# Spontaneous Breathing Trials (SBTs)

**A bit of background ...** The SBT was developed to identify patients who are ready to discontinue invasive ventilation. The test aims to monitor for signs of respiratory muscle fatigue while the patient is still intubated.

Adult studies introducing a daily assessment and SBT showed approximately 75% of patients were ready to extubate when they met daily screen criteria. (Frutos-Vivar, 2014) Early paediatric studies have shown similar results. (Farias et at, 1998 and 2001)

When a patient is intubated they are forced to breathe through an artificial airway which is much smaller in internal diameter than that of their normal physiological airway

**Now for the science bit ...** ***Pouseuille's Law*** states the force required to push a gas through a tube is directly affected by the diameter of the tube and the length of tube the gas will flow through.

**In clinical terms ...** if an ET tube is inserted into a child's airway the cross sectional area is decreased by half, resulting in the work of breathing to increase 16 fold for the same volume of air

**Who can do a SBT ?** SBT should only be performed by an appropriately qualified and trained member of staff who is competent to do so in your PICU

## . . . . . How to do a SBT

Set the ventilator to a **spontaneous mode** of ventilation & provide a positive end expiratory pressure **(PEEP) of 5 cmH2O and a Pressure Support (PS) of 5 cmH2O above PEEP**

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Do you need to **STOP** feeds? . . . . . **Fasting!**

## When using Drager . . . . .

Please **turn off** Automatic Tube Compensation (ATC) when commencing the SBT.

## . . . . . exceptions to the rule

In circumstances where it is planned for a patient to extubate to NIV with a PEEP >5 cm H20 it would be ill-advised to decrease the level of PEEP pre-extubation to less than their usual or planned NIV settings.

The SBT method for this category of patient will be to provide a patient specific **level of PEEP appropriate to their planned NIV PEEP setting** and a **Pressure Support of 5cm H20 (above PEEP).**