

# PEEP monitoring



What other tools do I have to identify and treat air trapping?

Peak inspiratory pressure (PIP) monitoring

Flow monitoring

Intrinsic positive end-expiratory pressure (PEEP) monitoring



Keep PIP < 35 cmH<sub>2</sub>O

- Decrease V<sub>T</sub>
- Decrease RR
- Increase flow
- Bronchodilators
- Steroids
- Increase PEEP

Permissive hypercapnia may be necessary.

**Reference:**

M J Tobin; R F Lodato. PEEP, auto-PEEP, and waterfalls. Chest. 1989;96(3):449-451. doi:10.1378/chest.96.3.449

Determining the amount of intrinsic PEEP (inadvertent PEEP or auto PEEP)—the difference between the set PEEP and the total PEEP—can help manage patients with obstructive airway disease.

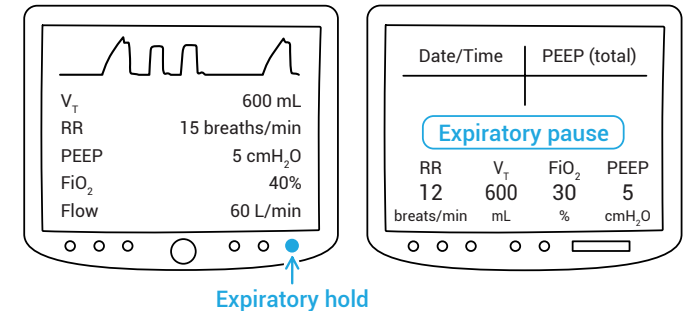
## Identify obstructive airway disease

Depressing the expiratory hold or expiratory pause button on the ventilator keeps the lungs at maximal exhalation for about 1 second and allows you to measure the total PEEP.

You can then calculate the intrinsic PEEP.

Total PEEP - set PEEP = intrinsic PEEP

Intrinsic PEEP > 0 → air trapping



## Treat obstructive airway disease

### Decrease V<sub>T</sub>

Reducing volume in, reduces volume needed to get out.

### Decrease RR

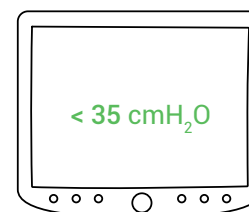
Reducing RR allows more time to exhale.

### Increase flow

Increasing flow shortens inspiration time and therefore increases expiration time.

### Bronchodilators

### Steroids



### Increase set PEEP

To keep work of breathing to a minimum you want intrinsic PEEP = extrinsic PEEP. In patients with obstructive airway disease, air trapping causes the intrinsic PEEP > extrinsic PEEP. By performing an expiratory hold and determining the total PEEP and calculating the intrinsic PEEP, you can increase the set PEEP by this amount to reduce the work of breathing.

### Permissive hypercapnia

Remember, reducing V<sub>T</sub> or RR may increase PaCO<sub>2</sub> and you may need to tolerate hypercapnia in order to treat these patients; just be sure to monitor pH and PaCO<sub>2</sub> on case-by-case basis.