ResMed

ASV therapy: Comfortable, effective treatment for central sleep apnea patients

The ResMed AirCurve™ 10 ASV is the most clinically studied adaptive servo-ventilation therapy* and provides effective and comfortable treatment for a range of central breathing disorders.

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ASV: Effective therapy for complex patients

What is ASV (adaptive servo-ventilation)?

Adaptive servo-ventilation is a form of positive airway pressure therapy that delivers auto-adjusting pressure support to treat both obstructive and central events on a breath-by-breath basis. This allows patients to maintain adequate ventilation in response to their changing needs. By treating central breathing disorders with auto-adjusting pressure support and upper airway obstruction with auto-adjusting EPAP, it rapidly stabilizes breathing.[1] The AirCurve 10 ASV learns, predicts, responds to and optimizes pressures to suit each patient's own unique breathing pattern.

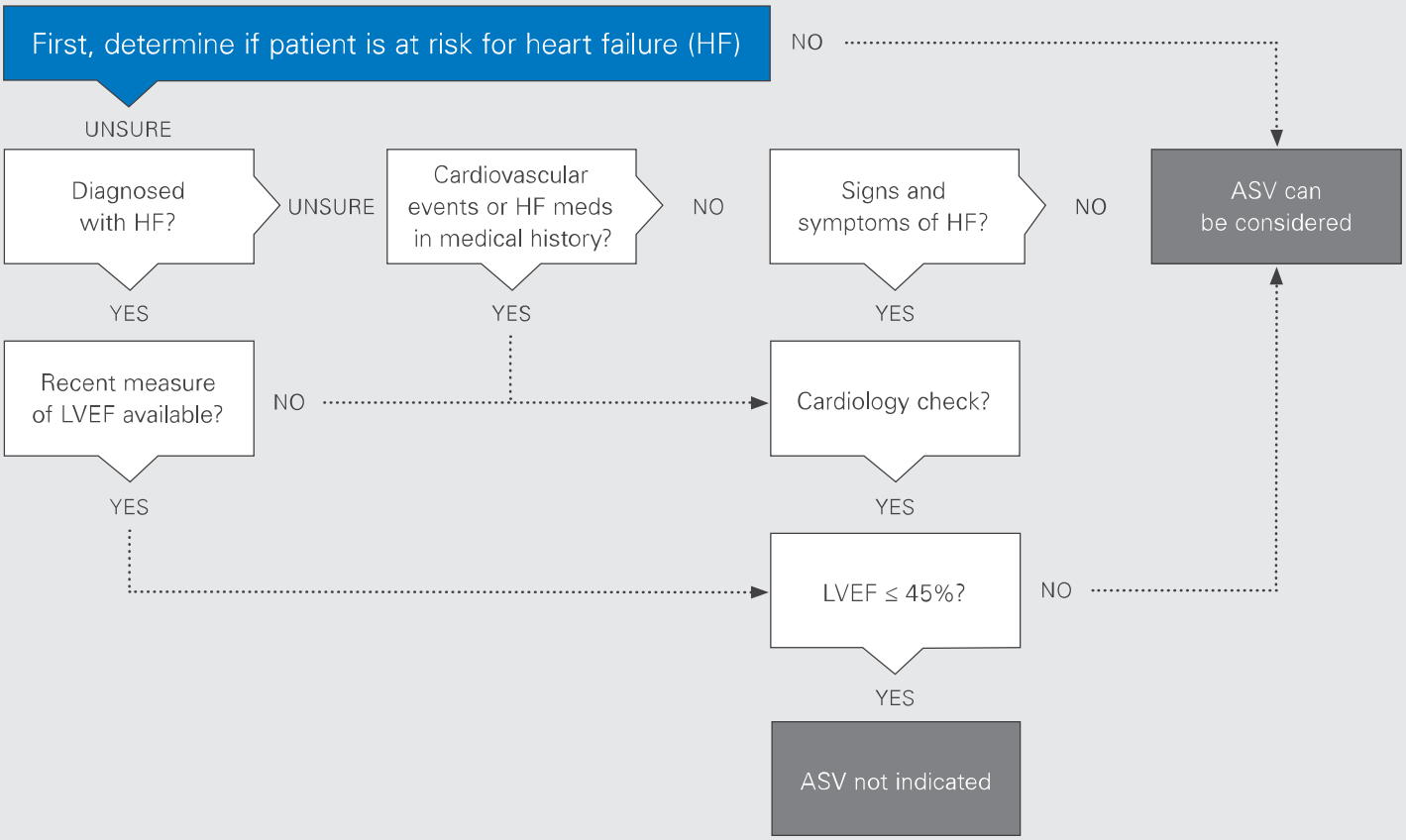
Who is ASV therapy suitable for?

ASV therapy is safe and efficacious for certain patient groups with central breathing disorders that can sometimes be challenging to treat, such as:

- Central sleep apnea (CSA)
- Complex sleep apnea (CompSA)
- Mixed sleep apnea
- Periodic breathing

Note: ASV therapy is contraindicated in patients with chronic, symptomatic heart failure (NYHA 2–4) with reduced left ventricular ejection fraction (LVEF ≤ 45%) and moderate to severe predominant central sleep apnea.

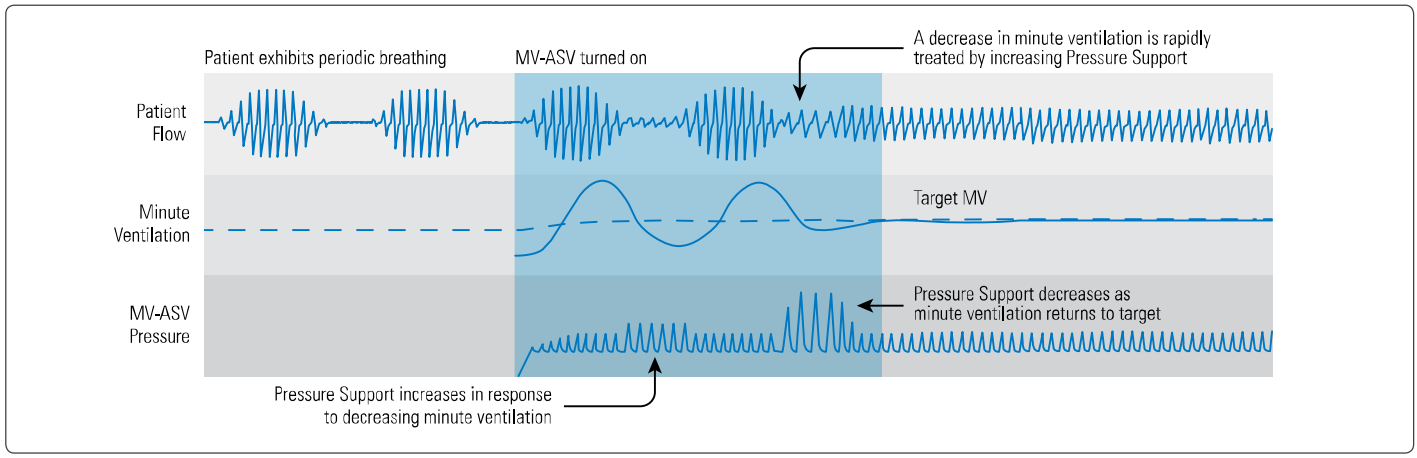
For patients with moderate to severe predominant central sleep apnea, use this flowchart to assess which patients should be considered for ASV therapy.[2]



AirCurve 10 ASV: Increasing patient comfort and therapy acceptance

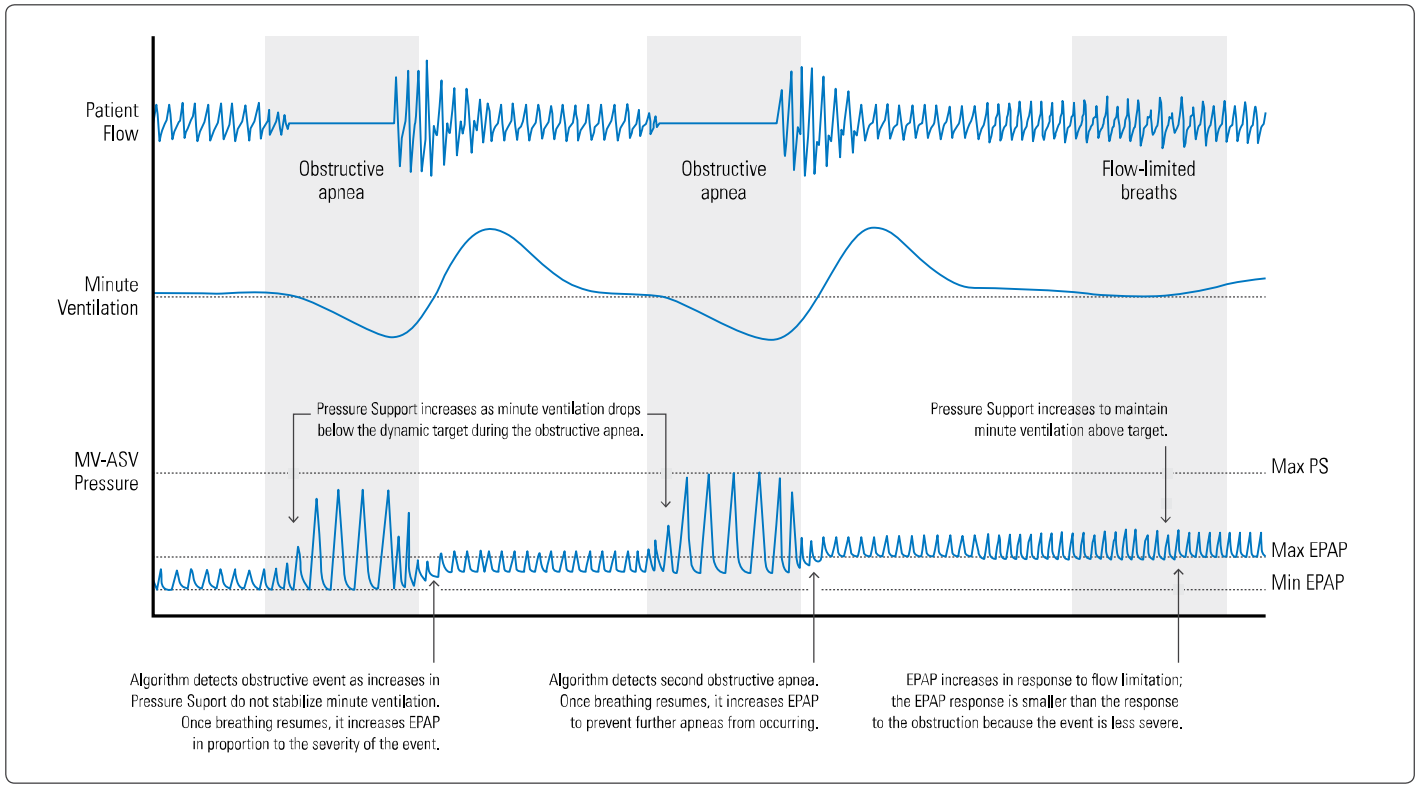
Stabilizing breathing with constant monitoring

Our ASV technology addresses the complications and unpredictable nature of central sleep apnea by providing responsive therapy. To successfully treat central apneas and periodic breathing, the AirCurve 10 ASV constantly monitors the patient's breathing pattern and minute ventilation, and automatically adjusts pressure support to break the cycle of hyperventilation and central events that occur.



Responding rapidly for effective therapy

In ASVAuto mode, the AirCurve 10 ASV automatically adjusts pressure support and EPAP, stabilizing the upper airway to treat and help prevent obstructive apneas.



Features that optimize comfort and synchrony for compliance

Patient-device synchrony is essential to therapy comfort, which is why the AirCurve 10 ASV is equipped to optimize comfort for greater therapy compliance and success.

Easy-Breathe waveform

Our patented Easy-Breathe waveform intelligently recreates the natural inspiratory and expiratory cycles within the patient's breath, delivering a smoother and more comfortable breathing experience.

Ramp

The ramp feature helps patients fall asleep more easily by delivering low pressure at the start of the therapy session and gradually increasing it to the prescribed level after a programmed amount of time.

Note: Consult the physician on the use of ramp if the patient is exhibiting any sleep onset events.

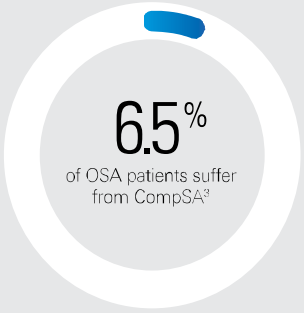
Leak management

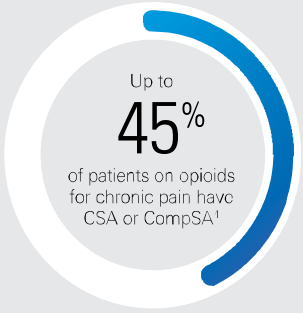
The leak management feature ensures greater synchrony and helps maintain comfort by offsetting variations and inconsistency due to leak.

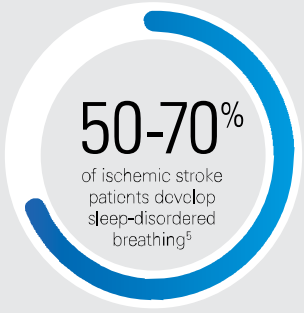
Integrated humidification

Built-in humidification is a standard feature in all AirCurve 10 devices, offering patients the ultimate in therapy comfort. And with Climate Control's enhanced Auto option, patients can simply attach the ClimateLineAir™ heated tube and press Start on the device – no settings to change and no complicated menus to navigate.

Prevalence of central breathing disorders







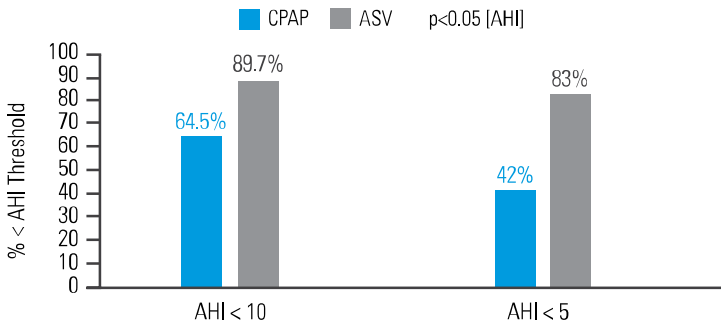
Clinically proven to provide better outcomes

Compared to other forms of PAP therapy, ASV offers significant benefits for the treatment of CSA across various patient types:

ASV better than CPAP at controlling respiratory events in patients with CompSA

A prospective randomized control trial found that ASV was more effective than CPAP in treating CompSA. In the intention-to-treat analysis, the percentage of patients who achieved success (AHI < 10) was:[6]

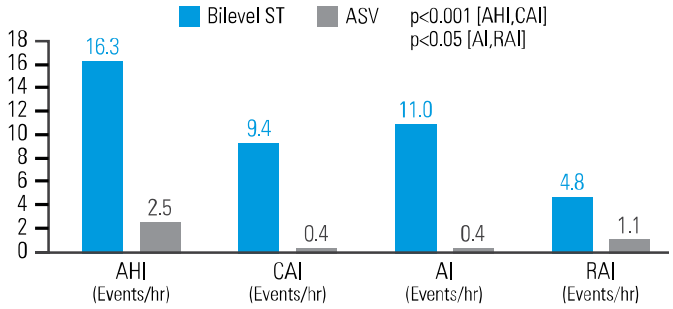
- 64.5% in CPAP group
- 89.7% in ASV group



ASV reduces respiratory events in opioid-induced CSA better than bilevel ST

A prospective, randomized, crossover polysomnography study of opioid-induced CSA patients saw that when compared to bilevel ST, ASV attained:[1]

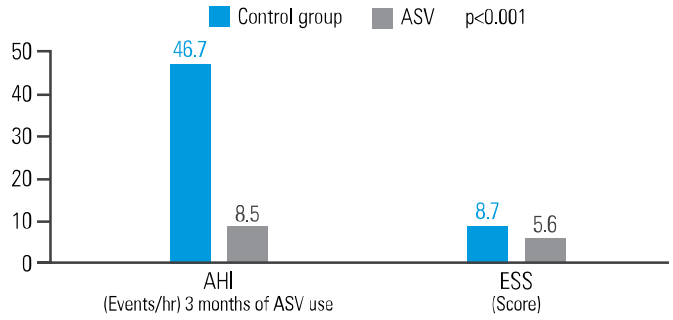
- 84.7% greater reduction in AHI
- 95.7% greater reduction in CAI
- 96.4% greater reduction in AI (apnea index)
- 77.1% greater reduction in RAI (respiratory arousal index)



ASV improves AHI and ESS in post-acute ischemic stroke patients

A retrospective analysis observed that ASV therapy improved outcomes for post-acute ischemic stroke patients with CSA. Compared to baseline, ASV treatment results in:[7]

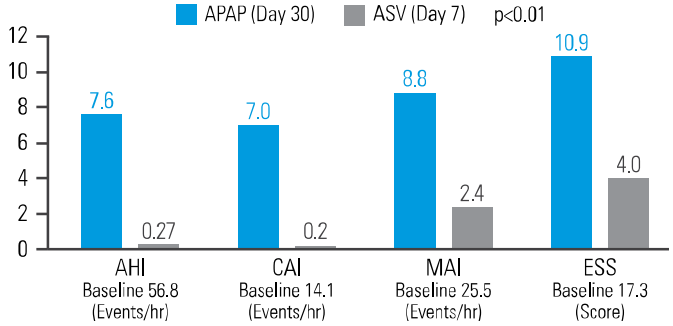
- 81.8% reduction in AHI
- 35.6% reduction in ESS



ASV decreases residual sleepiness after APAP therapy in patients with mixed sleep apnea

In a study evaluating the efficacy of ASV in patients with OSA and residual sleepiness (OSAS), patients who were assigned ASV following one month on APAP showed:[8]

- 96.5% greater reduction in AHI compared to baseline
- 97.1% greater reduction in CAI compared to baseline
- 72.7% greater reduction in MAI (micro-arousal index) compared to baseline
- 63.3% greater reduction in ESS (Epworth Sleepiness Scale) compared to baseline



ResMed

The AirCurve 10 ASV is part of ResMed Air Solutions: A new beginning in connected care

Every AirCurve 10 device features built-in cellular connectivity, giving you unprecedented access to therapy data via AirView™, our cloud-based patient management system. AirView allows you to troubleshoot (through Remote Assist) and change device settings remotely, so you can resolve common therapy issues quickly and easily. Through this integrated system, you can be more connected with your patients and receive a more complete picture of the care they're receiving.

Effectively stabilizes patients' breathing

CSA elective therapy: ASV device

AirCurve™ 10

Therapy of choice for patients affected by prevalent central, mixed or complex sleep apnea.

If CSA is detected

Effectively stabilize upper airways

OSA elective therapy: CPAP/APAP devices

AirSense™ 10
- AUTOSET
- AUTOSET FOR HER
- ELITE

CPAP/APAP therapy for OSA.
CSA detection for clear therapy insights.

Data transmission

Follow-up

AirView™

Secure, cloud-based access to device data:
- facilitates therapy management
- supports collaboration among healthcare professionals

AirCurve 10 ASV

AirCurve 10 ASV USA CO	**37215**
AirCurve 10 ASV USA TRI	**37216**
AirCurve 10 ASV 3G CO	**37410**

*At the time of this publication

1 Cao M et al. A novel adaptive servoventilation (ASVAuto) for the treatment of central sleep apnea associated with chronic use of opioids. *J Clin Sleep Med* 2014;10(8):855-61. **2** Adapted from Aurora RN et al. Updated adaptive servo-ventilation recommendations for the 2012 AASM guideline: "The Treatment of Central Sleep Apnea Syndromes in Adults: Practice Parameters with an Evidence-Based Literature Review and Meta-Analyses". *J Clin Sleep Med* 2016;12(5):757–761. **3** Javaheri S et al. The prevalence and natural history of Complex sleep apnea. *J Clin Sleep Med* 2009;5(3):205-211. **4** Mogri M et al. Hypoxemia in patients on chronic opiate therapy with and without sleep apnea. *Sleep Breath* 2009;13:49-57. **5** Johnson KG and Johnson DC. Frequency of sleep apnea in stroke and TIA patients: A meta-analysis. *J Clin Sleep Med* 2010;6(2):131–137. **6** Morgenthaler TI et al. The complex sleep apnea resolution study: A prospective randomized controlled trial of continuous positive airway pressure versus adaptive servoventilation therapy. *Sleep* 2014;37(5):927-34. **7** Brill AK et al. Adaptive servo-ventilation as treatment of persistent central sleep apnea in post-acute ischemic stroke patients. *Sleep Med* 2014;15(11):1309-1313. **8** Su M et al. Adaptive pressure support servoventilation: A novel treatment for residual sleepiness associated with central sleep apnea events. *Sleep Breath* 2011;15(4):695-9.

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