



COVIDIEN



Can we lighten your load?

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Disclaimer

- The product information contained in this presentation came from ventilator manufacturer's internet sites and material published in peer-reviewed medical journals.
- The content has been generalized so that vent users and lay caregivers can more easily follow it.
- I work for Covidien Newport Medical, manufacturer of the HT70 series ventilators.
- Please contact other manufacturers directly if you have specific questions about their products.

Older Ventilators



PLV

Lifecare
Respironics
Philips



LP

Aequitron
Puritan Bennett
Nellcor
Mallinckrodt
Tyco
Covidien

What's great about them?

- You have used them for years
- You are used to the way it feels when you breathe
- You trust them
- You understand them when something goes wrong
- You can easily train new caregivers because the vents are so familiar to you
- Few (if any) nuisance alarms

Older Ventilators



PLV??

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LP-??

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What's not so great?

- End of life:
 - Parts are no longer made
 - Not tested for current medical device standards (electrical , etc.)
- 29-33 lbs. (heavy)
- ~ 1 hour internal lead acid (like in your car) battery
- Use more power - Heavy external battery doesn't last very long
- Speak during inspiration instead of exhalation unless you use a Passy Muir speaking valve

Newer vents

HT70

Newport
Covidien

LTV

Pulmonetic
Viasys
Cardinal Health
Carefusion

Trilogy

Respironics
Philips

IVent

Versamed
GE

What's great about them?

- Service and parts readily available via authorized service providers
- Meet new standards
- 9-16 lbs. (half the weight)
- Lithium Ion batteries
- Use less power –external battery lasts longer
- Speak during exhalation with or without a Passy Muir speaking valve
- PEEP to improve oxygenation – sometimes lessens or eliminates use of external oxygen

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What's not so great?

- You have never used them
- You may not be used to the way it feels when you breathe
- You may not trust them
- You may not understand them when something goes wrong
- You may not find it easy to train new caregivers because the vent is so unfamiliar to you
- You may have nuisance alarms until you get to know the ventilator and/or make adjustments in ventilation parameters/circuit setup design

Older style of ventilation with older portable ventilators



- The way breaths were delivered was limited because of the way the breath was generated by the ventilator (e.g. one piston moved back and forth once for each breath)
- Breath pattern delivery choices were limited but since many vent users could not breathe at all, the breathing pattern did not matter as much
- Did not try to mimic the way people typically breathe
- Doctors prescribed big long slow breaths
 - So you could talk during inspiration
 - Help keep lungs open
 - Required that you use a longer piece of “deadspace tubing” so that your carbon dioxide level did not get too low (now you are probably used to that tubing).
- Typically, no PEEP was used (because it was done with a valve in the circuit and it just leaked out anyway)
- Fewer alarms

Newer style of ventilation with newer portable ventilators



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- Breath delivery can be done in a variety of ways because flow is generated by a microprocessor controlled variable speed gas generator
- Can provide a typical breathing pattern
- Use typical breath size to ventilate and then use different methods of achieving desired end-results for lung health
 - PEEP to keep lungs open and healthy and allow expiratory speech
 - Use less “deadspace” tubing because breaths are not artificially big

Newer vents

Why did portable ventilator design change? Why don't we just make ventilators that are just like the older ones?

- Ventilating a wider variety of people (including more children).
- Trying to make ventilators that:
 - Lighter so they can be managed more easily by home caregivers.
 - Run longer on batteries so they allow the vent user more freedom.
 - Can ventilate sicker people (since sicker people are now sent home)
 - May be safer for the lungs of long-term vent users:
 - Studies have shown that stretching the lungs from the beginning to the end of the breath (as with big long breaths) can damage lung tissue.
 - Holding the lungs open between breaths with PEEP and using smaller tidal volumes can keep lungs healthy without causing this damage.
 - So portable ventilator manufacturers are making ventilators that can ventilate in the way that provides the least damage to your lungs.
- Can ventilate in the way people without technology assistance are used to breathing and still keep lungs open.
- Designed to meet today's regulatory requirements for safety and performance.

Newer vents

What kinds of things seem to bother vent users the most when transitioning?

- Possibly changing your breathing pattern
- Possibly starting to use PEEP
- The new sounds from the ventilator
- The new feel of breath delivery
- Possibly getting flow when you do not expect or want it
- New alarms
- New labels / names for things

3 Ways to transition

It is essential that you make agreed-upon plans with your DME provider in advance of making a change so that all issues related to costs and product availability are understood.

There are three ways to transition.

Method 1: Use the new ventilator like the older ventilator and learn how to deal with nuisance alarms.

Method 2: Use the new ventilator like the new ventilator is designed to be used right away but possibly go through a period of apprehension and adjustment.

Method 3: Make the transition gradually and work with your RT and physician to fine tune ventilation settings as you go.

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Many people find it easiest to use Method 3 and make the change at a pace that is comfortable for them.

Method 3- Fine tune as you transition

Method 3: Make the transition gradually and work with your RT and physician to find tune ventilation settings as you go.

- There are several parameters on a ventilator that can be fine tuned so that the ventilator feels more comfortable to you.
- Even very small changes can make a world of difference.
- Work with your RT and your pulmonary physician to make small changes until you feel comfortable.



HT70
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- Two models. Uses dual micro pistons to compress room gas and deliver it to your lungs. The micro-pistons move back and forth many times with each breath, moving faster when the flow to you is higher and moving slower when the flow to you is slower. The sound changes as the flow increases. It works with 50 psi or low flow (cylinder, liquid or concentrator) oxygen if oxygen is needed. It generates room temperature gas.
- Advantage: Passes durability transport testing and is approved for transport. Simple user interface. Three default and three programmable ventilation settings presets. Built-in oxygen analyzer. Low oxygen and power consumption. Batteries last longer because the ventilator draws less power.
- Power: Hot swappable (up to) 10 hour built in battery with 30 minute back up battery.

Snapshots

LTV

Pulmonetic

Viasys

Cardinal Health

Carefusion



- Several models. Uses a small turbine to compress room gas and deliver it to your lungs. The turbine moves at an average speed and does not necessarily change sound during breath delivery. Some models work only with low flow oxygen, some with 50 psi and some with both. It generates heated gas which may make humidifiers less efficient.
- Advantage: Passes durability transport testing and is approved for transport. Flatter shape for mounting. Flows above 100 L/min. Some models offer additional breath options.
- Power: Hot swappable attachable sprint battery packs and built in back up battery.



Trilogy
Respironics
Philips

- A couple of models. Uses a turbine to compress room gas and deliver it to your lungs. The turbine moves at an average speed and does not necessarily change sound during breath delivery. Some models work only with low flow oxygen, some with 50 psi and some with both. It generates heated gas which may make humidifiers less efficient.
- Advantage: Works with a bipap style of circuit set up or a ventilator style of circuit setup. DirectView reporting software like a bipap device. Two programmable patient settings presets. Flows above 100 L/min.
- Power: Hot swappable (up to) 3 hour built in battery and (up to) 3 hour back up battery

IVent Versamed GE



- Four models. Uses a turbine to compress room gas and deliver it to your lungs. The turbine moves at an average speed and does not necessarily change sound during breath delivery. Works with low flow or 50 psi oxygen. It generates heated gas which may make humidifiers less efficient.
- Advantage: Built-in oxygen analyzer. Flows above 100 L/min. Some models offer additional breath options.
- Power: Standard internal battery (up to) 4 hours, extended (up to) 6.5 hours.

Sounds



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- Turbines make a constant whine sort of sound.
- Dual micro-pistons make a variable rumbling sort of sound.

Do you have any questions?

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