



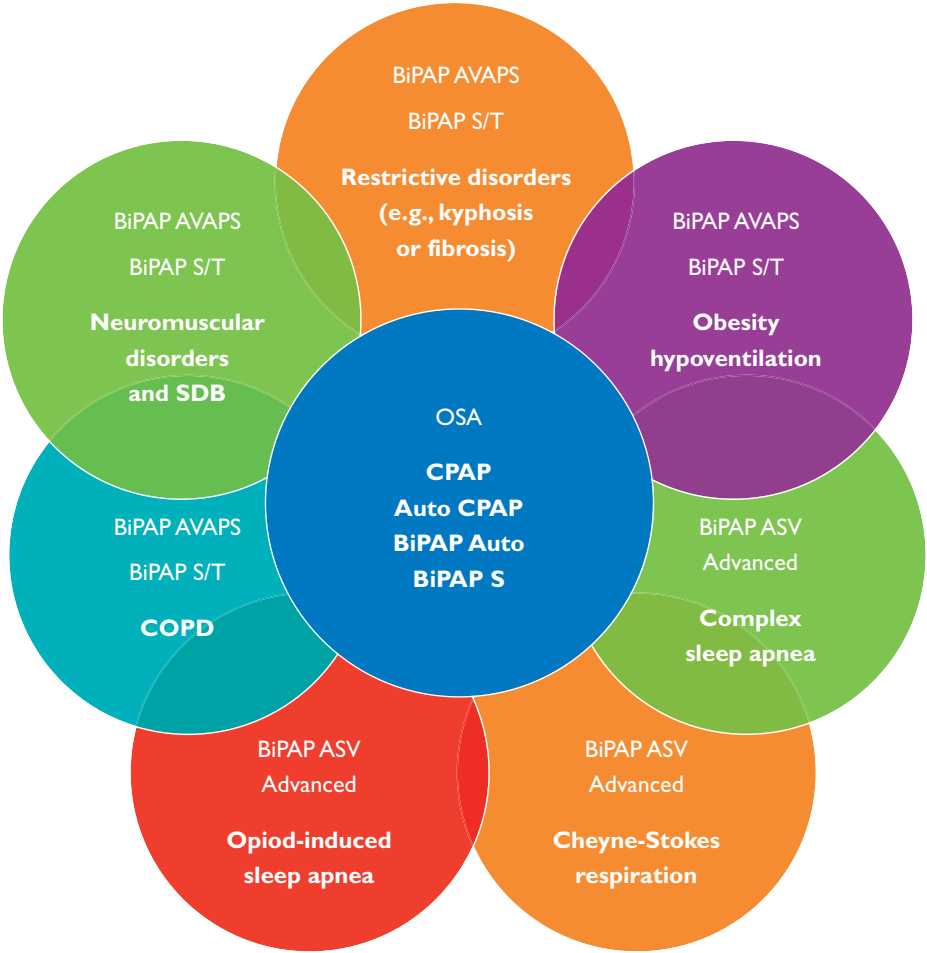
# Titration protocol reference guide

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**IMPORTANT:** The suggested guidelines are intended to serve only as a reference. They should be used only in conjunction with the instructions and/or protocol(s) set forth by the physician and institution in which the assist device is being used. The guidelines are not intended to supersede established medical protocols.

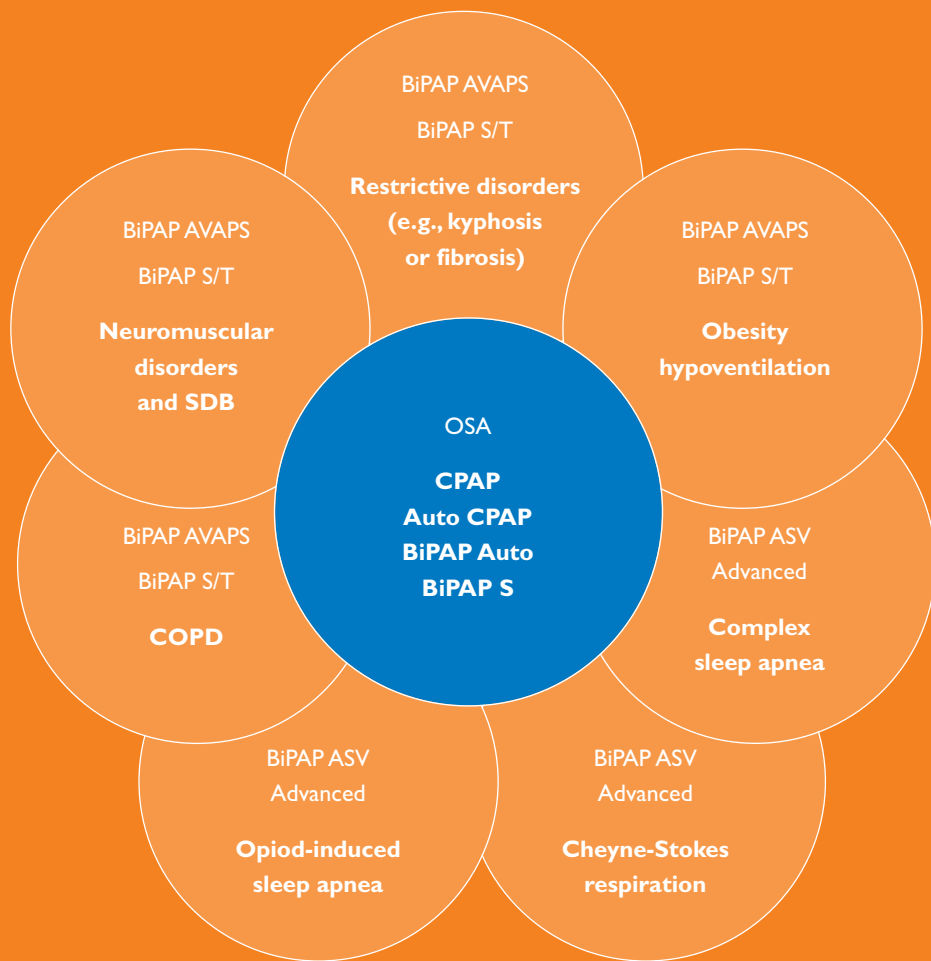
These protocols are recommended for adult patients only.



# General Titration Protocol Goals

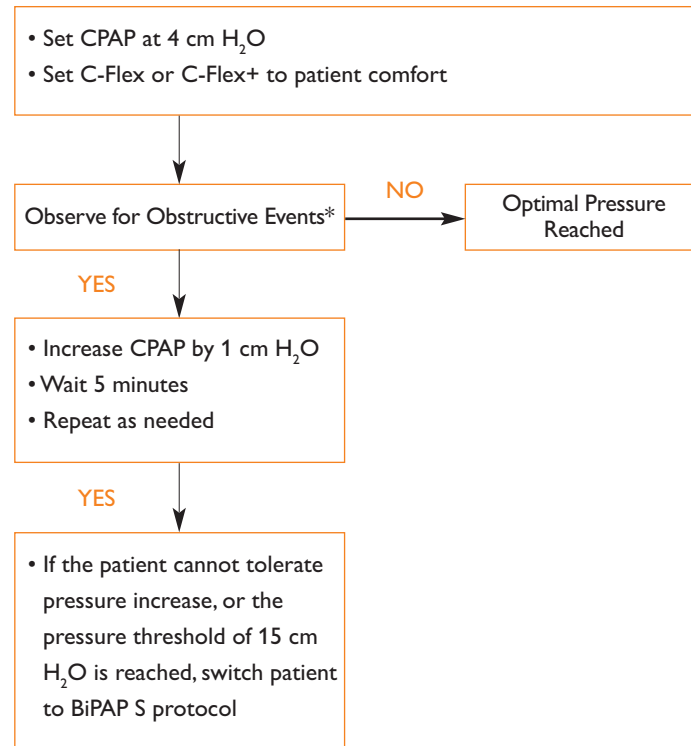
The goals should be individualized to meet the needs of each patient.

1. Keep the airway open (airway management)
2. Stabilize breathing patterns by monitoring the patient's response to therapy
3. Adjust user set parameters as needed for optimal therapy efficacy and adherence
4. Ensure proper mask fit to enhance comfort and acceptance and to minimize leaks
5. Have patient lie down and breathe on the designated therapy device at the basic settings described with each protocol
6. Recheck mask fit, assure patient comfort and acceptance
7. Adjust flex features to patient comfort



CPAP

# Suggested titration protocol for CPAP<sup>1</sup>



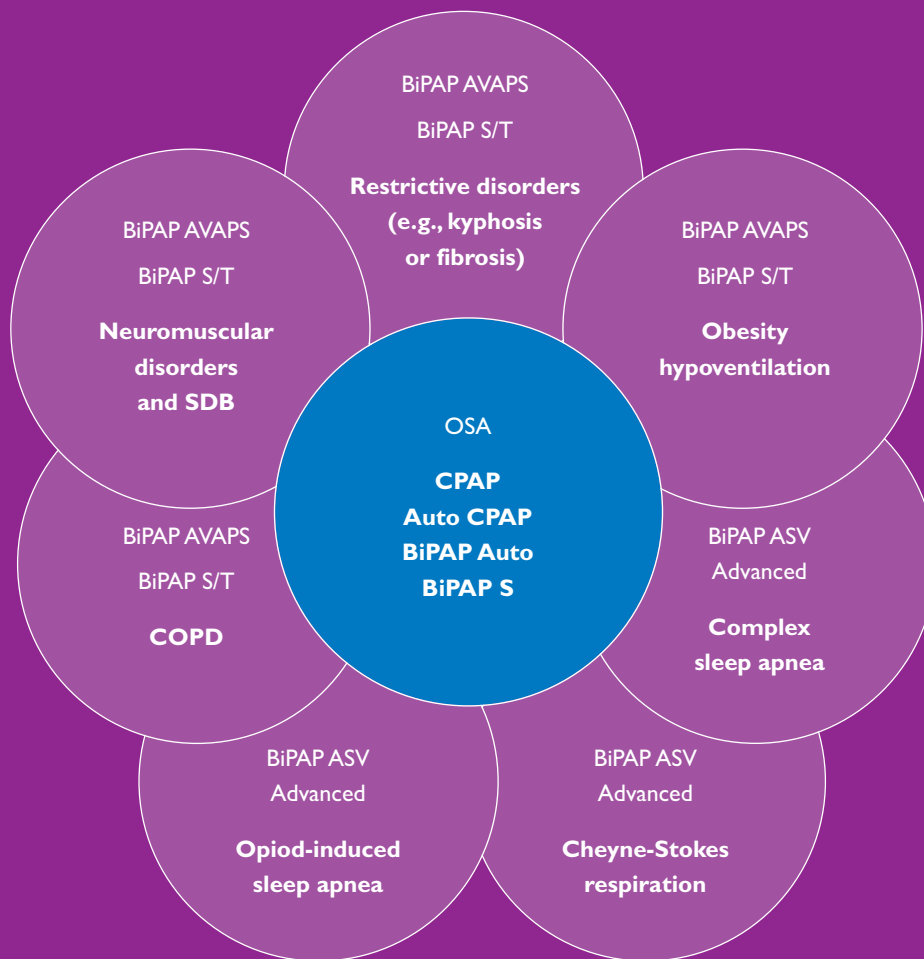
## Note:

- Establish initial settings as indicated or as ordered by physician
- Initial CPAP settings may be adjusted to patient condition or severity
- C-Flex or C-Flex+ may be adjusted to patient comfort
- If central apneas are observed consider decreasing pressure for 20 minutes; if still present consider switching to BiPAP autoSV Advanced protocol

## \*Obstructive Event:

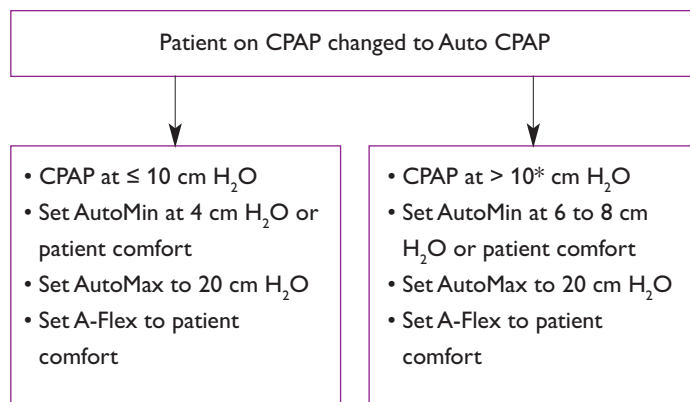
- ≥ 2 obstructive apneas, or
- ≥ 3 hypopneas, or
- ≥ 5 RERAs, or
- ≥ 3 min of loud, definite snoring<sup>1</sup>

<sup>1</sup>AASM Task Force. *Clinical Guidelines for the Manual Titration of Positive Airway Pressure in Patients with Obstructive Sleep Apnea*. JCSM, Vol 4, No.2, 2008.



auto CPAP

# Suggested titration protocol for Auto CPAP



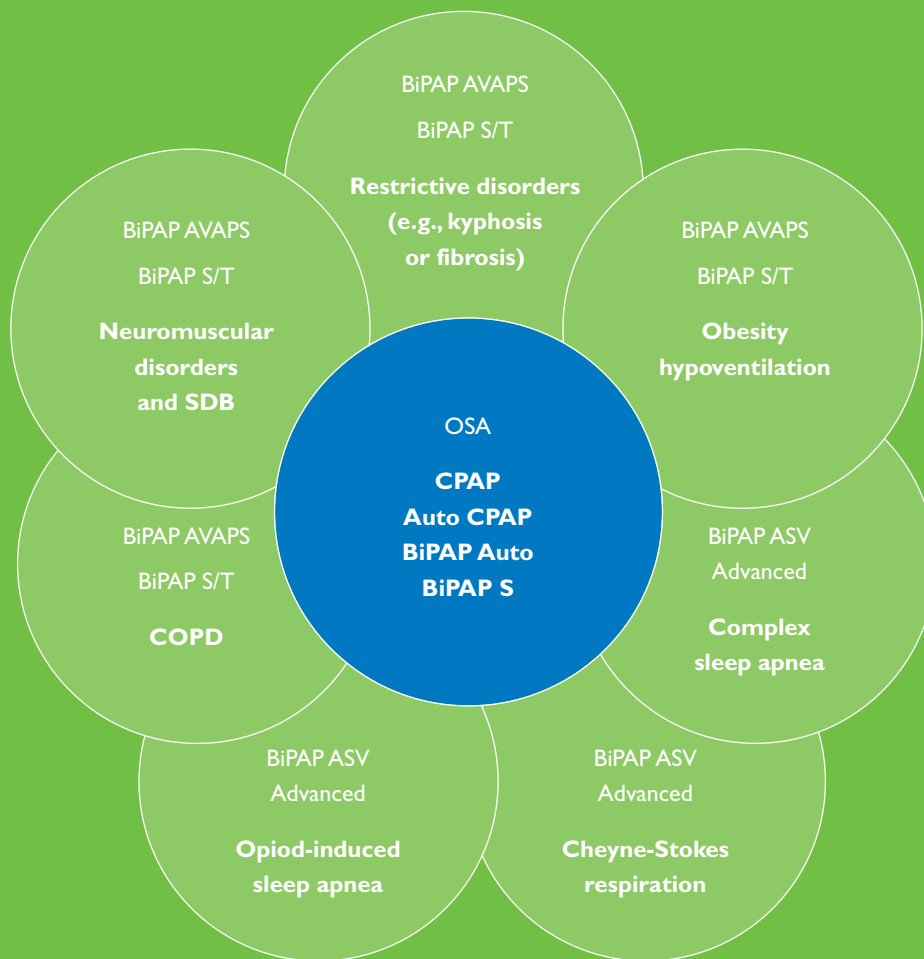
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## Note:

- Establish initial settings as indicated or as ordered by physician
- Initial Auto CPAP settings may be adjusted to patient condition or severity
- A-Flex may be adjusted to patient comfort
- If central apneas are observed consider switching to BiPAP autoSV Advanced Protocol

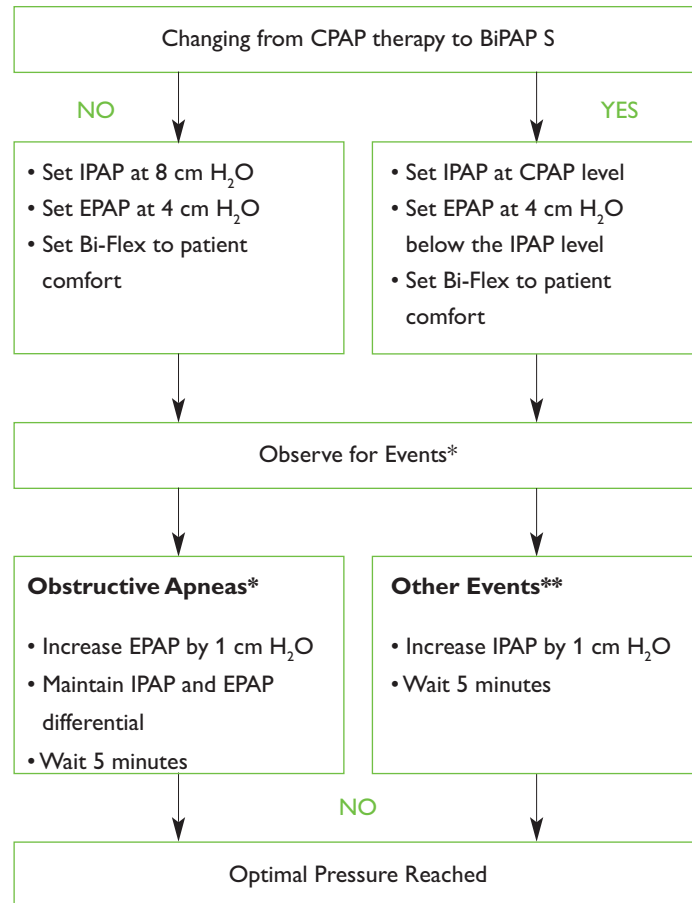
\*If multiple obstructive events are observed at the beginning of the study use a higher AutoMin





BiPAP S

# Suggested titration protocol for BiPAP S<sup>1</sup>



## Note:

- Establish initial settings as indicated or as ordered by physician
- Initial BiPAP S settings may be adjusted to patient condition or severity
- Bi-Flex may be adjusted to patient comfort
- If central apneas are observed consider decreasing pressure for 20 minutes; if still present consider switching to BiPAP autoSV Advanced protocol

## \*Obstructive Event:

≥ 2 obstructive apneas,

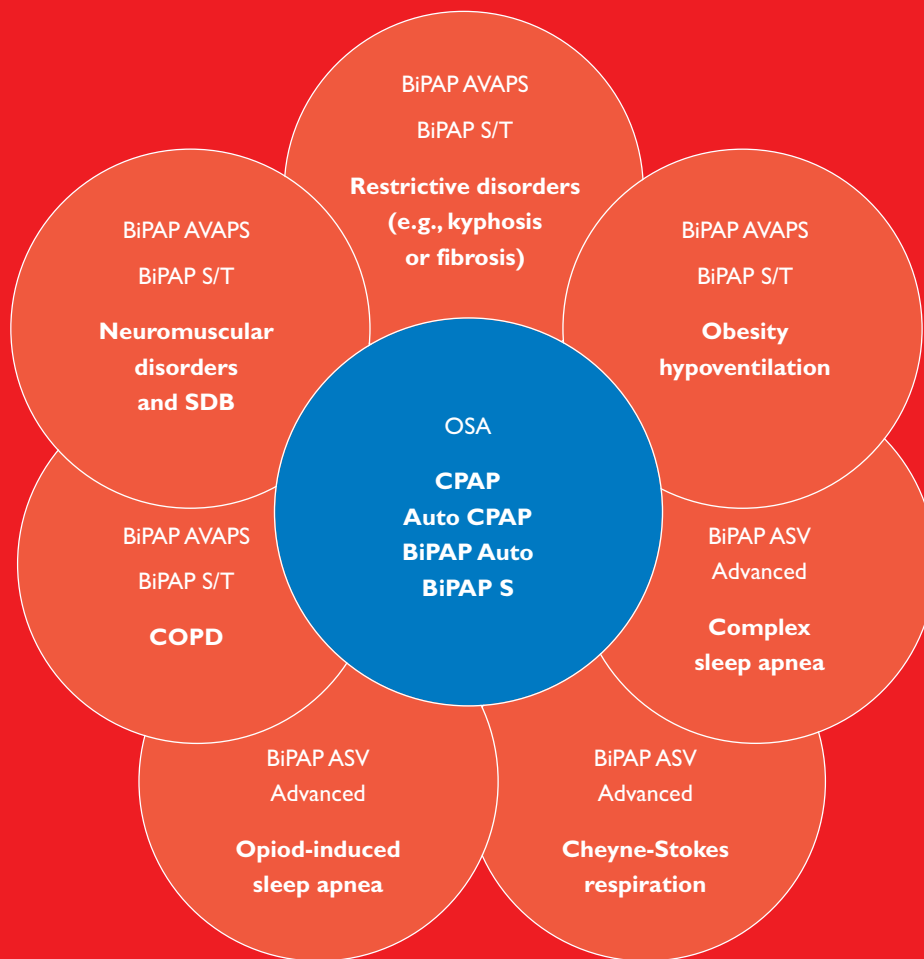
## \*\*Other

≥ 3 hypopneas, or

≥ 5 RERAs, or

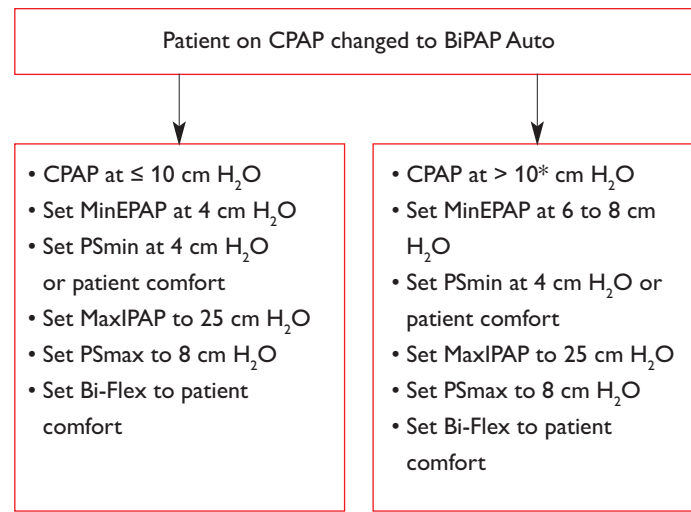
≥ 3 min of loud, definite snoring<sup>1</sup>

<sup>1</sup>AASM Task Force. *Clinical Guidelines for the Manual Titration of Positive Airway Pressure in Patients with Obstructive Sleep Apnea*. JCSM, Vol 4, No.2, 2008.



## BiPAP Auto

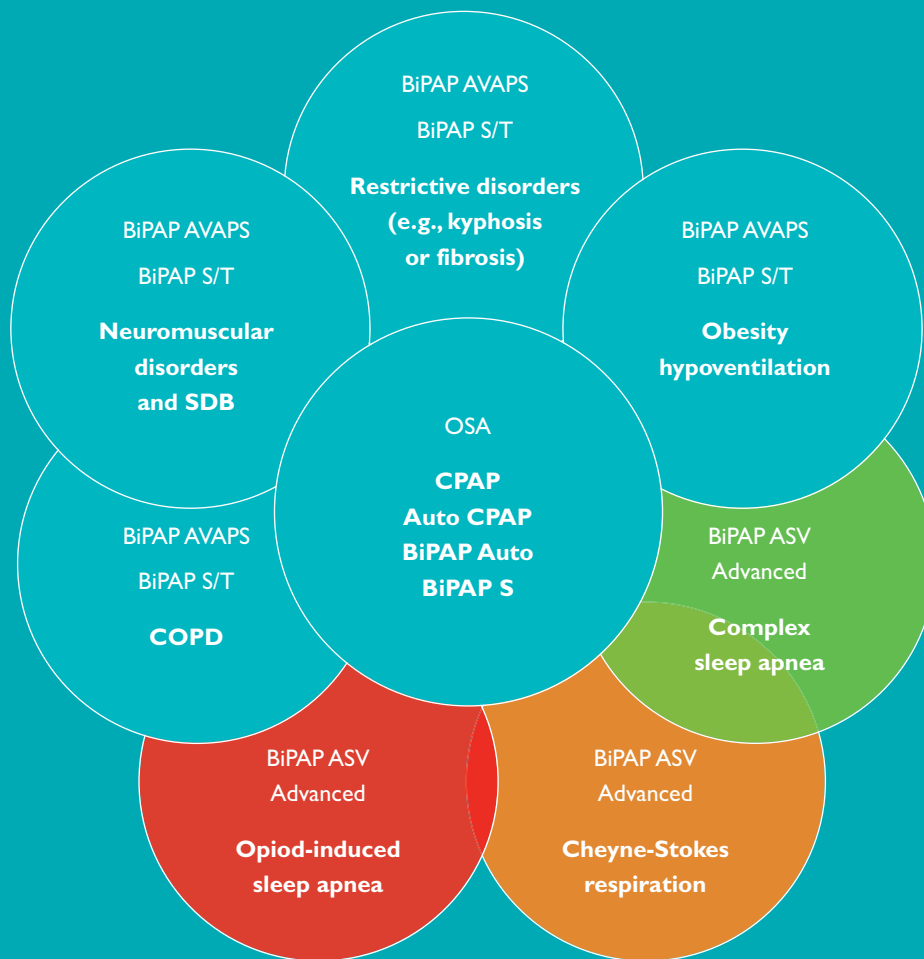
# Suggested titration protocol for BiPAP Auto



## Note:

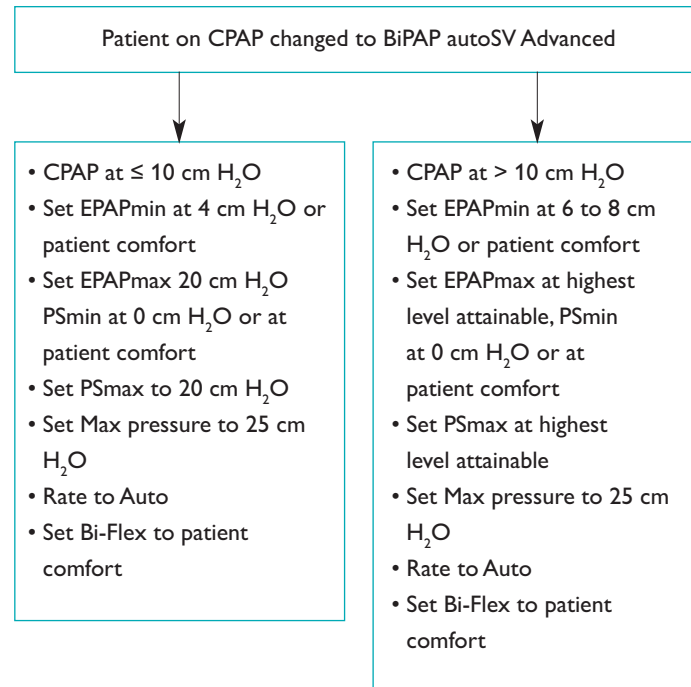
- Establish initial settings as indicated or as ordered by physician
- Initial BiPAP Auto settings may be adjusted to patient condition or severity
- Bi-Flex may be adjusted to patient comfort
- If central apneas are observed consider switching to BiPAP autoSV Advanced protocol

\*If multiple obstructive events are observed at the beginning of the study use a higher MinEPAP



## BiPAP autoSV Advanced

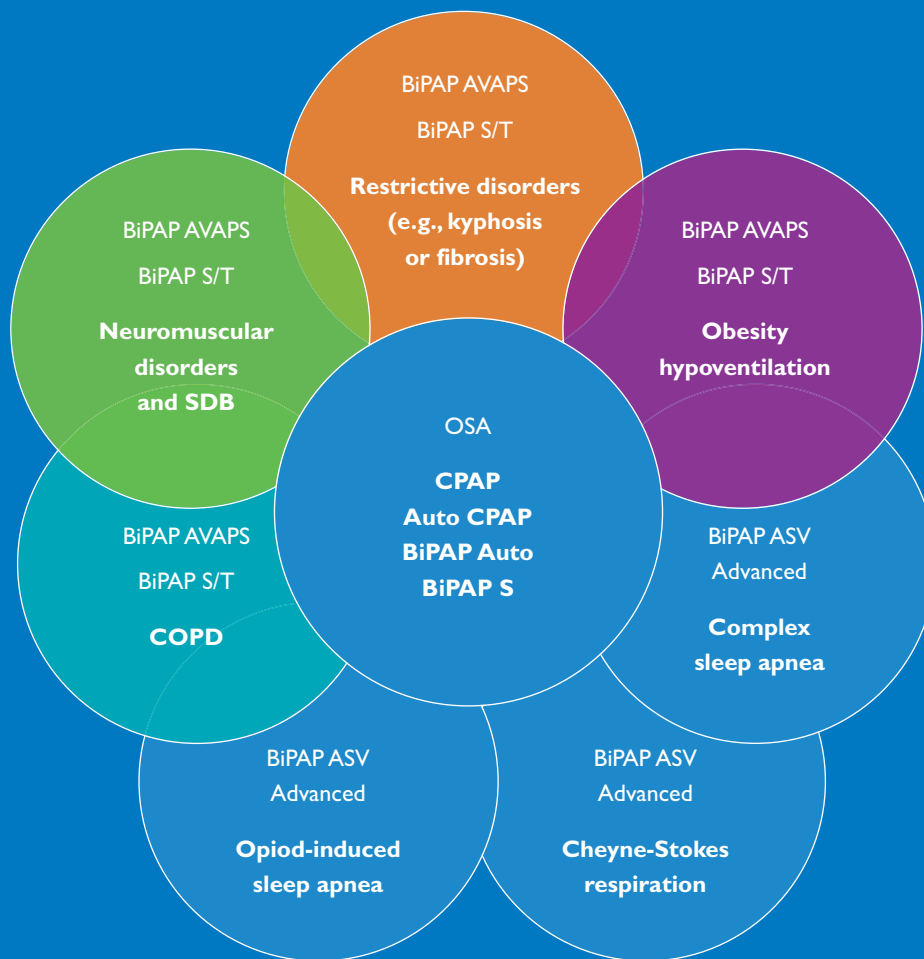
# Suggested titration protocol for BiPAP autoSV Advanced



## Note:

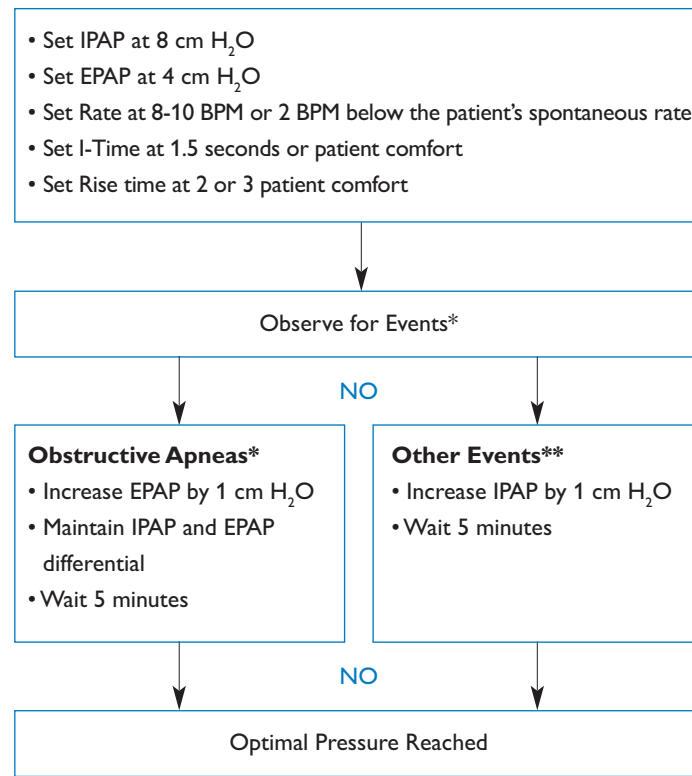
- Establish initial settings as indicated or as ordered by physician
- Initial BiPAP autoSV Advanced settings may be adjusted to patient condition or severity
- Bi-Flex may be adjusted to patient comfort
- If numerous hypopneas are noted, maintain PS  $> 4$  cm H<sub>2</sub>O

\*If multiple obstructive events are observed at the beginning of the study use a higher EPAPmin



BiPAP S/T

# Suggested titration protocol for BiPAP S/T<sup>1</sup>



## Note:

- Establish initial settings as indicated or as ordered by physician
- Initial BiPAP S/T settings may be adjusted to patient condition or severity
- I-Time may be adjusted to patient comfort
- Consider supplemental O<sub>2</sub> if SpO<sub>2</sub> <88% or <90% at optimal PS and RR for 5 min

## \*Obstructive Event:

≥ 2 obstructive apneas,

## \*\*Other

≥ 3 hypopneas, or

≥ 5 RERAs, or

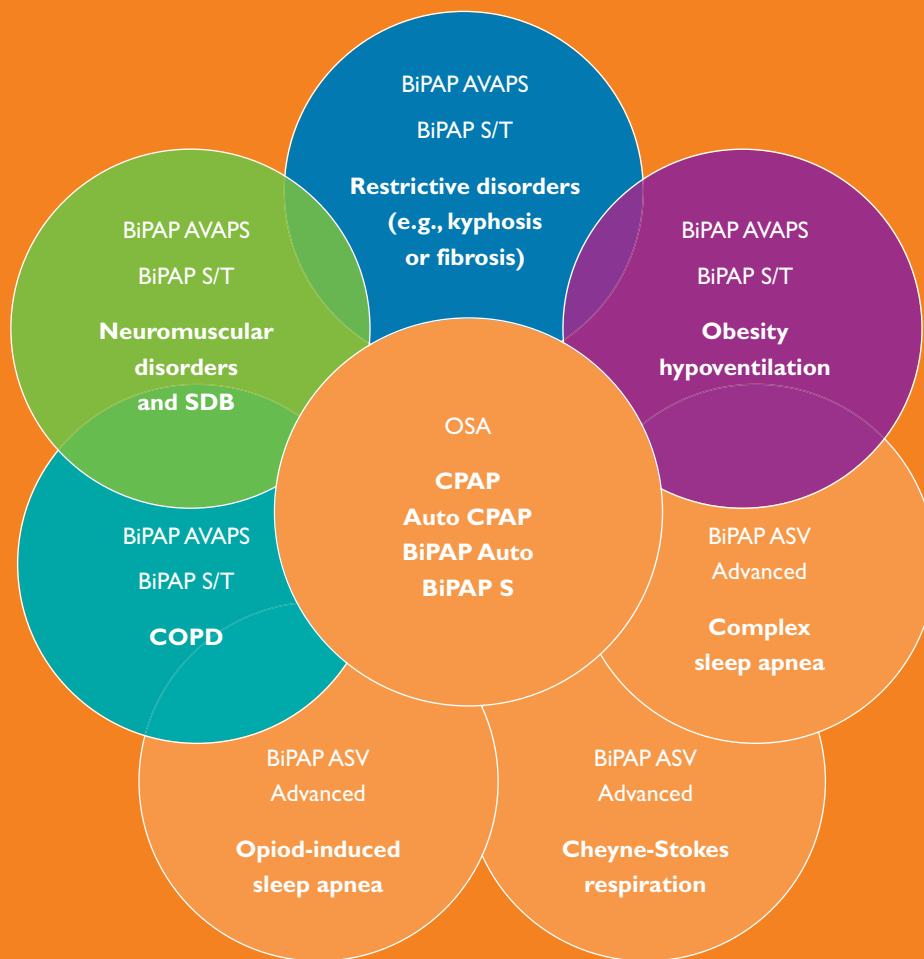
≥ 3 min of loud, definite snoring

## \*\*Respiratory Event:

Appearance of or worsening of hypoventilation during sleep

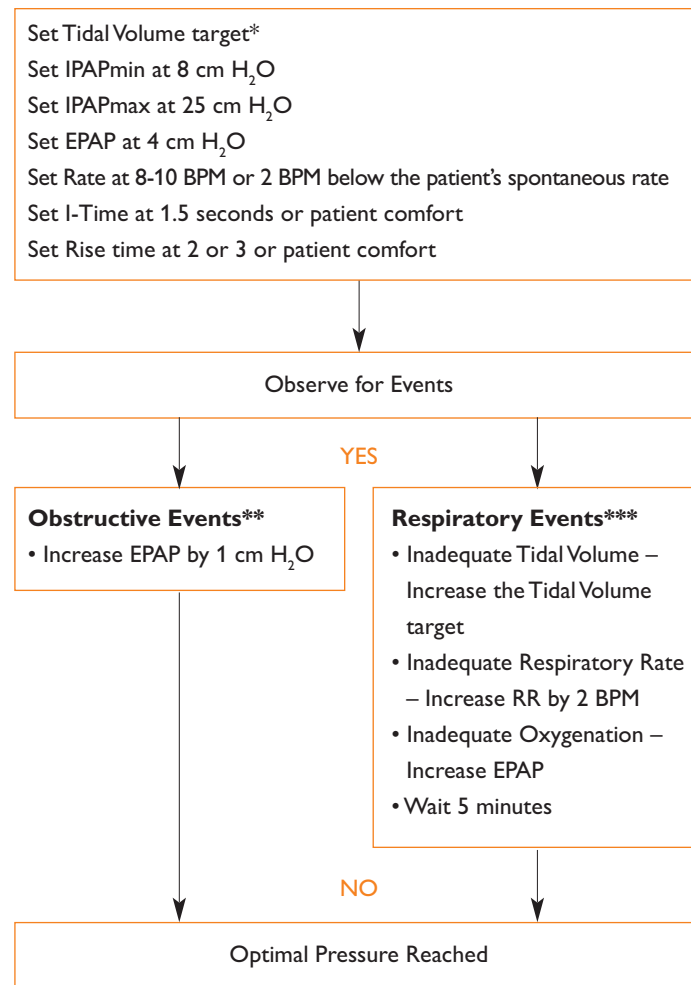
<sup>1</sup>AASM Task Force. *Best Clinical Practices for the Sleep Center Adjustment of NPPV in Stable Chronic Alveolar Hypoventilation Syndromes*. JCSM, Vol 6, No.5, 2010.





## BiPAP AVAPS

# Suggested titration protocol for BiPAP AVAPS



## \*3 ways to choose a starting tidal volume with AVAPS:

1. MD suggestion
2. Patient comfort
3. Ideal body weight: 8 ml/kg\*

\*AVAPS suggested tidal volume settings based on height and ideal weight.

height	59"	61"	63"	65"	67"	69"	71"	73"	75"
ideal weight	52.0 kg	55.5 kg	59.0 kg	62.5 kg	66.5 kg	70.5 kg	74.5 kg	78.5 kg	83.0 kg
8 ml/kg V <sub>T</sub>	420 ml	440 ml	470 ml	500 ml	530 ml	560 ml	600 ml	630 ml	660 ml

## Note:

- Establish initial settings as indicated or as ordered by physician
- Initial BiPAP AVAPS settings may be adjusted to patient condition or severity
- I-Time may be adjusted to patient comfort
- Consider supplemental O<sub>2</sub> if SpO<sub>2</sub> <88% or <90% at optimal PS and RR for 5 min.

## \*\*Obstructive Event:

- > 2 obstructive apneas,
- > 3 hypopneas, or
- > 5 RERAs, or
- > 3 min of loud, definite snoring

## \*\*\*Respiratory Event:

Appearance or worsening of hypoventilation during sleep

# Sample prescriptions

## System One CPAP

\_\_\_\_\_ cm H<sub>2</sub>O with Encore Anywhere/SleepMapper

☐ Heated Humidifier ☐ Heated Tube

DISPENSE AS WRITTEN/DO NOT SUBSTITUTE

## System One CPAP

### REMstar Auto

C-Flex C-Flex+ A-Flex: 1 2 3

Auto Pressure: Min: \_\_\_\_\_ cm H<sub>2</sub>O Max: \_\_\_\_\_ cm H<sub>2</sub>O

☐ Encore Anywhere/SleepMapper

☐ Heated Humidifier ☐ Heated Tube

DISPENSE AS WRITTEN/DO NOT SUBSTITUTE

## System One CPAP

\_\_\_\_\_ cm H<sub>2</sub>O with Flex

☐ EncoreAnywhere/SleepMapper

☐ Heated Humidifier ☐ Heated Tube

Convert to System One BiPAP Auto after 60 days if non-compliant

DISPENSE AS WRITTEN/DO NOT SUBSTITUTE

## System One

### REMstar Pro / REMstar Auto

C-Flex C-Flex+ A-Flex: 1 2 3

CPAP Check Pressure: \_\_\_\_\_ cm H<sub>2</sub>O (±3 cm)

Auto Pressure: Min: \_\_\_\_\_ cm H<sub>2</sub>O Max: \_\_\_\_\_ cm H<sub>2</sub>O

Auto Trial Duration \_\_\_\_\_ days then 90% pressure (±3 cm)

☐ Encore Anywhere/SleepMapper

☐ Heated Humidifier ☐ Heated Tube

DISPENSE AS WRITTEN/DO NOT SUBSTITUTE

## BiPAP Auto SV Advanced

EPAPmin: \_\_\_\_\_ cm H<sub>2</sub>O (4 cm – 25 cm)

EPAPmax: \_\_\_\_\_ cm H<sub>2</sub>O (4 cm – 25 cm)

PSmax: \_\_\_\_\_ cm H<sub>2</sub>O (0 cm – 21 cm)

PSmin: \_\_\_\_\_ cm H<sub>2</sub>O (0 cm – 21 cm)

Max Pressure: \_\_\_\_\_ cm H<sub>2</sub>O (25 cm)

Rate: \_\_\_\_\_ BPM (auto, 4 -30, off)

Bi-flex setting: \_\_\_\_\_ (1,2,3)

☐ Encore Anywhere/SleepMapper

☐ Heated Humidifier ☐ Heated Tube

DISPENSE AS WRITTEN/DO NOT SUBSTITUTE

## BiPAP S/T AVAPS

EPAP: \_\_\_\_\_ cm H<sub>2</sub>O (4 cm – 25 cm)

IPAP max: \_\_\_\_\_ cm H<sub>2</sub>O

IPAP min: \_\_\_\_\_ cm H<sub>2</sub>O

Max Pressure: \_\_\_\_\_ cm H<sub>2</sub>O (30 cm)

Rate: \_\_\_\_\_ BPM (4 -30)

Tidal Volume \_\_\_\_\_ ml (200-1500 ml)

☐ Heated Humidifier ☐ Heated Tube

DISPENSE AS WRITTEN/DO NOT SUBSTITUTE

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