

DID YOU KNOW?



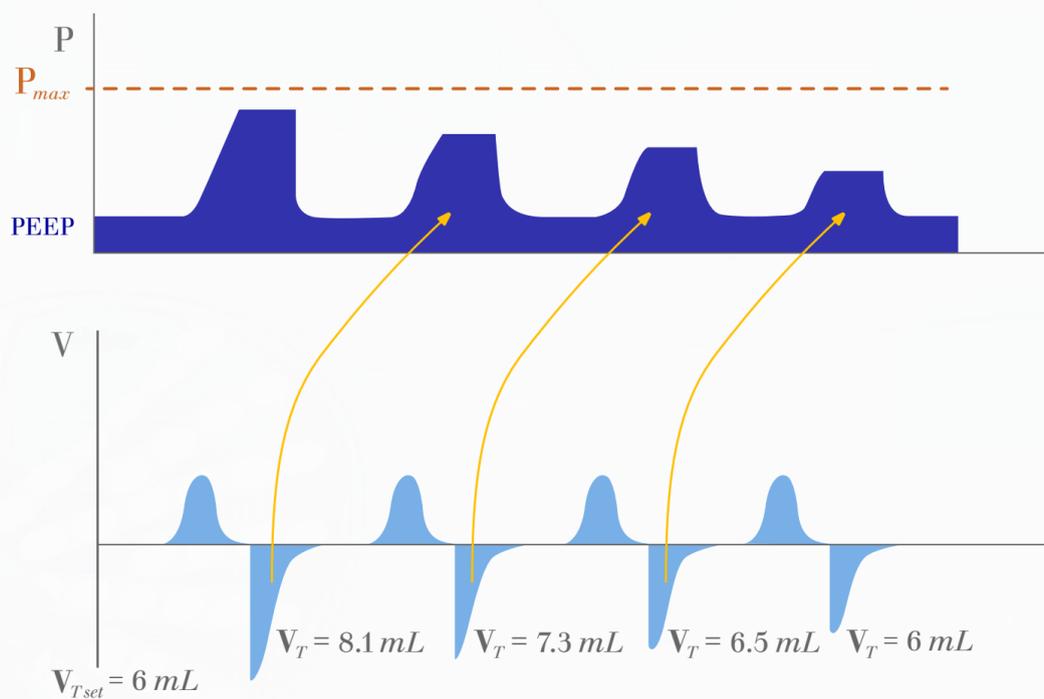
VOLUME GUARANTEE IN NEONATAL VENTILATION

What is it?

Volume Guarantee is an option available within the patient-triggered modes of ventilation available on Draeger neonatal ventilators.

How is it applied?

When Volume Guarantee is activated, the set tidal volume is reached with a decelerating flow pattern using the following steps:



1. The first breath is a pressure limited breath applying 5 cmH₂O above PEEP
2. The proximal flow sensor measures gas flow and tidal volumes returned for each breath
3. The following breaths will increase the peak inspiratory pressure (PIP) up to 75% until the set target tidal volume VT is achieved
4. The PIP increases up to 3 cmH₂O as a maximum per breath up to 5 cmH₂O below the Pmax alarm setting
5. The lowest PIP delivered is 5 cmH₂O above PEEP for non-triggered and 0.1 cmH₂O for triggered breaths
6. The delivered tidal volume cannot exceed 130% of the set VT during the non-triggered breaths which is important during changes in leaks, compliance or respiratory drive

Why is it relevant?

- Prevent volutrauma – start VG immediately after birth to minimize the impact of compliance changes
- Maintain adequate ventilation at the lowest possible parameters
- Maintain stable blood gases
- A stable tidal volume avoiding hypocarbia (swings in PaCO₂)

Why is it helpful to improve the outcome?

Inadequate ventilation, instable tidal volume, hypocarbia are proven to lead to injury and inflammation to the lungs and brain in preterm infants already in the delivery room or using HFOV^{1,2}.

The consequent cerebral blood flow instability could initiate a cerebral inflammatory cascade.

This increases the risk of brain injury and potential life-long adverse neurodevelopmental outcomes³.

Volume guarantee actively works to prevent VT instability, hypocarbia and volutrauma.