WEANING FROM THE VENTILATOR by **Nick Mark**, MD

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Have I **fixed the cause** of respiratory failure?
(e.g. successful diuresis of a pt with heart failure, effects of overdose wore off, ARDS improving, etc)

→

Daily "**Wean screen**"
Pt should **have airway reflexes** (cough, gag**), require FiO2 ≤ 0.5** on **PEEP ≤ 8**, breath spontaneously, w/ stable hemodynamics (OK if on stable dose of vasopressors)

Yes →

Do a **spontaneous breathing trial** (SBT)
Settings: PS 5 bpm, PEEP 5 cmH2O for 30 min. Perform **once** daily. For patients with severe HF consider zero PEEP

Combined with a **Sedation Vacation** (stop sedating medications **prior** to SBT)

If failure, try to identify root cause and try again the next day.

How does the **patient** look?
Failure if: patient looks extremely distressed (anxiety, agitation) or using accessory muscles

Fail →

Pass ↓

What does the **monitor** show?
Failure if: Arrythmias including tachycardia or bradycardia, Hypo/Hypertension, or Desaturation

Fail →

Pass ↓

What does the **ventilator** show?
Failure if consistently low TV (<300) MV too high (>10 lpm) or MV too low (<2 lpm)

Fail →

Pass ↓

What does the **ABG** show? (optional)
Failure if new hypercarbia or respiratory alkalosis
Only check ABG on select patients.

Fail →

Pass →

Check for cuff leak

Passing if >110 ml or <25% of TV lost or if audible leak is heard

If **no cuff leak present** treat potential airway swelling with corticosteroids (methylpred 60 mg IV) then repeat test in 6 hours. Can consider extubation even if cuff leak is still absent

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Extubate

Typical reintubation rate is ~10%
(if you are not reintubating you are not extubating enough!)

Setting up for extubation success

- Decrease **demand** – correct metabolic acidosis, decrease CO2 production (fever, overfeeding, etc), reduce dead space.
- Optimize **mechanics** - sit patient up, avoid gastric distension, consider draining pleural effusions
- Improve **strength** – physical therapy, wean or avoid steroids & NMB
- Respiratory **drive** – stop or reduce long lasting pain meds, combine with sedation vacation
- Optimize **Nutrition** – feeding w/o overfeeding, correct electrolyte derangements (including Mg and PO4)
- **Diuresis** – Dry lungs are happy lungs

Other pro-tips

- Rapid shallow breathing index (**RSBI**) = freq / TV (L); RSBI >105 is a specific but insensitive predictor of extubation failure
- Drop in ScvO2 by >4.5% is a highly specific and fairly sensitive predictor of extubation failure

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