The Pulmonary Paper

Dedicated to Respiratory Health Care

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Find your right choice in our Annual Guide to POCs!

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We are hiding The Pulmonary Paper logo on our front cover. Can you find it?



Know what POC works for you!

Pulse Oximeter Quiz

Some people call it the fifth vital sign after pulse rate, respiratory rate, body temperature, and blood pressure. Pulse oximeters work by shining a light to a detector positioned on the other side. The amount of light absorbed by the blood indicates the oxygen saturation. A pulse oximeter does not directly measure oxygen saturation but instead uses a complex equation and other data to estimate the exact level. It measures the percentage of oxygen in hemoglobin proteins. Answers next issue!

1. What level must your oxygen saturation read on your oximeter for five minutes in order to qualify for Medicare coverage?
   a. 92% or below
   b. 88% or below
   c. 82% or below
   d. 78% or below

2. What things can affect your pulse oximeter reading?
   a. Dark nail polish
   b. Bright light in the room
   c. Cold hands or poor circulation
   d. All of the above

3. Nonin, *www.nonin.com,* was the first company to market pulse oximeters to the home oxygen user. What is the significance of the name "Nonin"?

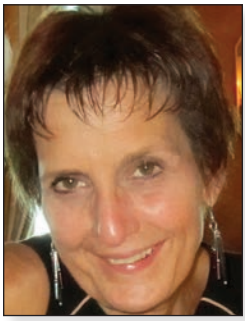
4. True or False? You can also tell what your carbon dioxide levels are when using a pulse oximeter.

Oxygen Needs in Pulmonary Fibrosis

People who have pulmonary fibrosis often need higher oxygen flow rates to maintain their oxygen saturations. Unlike obstructive lung disease, this is because the lung muscle itself is usually thick (fibrotic) and is comparable to being scarred. You need extra flow to get the oxygen across your lung to be picked up by your blood vessels to be carried around your body.

Naturally, you want a portable oxygen unit that is lightweight and will last for hours at higher continuous flows. The closest thing we have is liquid oxygen which is in very short supply and often not available to you. There is no portable oxygen concentrator (POC) on the market that will give you more than a setting of 3 continuous. Be very careful if you are thinking of purchasing a POC – smaller units often can not meet your oxygen needs.

Be sure to visit *www.pulmonaryfibrosisnews.com* to keep up on tips and news to improve your life living with pulmonary fibrosis.



"The earth is crying for people who make sound judgment and informed decisions"
— Sunday Adelaja

Editor's Note

Welcome to our annual review of Portable Oxygen Concentrators (POCs)! While we wait and wait for a smaller machine that will give us continuous flow higher than a setting of 3, Ryan has updated his data on the POCs currently on the market. Through an independent testing and consulting company, Valley Inspired Products, Ryan is able to evaluate each POC with hands-on testing to become intimately familiar with its operation. For the annual POC Guide, Ryan compiles manufacturer supplied information in one convenient source to allow you, the reader, to make informed comparisons and choices when considering POCs. We hope this data will empower you in your decision to purchase a portable oxygen concentrator!

Dr. Tom Petty, the father of home oxygen therapy, has been gone for many years now, but he left us his valuable teachings. You may download his book, *Adventures of Oxy-Phile2* at *https://drtompetty.org*



Please allow me to brag a bit – our family recently grew with the arrival of my fourth grandchild, Jackson Edward Prentice. I am truly loving the innocence of this newborn baby!

Oasasto

Answers to quiz "How Weather Affects Your Health"

1. **People who suffer from a "bum knee" often say they can tell when rain is coming. This is because they may have which a common health condition?** The correct answer is **arthritis**. Although weather doesn't cause arthritis, many people who suffer from either rheumatoid arthritis or osteoarthritis report an increase in pain in their joints with changes in barometric pressure or other weather phenomena.
2. **Cold weather may cause what condition in people with coronary heart disease?** The correct answer is **angina pectoris**. People with coronary heart disease are more likely to have a heart attack in cold weather than other people.
3. **The sun produces both ultraviolet A (UVA) and B (UVB) rays. Which of these sources of radiation is responsible for causing skin cancer?** The correct answer is **both**. According to the Skin Cancer Foundation, UVA damages cells in the deeper, basal layer of the skin. UVB rays cause sunburn and damage to the outer layers of skin; they are thought to cause the most skin cancers.
4. **Seasonal hay fever, or allergic rhinitis, is a common cause of allergy symptoms. What brings on nonallergic rhinitis?** The correct answer is **a sudden change in air temperature**. Unlike allergic rhinitis, which is triggered by the body's natural defense against allergens, the cause of nonallergic rhinitis isn't known. Eating, drinking alcohol, exercising, and being in the cold are the most common triggers of nonallergic, or vasomotor, rhinitis. Regardless of the specific cause, the symptoms are the same: runny nose, stuffy nose, postnasal drip, and sneezing.
5. **Heat exhaustion and heat stroke happen when your body overheats during exercise or exposure to hot or humid conditions.** Which common medications can increase your chances of getting these conditions. The correct answer is **all** – diet pills, some types of blood pressure medicine and allergy relief medication can affect the way your body reacts to heat.
6. **What weather phenomenon may also trigger an asthma attack?** The correct answer is a **thunderstorm**. According to the CDC, thunderstorms, high humidity, and breathing in cold, dry air all can trigger asthma attacks.

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Brand New 2019 Model

Inogen® One G4 Freedom Package

- Inogen G4 (1-3) Shoulder Carry Portable Oxygen Concentrator
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thank you

A big thank you once again to Celeste and Ryan for bringing all *The Pulmonary Paper* readers the Portable Oxygen Concentrator (POC) Annual Review!



Ryan Diesem

The Ryan Report

Home Oxygen Guru – The HO_2G Pen

2019 Portable Oxygen Concentrator Guide

Howdy ho! Welcome to the 2019 version of our annual Portable Oxygen Concentrator (POC) Guide.

Another year has gone by and still we don't have any significant developments in terms of smaller continuous flow-capable POC devices. Manufacturers seem content for now in putting out small size, pulse only POCs that only meet a certain subset of patient needs. As I've indicated before, oxygen production from a POC is currently limited by the technology that is available, and unless there is a notable development in the oxygen separation technology used by POCs, we likely will not see a small size continuous flow-capable POC in the near future, which is unfortunate.

Advocating for liquid oxygen portables, which are still the most efficient oxygen delivery systems available, would be the ideal approach to address the oxygen needs of those for whom POCs are not currently meeting, but we are still handcuffed by the reimbursement limits provided by the Centers for Medicare and Medicaid Services, which pretty much dictate what type and how much equipment home care providers are able to provide. But I digress…

There have been a few new POCs brought to the market since the 2018 Guide was published, all of which are pulse only, small size units designed to appeal to every oxygen user, yet are able to meet the oxygenation needs of only a percentage of those same users. POCs added to this 2019 Guide include:

- The **DeVilbiss iGo2**. Drive Medical acquired the DeVilbiss brand shortly after the original iGo continuous flow-capable POC was released. The iGo2 is the first POC released by the company since that acquisition, and it should not be considered a successor or upgraded version of the original iGo. Unlike the iGo, the iGo2 is a pulse only POC and is comparable to other pulse only POCs that can output about 1,000 mL/min of oxygen. It does have one unique feature – SmartDose technology – that automatically increases the pulse volume delivered when the device senses an increase in respiratory rate from baseline. However, this feature is limited by the oxygen production capacity of the POC, and largely will only be effective at the device's lower pulse settings.
- The **Inogen One G5** is essentially a redesigned Inogen One G2, improving on the now-discontinued G2 by reducing the size and weight of the POC while maintaining the G2's oxygen production capacity of 1,260 mL/min and adding the removable sieve bed feature that is standard on the G3 and G4 models. Only slightly larger and heavier than the G3, with

Continued on page 12.

Please note: All data in the chart is taken from product specifications, manufacturer supplied information, or other known entities. All effort has been made to ensure data is current and correct, but I nor *The Pulmonary Paper* make no claims to its accuracy as products/specifications may have changed or data may have been erroneous. Please contact Ryan by email with any corrections or errors.

Ryan Diesem is Research Manager at Valley Inspired Products, Apple Valley, MN. Contact Ryan at rdiesem@inspiredrc.com with questions or comments.

2019 Portable Oxygen Concentrators

Please consult with your doctor or therapist before deciding to use or purchase any of these devices.

INTERMITTENT FLOW (PULSE ONLY) POCS				
	CAIRE/AirSep Focus™	CAIRE/AirSep FreeStyle™ 3/5	CAIRE/AirSep Free-Style™ Comfort	DeVilbiss iGo 2
				
PRODUCTION AND DELIVERY				
Maximum Oxygen Production (mL/min)	333 mL/min (0.33 LPM)	500 mL/min (FreeStyle) 1000 mL/min (FreeStyle 5)	1050 mL/min (1.05 LPM)	1014 mL/min (1.01 LPM)
Available Settings	None Selectable	1 to 3 (FreeStyle) 1 to 5 (FreeStyle 5)	1 to 5	1 to 5
Pulse Delivery Type	Minute Volume Delivery	Minute Volume Delivery	Minute Volume Delivery	Combination Fixed/Minute Volume Delivery
MAXIMUM DELIVERED PULSE VOLUME				
Maximum Delivered Pulse Volume	15BPM: 22 mL 30BPM: 11 mL	15BPM: 33/67 mL 30BPM: 17/33 mL	15BPM: 70 mL 30BPM: 35 mL	15BPM: 68 mL 30BPM: 34 mL
WEIGHT (UNIT + STD. BATTERY); ADD UP TO 5LBS. FOR ACCESSORIES				
Unit & Battery (Approx.)	3 lbs.	5 lbs./7 lbs.	5 lbs.	6 lbs.
STANDARD SINGLE BATTERY OPERATION TIMES				
Approx. Battery Time at Pulse Setting 2	1.5 hours	3.5 hours (FS) 2.5 hours (FS5)	4.0 hours	3.5 hours
ALL UNITS APPROVED FOR FLIGHT BY FAA				
Max. Altitude	10,000 ft.	12,000 ft.	10,000 ft.	13,123 ft.

Three Collaborate on "Oxygen Manifesto"

Dr. Noah Greenspan, Mark Mangus RRT and Ryan Diesem collaborated on the Oxygen Manifesto, **https://tinyurl.com/yx95u5ox**

2019 Portable Oxygen Concentrators

Please consult with your doctor or therapist before deciding to use or purchase any of these devices.

INTERMITTENT FLOW (PULSE ONLY) POCS				
GCE Zen-O™ Lite	**Inogen One G5**	**Inogen One G4 / OxyGo Fit**	**Inogen One G3 / OxyGo**	**Invacare Platinum Mobile**
				
PRODUCTION AND DELIVERY				
1,050 mL/min (1.05 LPM)	1260 mL/min (1.26 LPM)	630 mL/min (0.63 LPM)	1050 mL/min (1.05 LPM)	880 mL/min (0.88 LPM)
1 to 5	1 to 6	1 to 3	1 to 5	1 to 4
Combination Fixed/Minute Volume Delivery	Minute Volume Delivery	Minute Volume Delivery	Minute Volume Delivery	Minute Volume Delivery
MAXIMUM DELIVERED PULSE VOLUME				
15BPM: 55 mL	15BPM: 84 mL	15BPM: 42 mL	15BPM: 70 mL	15BPM: 59 mL
30BPM: 35 mL	30BPM: 42 mL	30BPM: 21 mL	30BPM: 35 mL	30BPM: 29 mL
WEIGHT (UNIT + STD. BATTERY); ADD UP TO 5LBS. FOR ACCESSORIES				
6 lbs.	5 lbs.	3 lbs.	5 lbs.	6 lbs.
STANDARD SINGLE BATTERY OPERATION TIMES				
4.0 hours	4.0 hours	2.3 hours	3.0 hours	2.5 hours
ALL UNITS APPROVED FOR FLIGHT BY FAA				
13,000 ft.	10,000 ft.	10,000 ft.	10,000 ft.	10,000 ft.

Dr. Greenspan also hosted a webinar on "All Things Oxygen" that you may see at this site: **https://vimeo.com/327196321**

2019 Portable Oxygen Concentrators

Please consult with your doctor or therapist before deciding to use or purchase any of these devices.

INTERMITTENT FLOW (PULSE ONLY) POCS					
	O2 Concepts Freedom	**Precision EasyPulse 3/5**	**ResMed Mobi/ Oxyensure**	**Respironics SimplyGo Mini**	**DeVilbiss® iGo**
					
PRODUCTION AND DELIVERY					
Maximum Oxygen Production (mL/min)	800 mL/min (0.80 LPM)	520 mL/min EasyPulse 3 780 mL/min EasyPulse 5	680 mL/min (0.68 LPM)	1000 mL/min (1.0 LPM)	3000 mL/min (3.0 LPM)
Available Settings	1 to 5	1 to 3 (EP3) 1 to 5 (EP5)	1 to 4	1 to 5	1 to 6 Continuous 1 to 3 LPM
Pulse Delivery Type	Combination Fixed/Minute Volume Delivery	Minute Volume Delivery	Minute Volume Delivery	Combination Fixed/Minute Volume Delivery	Fixed Delivery 14 mL per setting
MAXIMUM DELIVERED PULSE VOLUME For comparison, if on Continuous Flow rather than Pulse Dose on 2LPM: Breathing 15BPM gives you 44 mL — Breathing 30BPM gives you 22mL on 4LPM: Breathing 15BPM gives you 88 mL — Breathing 30BPM gives you 44mL on 6LPM: Breathing 15BPM gives you 133 mL — Breathing 30BPM gives you 66mL					
Maximum Delivered Pulse Volume	15BPM: 40 mL 30BPM: 27 mL	15BPM: 35 mL/52 mL 30BPM: 17 mL/26 mL	15BPM: 45 mL 30BPM: 23 mL	15BPM: 55 mL 30BPM: 33 mL	84 mL
WEIGHT (UNIT + STD. BATTERY); ADD UP TO 5LBS. FOR ACCESSORIES					
Unit & Battery (Approx.)	6 lbs.	5 lbs./7 lbs.	6 lbs.	5 lbs.	19 lbs.
STANDARD SINGLE BATTERY OPERATION TIMES					
Approx. Battery Time at Pulse Setting 2	3.5 hours	4.0 hours (EP3) 3.4 hours (EP5)	6.0 hours	4.5 hours	4.7 hours (20BPM)
ALL UNITS APPROVED FOR FLIGHT BY FAA					
Max. Altitude	13,123 ft.	9,000 ft.	10,000 ft.	10,000 ft.	13,123 ft.

2019 Portable Oxygen Concentrators

Please consult with your doctor or therapist before deciding to use or purchase any of these devices.

CONTINUOUS FLOW POCS

GCE Zen-O™	O2 Concepts Independence	Precision EasyPulse TOC	Respironics™ SimplyGo	SeQual® Eclipse 5
				
PRODUCTION AND DELIVERY				
2000 mL/min (2.0 LPM)	3000 mL/min (3.0 LPM)	2000 mL/min (2.0 LPM)	2000 mL/min (2.0 LPM)	3000 mL/min (3.0 LPM)
1 to 6	Pulse 1 to 6	Pulse 1 to 5	Pulse 1 to 6	Pulse 1 to 6*
Continuous 0.5 to 2 LPM	Continuous 1 to 3 LPM	Continuous 0.13 to 2 LPM	Continuous 0.5 to 2 LPM	Continuous 0.5 to 3 LPM
Combination Fixed/Minute Volume Delivery	Fixed Delivery 16 mL per setting	Minute Volume Delivery	Combination Fixed/Minute Volume Delivery**	Fixed Delivery 16 mL per setting

*The **SeQual Eclipse® 5** also has pulse settings of 128, 160 and 192 mL, which have additional breath rate restrictions for use. See device manual for more information. **The **SimplyGo** has two IF delivery modes–Pulse Mode and Night Mode. Shown volumes are for Pulse Mode. Night Mode has minute volume delivery. *** The **Independence** and **Zen-O** POCs are capable of holding 2 batteries that can be used simultaneously, doubling the reported operating time.

15BPM: 66 mL	96 mL	15BPM: 52 mL	15BPM: 72 mL	96 mL*
30BPM: 66 mL		30BPM: 26 mL	30BPM: 66 mL	
WEIGHT (UNIT + STD. BATTERY); ADD UP TO 10 LBS. FOR ACCESSORIES				
10 lbs.	19 lbs. (w/2 batteries)	11 lbs.	10 lbs.	18 lbs.
STANDARD SINGLE BATTERY OPERATION TIMES				
4.0 hours (18BPM)***	2.9 hours (20BPM)***	3.0 hours	3.0 hours (20BPM)	5.1 hours (12BPM)
ALL UNITS APPROVED FOR FLIGHT BY FAA				
13,000 ft.	13,123 ft.	10,000 ft.	10,000 ft.	13,123 ft.

2019 POC Pulse Delivery Volumes

INTERMITTENT FLOW (PULSE ONLY) POCS

CONTINUOUS FLOW POCS

POC Pulse Volumes			Setting 1		Setting 2	
Model	Max Oxygen	Delivery Type	15BPM	30BPM	15BPM	30BPM
AirSep Focus™	333 mL/min	Minute Volume			333 mL/min	
					22 mL	11 mL
AirSep FreeStyle™ 3/5	FS: 500 mL/min FS5: 1000 mL/min	Minute Volume	228 mL/min		420 mL/min	
			15 mL	8 mL	28 mL	14 mL
AirSep Free-Style™ Comfort	1050 mL/min	Minute Volume	210 mL/min		420 mL/min	
			14 mL	7 mL	28 mL	14 mL
DeVilbiss® iGO2	1014 mL/min	Fixed/ Minute	up to 1014 mL/min		up to 1014 mL/min	
			16 mL	16 mL	32 mL	32 mL
GCE Zen-O Lite	1050 mL/min	Fixed/ Minute	up to 1050 mL/min		up to 1050 mL/min	
			11 mL	11 mL	22 mL	22 mL
Inogen One G5	1260 mL/min	Minute Volume	210 mL/min		420 mL/min	
			14 mL	7 mL	28 mL	14 mL
Inogen One G4 / OxyGo Fit	630 mL/min	Minute Volume	210 mL/min		420 mL/min	
			14 mL	7 mL	28 mL	14 mL
Inogen One G3 / OxyGo	1050 mL/min	Minute Volume	210 mL/min		420 mL/min	
			14 mL	7 mL	28 mL	14 mL
Invacare Platinum	880 mL/min	Minute Volume	220 mL/min		440 mL/min	
			15 mL	8 mL	31 mL	15 mL
O2 Concepts Freedom	800 mL/min	Fixed/ Minute	up to 160 mL/min		up to 320 mL/min	
			8 mL	5 mL	16 mL	11 mL
Precision Easy Pulse 3/5	EP3: 520 mL/min EP5: 780 mL/min	Minute Volume	240 mL/min		380 mL/min	
			16 mL	8 mL	25 mL	13 mL
ResMed Mobi/ Oxyensure	680 mL/min	Minute Volume	195 mL/min		320 mL/min	
			13 mL	7 mL	21 mL	11 mL
Respironics SimplyGo Mini	1000 mL/min	Fixed/ Minute	up to 220 mL/min		up to 440 mL/min	
			11 mL	8 mL	22 mL	15 mL
DeVilbiss® iGo	3000 mL/min	Fixed Pulse	14 mL		28 mL	
GCE Zen-O	2000 mL/min	Fixed/ Minute	up to 2000 mL/min		up to 2000 mL/min	
			11 mL	11 mL	22 mL	22 mL
O2 Concepts Independence	3000 mL/min	Fixed Pulse	16 mL		32 mL	
Precision EasyPulse TOC	2000 mL/min	Minute Volume	240 mL/min		380 mL/min	
			16 mL	8 mL	25 mL	13 mL
Respironics™ SimplyGo	2000 mL/min	Fixed/ Minute	up to 2000 mL/min		up to 2000 mL/min	
			12 mL	12 mL	24 mL	24 mL
SeQual® Eclipse 5	3000 mL/min	Fixed Pulse	16 mL		32 mL	

Continuous Flow Volumes	1 LPM		2 LPM	
	15BPM	30BPM	15BPM	30BPM
	1000 mL/min		2000 mL/min	
	22 mL	11 mL	44 mL	22 mL

The **SeQual Eclipse®** 5 also has pulse settings of 128, 160 and 192 mL, which have additional breath rate restrictions for use. See device manual for more information. The **SimplyGo** has two IF delivery modes–Pulse Mode and Night Mode. Shown volumes are for Pulse Mode. Night Mode has minute volume delivery. Approximate Continuous Flow volumes per breath are provided for comparison to

Setting 3		Setting 4		Setting 5		Setting 6	
15BPM	30BPM	15BPM	30BPM	15BPM	30BPM	15BPM	30BPM
500 (FS)/630 (FS5) mL/min		840 mL/min (FS5)		1000 mL/min (FS5 only)			
33 mL	17 mL	56 mL	28 mL	67 mL	33 mL		
630 mL/min		840 mL/min		1050 mL/min			
42 mL	21 mL	56 mL	28 mL	70 mL	35 mL		
up to 1014 mL/min		up to 1014 mL/min		up to 1014 mL/min			
48 mL	34 mL	64 mL	34 mL	68 mL	34 mL		
up to 1050 mL/min		up to 1050 mL/min		up to 1050 mL/min			
33 mL	33 mL	44 mL	35 mL	55mL	35 mL		
630 mL/min		840 mL/min		1050 mL/min		1260 mL/min	
42 mL	21 mL	56 mL	28 mL	70 mL	35 mL	84 mL	42 mL
630 mL/min							
42 mL	21 mL						
630 mL/min		840 mL/min		1050 mL/min			
42 mL	21 mL	56 mL	28 mL	70 mL	35 mL		
660 mL/min		880 mL/min					
41 mL	20 mL	49 mL	25 mL				
up to 480 mL/min		up to 640 mL/min		up to 800 mL/min			
24 mL	16 mL	32 mL	21 mL	40 mL	27 mL		
520 mL/min		660 mL/min (EP5)		780 mL/min (EP5)			
35 mL	18 mL	44 mL	22 mL	52 mL	26 mL		
520 mL/min		680 mL/min					
34 mL	17 mL	45 mL	33 mL				
up to 660 mL/min		up to 880 mL/min		up to 1000 mL/min			
33 mL	22 mL	44 mL	29 mL	55 mL	33 mL		
42 mL		56 mL		70 mL		84 mL	
up to 2000 mL/min		up to 2000 mL/min		up to 2000 mL/min		up to 2000 mL/min	
33 mL	33 mL	44 mL	44 mL	55 mL	55 mL	66 mL	66 mL
48 mL		64 mL		80 mL		96 mL	
520 mL/min		660 mL/min		780 mL/min			
35 mL	18 mL	44 mL	22 mL	52 mL	26 mL		
up to 2000 mL/min		up to 2000 mL/min		up to 2000 mL/min		up to 2000 mL/min	
36 mL	36 mL	48 mL	48 mL	60 mL	60 mL	72 mL	66 mL
48 mL		64 mL		80 mL		96 mL	
3 LPM		**4 LPM**		**5 LPM**		**6 LPM**	
15BPM	30BPM	15BPM	30BPM	15BPM	30BPM	15BPM	30BPM
3000 mL/min		4000 mL/min		5000 mL/min		6000 mL/min	
67 mL	33 mL	89 mL	44 mL	111 mL	56 mL	133 mL	67 mL

pulse setting volumes delivered by a select POC for a user breathing at a 1:2 I:E ratio.

This comparison chart provided courtesy of The Pulmonary Paper and Ryan Diesem. Subscribe to The Pulmonary Paper at www.pulmonarypaper.org.

Continued from page 5.

improved battery life (due in part to the ability to have a slightly larger battery), it is quite possible that the G5 will become Inogen's primary selling POC in the future.

- The **O2 Concepts Oxlife Freedom**. O2 Concepts, which manufactures the Oxlife Independence continuous flow-capable POC, enters the pulse only POC market with the Oxlife Freedom. I have yet to see this product for sale, but it is highlighted on the O2 Concepts website and appears to be coming soon. The device manual indicates the POC will produce 800 mL/min of oxygen, which falls between the production capacities of the Precision Medical EasyPulse 5 POC (780mL/min) and the Invacare Platinum Mobile POC (880 mL/min).

- The **ResMed Mobi**. As mentioned in this guide last year, ResMed acquired Inova Labs and their LifeChoice Activox 4L POC. The Mobi (which you may also find branded as the **Oxyensure POC**) is a redesigned and updated version of the Activox 4L. Of note is that the Mobi produces 680 mL/min of oxygen compared to the Activox 4L's 480 mL/min. Battery life is the strongest feature of the Mobi when compared to the other pulse only POCs, with an estimated 6 hours of use when set to Setting 2. This is over an hour more than the closest competitor, however this benefit is offset to some degree by the comparatively low oxygen production capacity of 680 mL/min.

Understanding the Information in This Guide

- **Intermittent Flow (Pulse Only) POCs**. These are POC units with pulse delivery settings ONLY, and do not have any continuous flow delivery settings. These units tend to weigh between 3 to 10 pounds when carrying all accessories.

- **Continuous Flow POCs**. These are POC units that have both pulse delivery and continuous flow delivery settings. Units tend to weigh between 10 to 20 pounds when carrying all accessories.

- **Maximum Oxygen Production**. This is the maximum amount of oxygen the POC can produce in one minute. Values are reported in milliliters (mL) per minute (mL/min). ***In general, the smaller the POC, the less oxygen it can produce.***

- **Available Settings**. These are the ranges of pulse and continuous flow settings available on each device. All intermittent flow (pulse only) POCs have pulse settings ONLY.

- **Pulse Delivery Type**. This is the method of oxygen delivery that the POC employs when in pulse mode and include:

  - **Minute Volume Delivery**. When set to a given pulse setting, the POC will produce a specific volume of oxygen per minute, regardless of the user's breath rate. As a result, the device will automatically reduce the pulse volume delivered per breath as the user's breath rate rises. Users may need to increase the pulse setting when active to ensure they are getting enough oxygen per breath to maintain oxygen saturations generated while at rest.

  - **Fixed Delivery**. When set to a given pulse setting, the POC will deliver a fixed pulse of oxygen per breath, and maintains that volume no matter what the user's breath rate is. All currently available POCs that generate 3000 mL/min of oxygen utilize fixed pulse delivery.

  - **Combination Fixed/Minute Volume Delivery**. These POCs maintain a fixed pulse delivery method at a given setting up until the user's breath rate exceeds the specified production capacity of the device at that setting, at which time the POC automatically begins reducing the pulse volume delivered the higher the user's breath rate goes.

- **Maximum Delivered Pulse Volume**. This is the volume of oxygen delivered per pulse at the highest available setting on the POC, reported in milliliters (mL). All minute volume and combination fixed/minute volume delivery POCs have these values reported at a resting rate of 15 breaths per minute (BPM) and active rate of 30 BPM.

- **Unit & Battery (Approx.)**. This is the approximate weight of the base unit and one single battery. This weight does not include any additional accessories (like power supplies or carts) and will be higher if the user installs a 'double' battery. In general, add 2 to 5 pounds for intermittent flow

Continued on page 14.

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1. Burudpakdee C, et al. Pulmonary Therapy 2017;3(1):163–171.
2. Svenningsen S, et al. COPD 2016;13(1):66–74.

Continued from page 12.

(pulse only) POC extra batteries and accessories, and 5 to 10 pounds for continuous flow capable POC extra batteries and accessories.

- **Approx. Battery Time at Pulse Setting 2**. This is the amount of time a user might expect to be able to operate the POC on a full battery charge when the device is set to a 2 pulse setting, the most commonly prescribed setting. Battery operating times will decrease with an increase in pulse setting and respiratory rate. Batteries will lose the ability to hold a full charge the older they get and the more they are used, also reducing operating time.
- **Max. Altitude**. This is the maximum recommended altitude for device operation without its losing the ability to perform within specification. The higher the altitude, the more the unit needs to 'work' to generate oxygen, which can reduce oxygen purity and battery operating times. *Note: When traveling by plane, cabins are typically pressurized to simulate altitude of 8,000 to 10,000 feet.*

In addition to the comparison guide, due to many questions about and requests for individual pulse volumes at each setting, we also offer a second table that shows how much oxygen is delivered and/or produced at each of the POC's pulse settings. This table is meant to be useful when comparing the pulse volumes at a given setting between devices. ***It is important to remember that just because the POC is set to a 2 pulse setting, it does not mean that the user is getting 2 LPM of oxygen, nor does it mean that another device set to 2 will give the same volume.*** Looking closely at this table will help better understand the differences in pulse volumes delivered by POCs when set to the same pulse setting, as well as the maximum oxygen production capacity of each POC.

We hope this helps you in some way determine what POC would be a good fit for you or someone you know. There is a lot of information here, and it certainly isn't the most user-friendly to look at and absorb, especially in a limited space such as a magazine. As always, feel free to contact me if you have any questions about POCs at my email address, ***rdiesem@inspiredrc.com***

POC Manufacturer Websites

AirSep/CAIRE (maker of AirSep Focus, FreeStyle 3/5 and FreeStyle Comfort, Sequal Eclipse 5)
www.cairemedical.com/products

Drive/DeVilbiss (maker of iGo and iGO2)
www.drivemedical.com/us/en/Products/Respiratory (Click on "Oxygen Therapy" on the left.)

GCE Healthcare (maker of Zen-O and Zen-O-Lite)
www.gcehealthcare.com/

Inogen (maker of Inogen One G3, G4, G5, OxyGo and OxyGo Fit)
www.inogen.com/products

Invacare (maker of Platinum Mobile)
https://tinyurl.com/y29tznqu

O2 Concepts (maker of the Independence and Freedom)
https://o2-concepts.com/products/

Philips Respironics (maker of SimplyGo and SimplyGo Mini)
www.usa.philips.com/healthcare/solutions/breathing-and-respiratory-care/oxygen

Precision Medical (maker of EasyPulse 3/5 and EasyPulse TOC)
www.precisionmedical.com/homecare/oxygen-concentrators

ResMed (maker of Mobi and Oxyensure)
www.resmed.com/us/en/consumer/products/oxygen/mobi.html

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