

## Articles:

- Pulse Oximeters
- Caregivers: Talking to the Physician
- Using Portable Oxygen Concentrators
- Six-minute Walk Test
- Brain Power
- Meeting Schedule

### Did you know?

- Pulse oximetry was developed in 1972, by Takuo Aoyagi, a bioengineer, at Nihon Kohden
- Airplane cabin pressures are usually maintained between 5,000 and 8,000 feet. So you need more oxygen while ascending and in flight and less on descent.

## PULSE OXIMETERS OFFER VALUABLE FEEDBACK

The lungs transfer oxygen from the air into the bloodstream. This oxygenated (arterial) blood is then pumped by the heart to all organ systems. The arterial oxygen blood level can be measured by drawing blood from an artery (arterial blood gas measurement). This accurately measures the oxygen and carbon dioxide (waste gas of metabolism) and levels of each in the blood.

An oximeter, usually attached to the finger, shines two separate light beams into the blood circulating in the small vessels, i.e., capillaries. These light beams reflect the amount of oxygen in the blood, expressed as a percentage along with the pulse rate. Oxymetry measures how much oxygen the blood is carrying compared with its full capacity. Oxygen saturation of 96% to 98% is normal at sea level; 92% to 94% is normal in Denver. Nail polish that is very dark may interfere with the oxygen reading. When routinely measuring your oxygen saturation avoid wearing dark shades.

Pulse oximeters have a "pulse signal adequacy indicator" that flashes red, yellow or green according to the quality of the signal it is targeting. If it is flashing red or yellow, the numbers you see are not to be trusted. Green flashes indicate a good quality signal. There is a lag time between the blood leaving your lungs and getting to the finger. Let the oximeter stabilize and become consistent in both pulse and saturation measurements before you start believing the readings. When you get up and move, it takes over 20 seconds for the lag time to catch up to the change in oxygenation. Movement artifact causes large changes in saturation within a few seconds. You might want to test your oximeter at your doctor's office to test its accuracy and your measuring technique.

You can use your oximeter to measure your oxygen saturation level at any time, such as at home, at work or during recreation. You

should maintain oxygen saturation between 90% to 98% in all activities and adjust your oxygen flow setting to achieve this goal.

*Limitations of Oximetry.* Accurate oxygen measurements by oximetry require a good blood flow through the tissues. When your fingers are cold, the blood flow is reduced and poor or abnormal readings are possible. Warming the hands by rubbing them together or with warm water helps improve blood flow. Bright, overhead lights and finger movement can also interfere and give inaccurate readings.

Oximetry does not measure the carbon dioxide in your blood. In the state of a severe breathing attack (i.e., bronchospasm such as in asthma or COPD), it is possible to have a normal oxygen level with severe carbon dioxide buildup. This is not because oxygen reduces the drive to breathe, as is sometimes wrongly concluded. It is because working hard to breathe can cause large amounts of carbon dioxide to be produced, and the breathing muscles may become tired and weak and thus not force enough air for carbon dioxide removal. This can be a medical emergency. Usually this is accompanied by severe shortness of breath, wheezing and increased pulse rate.

Active patients should all have oximeters to guide their oxygen use during all their activities of living. This is particularly important during travel, such as when driving to high altitudes, or during flight, when cabin altitudes can reach 8,000 feet.

Your personal oximeter is a marvelous device available at low cost. It should become part of your daily routine!

*Source: Your Personal Oximetry: A Guide for Patients, Thomas L. Petty, M.D., 2007, and the Pulmonary Paper, Sept/Oct 2006.*

## CAREGIVERS: TALKING TO THE PHYSICIAN

In addition to taking on the household chores, shopping, transportation, and personal care, 37% of caregivers also administer medications, injections, and medical treatment to the person for whom they care. Some 77% of those caregivers report the need to ask for advice about the medications and medical treatments. The person they usually turn to is their physician or the care recipient's specialist.

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*Seventy-seven percent of caregivers report the need to ask for advice about medications and medical treatments.*



But while caregivers will discuss their loved one's care with the physician, caregivers seldom talk about their own health, which is equally important. Building a partnership with a physician that addresses the health needs of the care recipient *and* the caregiver is crucial. The responsibility of this partnership ideally is shared between you the caregiver, the physician, and other healthcare staff. However, it will often fall to you to be assertive, using good communication skills, to ensure that everyone's needs are met – including your own.

### Tips on Communicating with Your Physician and/or Your Specialist

*Prepare questions ahead of time.* Make a list of your most important concerns and problems. Prioritize the questions. Issues you might want to discuss with the physician are changes in symptoms (track them, if necessary and indicate specific times and reactions). Notice changes in eating habits, alcohol use, bodily functions, moods and weight gain. Also note your own comfort in your caregiving situation, or specific help you need to provide care.

*Enlist the help of the nurse.* Many caregiving questions relate more to nursing than to medicine. In particular, the nurse can answer questions about various tests and examination, preparing for surgical procedures, providing personal care, and managing medications at home. Don't forget that the specialty pharmacy for your PH medications has nurses available to answer your questions.

*Make sure your appointment meets your needs.* For example, the first appointment in the morning or after lunch and the last appointment in the day are usually the best times to reduce your waiting time or accommodate numerous questions. When you schedule your appointment, be sure you clearly state the reasons for your visit so that enough time is allowed.

*Call ahead.* Before the appointment, call to confirm the appointment day and time. Remind the receptionist of special needs when you arrive at the office.

*Plan for the appointment.* Talk to the care recipient (the patient) about what your role will be during the appointment. Ask how you can best help. For example, you can use the prepared list to remind the patient of questions for the doctor. Find out if the person would like to talk privately with the doctor for any portion of the visit. Encourage the person to talk honestly with the doctor about his/her symptoms.

*Use assertive communication and "I" messages.* Enlist the medical care team as partners in care. Present what you need, what your concerns are, and how the doctor and/or nurse can help. Use specific, clear "I" statements like the following: "I need to know more about the diagnosis; I will feel better prepared for the future if I know more about the diagnosis."

*Ask questions.* Ask the doctor to clarify anything that may be confusing. Ask about side effects that might occur due to any new treatments or changes in medication. Ask what you should do if there are complications. Note important details about the condition, treatment plan, or ask if you can tape-record the session.

Next month: Caregivers: Starting to Exercise

*Source: Family Caregiver Alliance Fact Sheet: "Taking Care of YOU: Self-care for Family Caregivers," 2003.*

"We delight in the *beauty* of the butterfly, but rarely admit the *changes* it has gone through to *achieve* beauty." ~ Maya Angelou

## PORTABLE OXYGEN CONCENTRATOR POLICY

The topic of traveling with a portable oxygen concentrator (POC) came up at the last support group meeting. The best sources of information online can be found at the National Home Oxygen Patient Association (NHOPA) website. They have four pages of information: air travel with oxygen, POC information, airline oxygen policy and pending issues. I recommend if you want the most up-to-date information to visit the website: <http://www.homeoxygen.org> The NHOPA site offers links to the major airlines and that airline's contact information. It is a great place to start your research.

To give you an idea of what you will find on the individual air carrier's site, the following came from United Airlines.

Only the following POCs are allowed for use on United Airlines' aircraft:

AirSep FreeStyle	AirSep LifeStyle
Delphi Central Air	Inogen One
Invacare XPO2	Sequal Eclipse
Respironics Inc. EverGo	

Note: FAA Regulations forbid the carriage of other personal oxygen units, including units that contain compressed or liquid oxygen. Compressed and liquid oxygen are classified as Hazardous Materials. Non-approved POC brands and models that do not contain compressed or liquid oxygen may be carried in the cabin if they meet United's carry-on size and weight requirements. Alternatively, they may be transported as checked baggage. POCs are considered assistive devices and do not count toward carry-on limits, whether or not they are used on board. They must be able to fit underneath the seat or in an overhead compartment.

**Advance notification to United** Anyone intending to use a POC onboard the aircraft must notify United of planned POC use by calling 1-800-864-8331 at least 48 hours prior to the day of travel. This includes customers whose reservations were booked through a travel agent or on the Internet. If connecting to another airline or a codeshare flight, customers must contact the other airline or the operating carrier for their rules on traveling with portable oxygen concentrators.

**Physician's statement** Customers wishing to use POCs onboard will be required to have a signed [physician's statement](#), dated within ten (10) days of the scheduled departure of the initial outbound flight, and must be prepared to show the statement to United personnel upon request on the day of travel. United strongly recommends printing the [physician's statement](#) that is available on [united.com](http://united.com).

The statement must specify:

That the user of the POC has the physical and cognitive ability to see, hear and understand the POC's aural and visual cautions and warnings and is able, without assistance, to take appropriate action in response to those cautions and warnings;

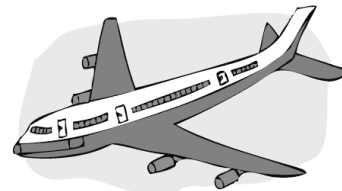
Whether oxygen use is medically necessary for all or a portion of the flight(s) listed on the customer's itinerary; and

The maximum oxygen flow rate in liters per minute corresponding to the pressure in the cabin of the aircraft under normal operating conditions.

**Additional requirements** Any customer traveling with a POC is exclusively responsible for traveling with a sufficient supply of batteries to last the entire journey, per oxygen requirements, including the duration of the flight, all ground time (before and after flight and during connections) and for unexpected delays (150% battery supply). Please plan accordingly. Reservation agents can assist in determining the total anticipated travel time. For more information, please call 1-800-864-8331.

Customers are also responsible for ensuring that all extra batteries are properly protected from short circuiting by having recessed battery terminals or by packaging the batteries so they do not contact metal objects, including the terminals or other batteries.

During flight, the POC must be placed beneath the customer's seat. A customer using a POC may not sit in an exit row or



bulkhead seat. Additionally, a customer using a POC during takeoff and landing may not sit in an aisle seat. A customer may use the POC while moving about the cabin as long as the "Fasten Seat Belt" sign is not illuminated.

Failure to meet the above requirements will result in being denied use of a POC during travel.

There are companies that provide equipment and services to meet a traveling passenger's special needs. [Advanced Aeromedical](#) is one company currently offering a discount to United customers who rent POCs through them. For information about their products and services and the available discount, please contact [Advanced Aeromedical](#) directly.

Source:

[http://www.united.com/page/article/0,6722,53066,00.html#approved\\_poc](http://www.united.com/page/article/0,6722,53066,00.html#approved_poc)

### \*\* **Editor's Note:**

Since most of the airplanes flying in and out of Wyoming are small jets, they may **not** allow the use of POCs. Before making arrangements to rent a POC make sure that the size of aircraft for your trip allows POC use.

## SIX-MINUTE WALK GIVES VALUABLE INFORMATION

Periodically, your doctor might ask you to do a six-minute walk test to find your exercise tolerance level.

Different clinics may have different protocol, but by in large, (as a diagnostic test) the six-minute walk (6MW) is intended to:

- measure the maximum distance you can cover in six minutes. This includes rest stops as well. It requires a maximum effort on your part. The test should be done a level ground, in a controlled environment with air conditioning, low humidity, etc. It should never be done on a treadmill because the set speed, distance and time are at play in determining the outcome. The results need to be a result of your own effort.
- assess your breathing pattern and symptoms to determine your ability to control your breathing. Doctors look at how much breathlessness you experience with what corresponding degree of exercise and the influence of your breathing difficulties on your psyche – anxiety/panic response, etc.
- assess your oxygenation to see what changes occur, if any, and how they correlate to duration of exertion as

well as the intensity. Continuous pulse oximetry should be used during the 6MW. If you are gripping a walker, or other assistive device, a finger sensor should not be used, as there will be too much artifact from movement and changes in hand/finger circulation, leaving measurements inaccurate and useless.

- with EKG monitoring, doctors can see if you have any adverse cardiac response to exercise/exertion and/or desaturation. How much and what type depends upon the sophistication of the monitor used.

A healthy person should be able to walk at least 500 meters in 6 minutes; someone with moderate pulmonary hypertension might manage only 300 – 400 meters. Weight, physical conditioning (or lack thereof), lack of effort, and pulmonary hypertension may all affect how well you do on the test. The 6MW may also be used to evaluate the success of your PH treatment.

*Source: Pulmonary Hypertension: a Patient's Survival Guide, Pulmonary Hypertension Association and Pulmonary Paper, July/August 2006.*



### Put this date on your calendar!

**Saturday, August 8<sup>th</sup> in Riverton, WY**

Riverton Public Library, 1 - 3 PM

David Badesch, M.D., University of Colorado Hospital

Topic: Clinical PH Research

Cricket and Nancy will provide Sloppy Joes, chips, and drinks

Please join us and bring a side dish (salad or dessert) to share



**WYOMING  
PULMONARY  
HYPERTENSION  
SUPPORT GROUP**

1206 Timber Lane  
Riverton, WY 82501

PHONE:

307-856-6976

OR

307-856-7783

E-MAIL:

[pinnut3200@yahoo.com](mailto:pinnut3200@yahoo.com)

WEBSITE:

Newsletter Archives &  
Group News

<http://tinyurl.com/6x673h>

<http://tinyurl.com/ywb6e3>

PHA's National  
Patient-to-Patient Helpline  
800 - 748 - 7274

Disclaimer

We encourage readers to discuss their healthcare with their doctors. This newsletter is intended only to provide information on PH/PPH and not to provide medical advice on personal health matters, which should be obtained directly from a physician.

PHA and WY PH Support Group will not be responsible for readers' actions taken as a result of their interpretation of information contained in this newsletter.

**Boggle**

See how many words (three letters or more) that you can find. The words must be formed from adjoining letters and must be in the proper sequence to spell the word. They may join horizontally, vertically, or diagonally, to the left, right, or up-and-down. No letter may be used more than once within a single word.

E	H	M	T	H
N	O	D	A	R
S	I	P	C	U
W	L	E	N	F
A	B	M	S	A

Words: \_\_\_\_\_  
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**WY PULMONARY HYPERTENSION  
SUPPORT GROUP  
2009 MEETING SCHEDULE**

Unless specifically indicated, all meetings will be held at the  
Riverton Public Library (1330 W. Park Ave., Riverton, WY)  
from 1 PM – 3 PM (specific room locations may vary)

- August 8<sup>th</sup>** ..... Clinical PH Research – David Badesch, M.D.  
University of Colorado Hospital
- September 16<sup>th</sup>** ..... Mark Junge, author & oxygen patient  
(Meeting will be held at the Cheyenne Regional Medical Center)  
(Time to be announced)
- October 10<sup>th</sup>** ..... Dan Schuller, M.D.  
Chief of Pulmonology  
Creighton University, Omaha, NE  
Sponsored by Gilead Services
- December 12<sup>th</sup>** ..... Not yet determined