fluid, this can result in symptoms that can spoil a trip or require medical care. Visit with your health care provider about warning signs and guidelines for adjusting diuretic doses in event of fluid gain. Consider consulting a dietician for ways to avoid excess salt during travel.

When traveling, expect delays. Extra medicines and supplies should be taken along. Have a checklist of needed supplies; post it somewhere you will see it before you leave the house, to be sure you don’t forget a critical item. For longer trips, take an extra week’s worth of medications beyond the intended duration of the trip. Patients treated with epoprostenol (Flolan) should always travel with a small ice chest with 6 to 8 ice packs and a premixed dose of epoprostenol. Patients treated with epoprostenol or treprostinil (Remodulin) should always travel with an extra pump. If traveling out of the country, it is advisable to check in advance to determine if there are any laws against bringing medical supplies into a specific country or if special documents are needed. The airline, cruise line, etc. should be contacted in advance to learn if any special requirements or procedures are necessary to administer these unique medications. Patients requiring supplemental oxygen should pack extra tubing. All medications (in their respective prescription bottles) and supplies should be kept with the patient, and not packed in the luggage that may be lost or misplaced. If possible, obtain the name of a physician familiar with PH at your travel destination that you can contact in the event of an emergency. Finally, a letter from your PH specialist describing specific medical requirements is often useful in order to simplify the process of obtaining oxygen and bringing medications and supplies through security checkpoints.

In summary, any type of travel by PAH patients can be stressful and requires careful planning. The availability of travel assistance and supplemental oxygen and the risks of the travel are all important factors to consider. A discussion with a PH specialist should always be undertaken before embarking on a long trip. Finally, PAH patients should not underestimate the strain of travel and should allow others to do as much as possible for them, i.e. have other others carry baggage, use wheel chairs liberally, etc.

**Airlines and Oxygen Summary:**

The key issues are as follows:

1. An airline may, but is not required to, allow use of a portable oxygen concentrator (POC) on flight.
2. Currently, specific POCs approved by the FAA are:
   - The Airsep "Lifestyle," manufactured by the Airsep Corporation
   - The Inogen One, manufactured by the Inogen Corporation
   - The Airsep "Freestyle", manufactured by the Airsep Corporation
   - Invacare XPO2, manufactured by Invacare, Inc.
   - SeQual Eclipse, or SeQual Eclipse 2, manufactured by SeQual Technologies Inc.
   - Respironics Evergo, manufactured by Respironics Inc.
3. Passengers carrying a POC on board the aircraft with the intent to use it during the flight must inform the pilot in command of that flight. Additionally, the passenger must provide a written statement signed by a licensed physician that verifies the passenger’s ability to operate the device, respond to any alarms, the extent to which the passenger must use the POC (all or a portion of the flight), and prescribe the maximum oxygen flow rate.

4. Airlines are not required to allow POC users access to the electrical power supply of the aircraft.

5. POC users whose physician statement stipulates a medical need for extensive oxygen use must carry enough extra batteries to power the POC for the duration of time the passenger may be on board the aircraft. The user, however, must also carry on the flight a sufficient number of batteries to power the POC for a conservative estimate of unanticipated delays. The passenger is responsible for ensuring that all extra batteries carried in carry-on baggage are properly packaged. The airlines are not required to allow POC users extra carry-on baggage to account for the batteries.

6. Passengers are allowed to use a POC during the flight, including movement on the surface, takeoff, and landing. Additionally, once passengers are allowed to move about the cabin of the aircraft, they will be allowed to carry a POC along with them.

7. The POC user must be capable of seeing the alarm indicator lights, hearing the various warning alarms, and taking the appropriate action should the unit fail to detect the user's breathing or a general malfunction occurs, or is traveling with someone who is capable of performing those functions for the user.

8. The portable oxygen concentrator must be free from oil, grease, or other petroleum products and be in good condition free from damage or other signs of excessive wear or abuse.

9. Since compliance with this regulation is voluntary, patients should call airlines well in advance to find out if oxygen is permitted and if there are any additional requirements for bringing oxygen on board. Most complying airlines require that patients provide their physician’s letter to the air carrier in advance of the flight. Patients should contact the airline to find out the amount of advance time they require.

10. Patients must package extra batteries in a way that keeps the battery terminals from contacting metal or other hazardous substances. Patients should contact the airline to get specific directions on packaging.

11. Patients must limit the number of other carry-on bags. The portable oxygen concentrator bag may or may not count as carry-on luggage toward the air carrier’s limit for that type of baggage per passenger; this may vary by carrier.


DISCLAIMER: This information is for general information only. These guidelines may not apply to your individual situation. You should rely on the information and instructions given specifically to you by your PH specialist and/or the nurses at your PH Center. This information is general in nature and may not apply to your specific situation. It is not intended as legal, medical or other professional advice, and should not be relied upon as a substitute for consultations with qualified professionals who are familiar with your individual needs.