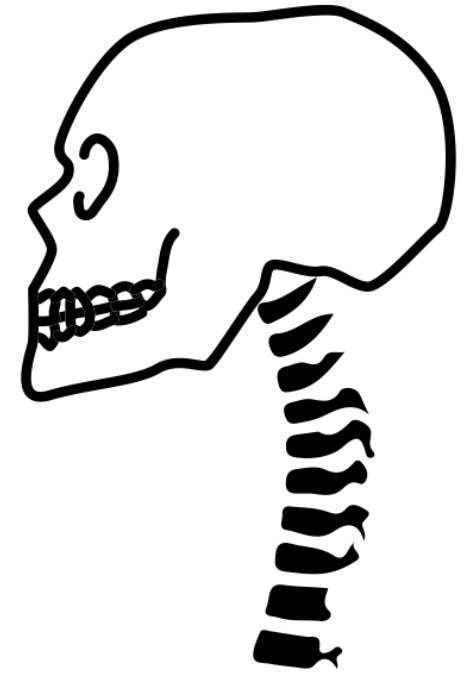
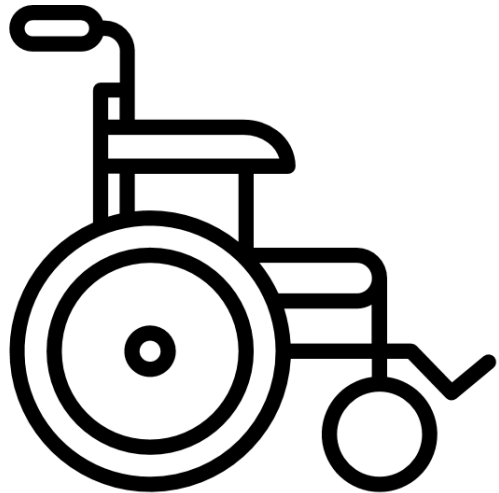


Inspiratory Muscle Training to Assist Weaning from Mechanical Ventilation: A Case Report

Thomas Bond & Kate Humphreys
Physiotherapy Department
Capital & Coast District Health Board

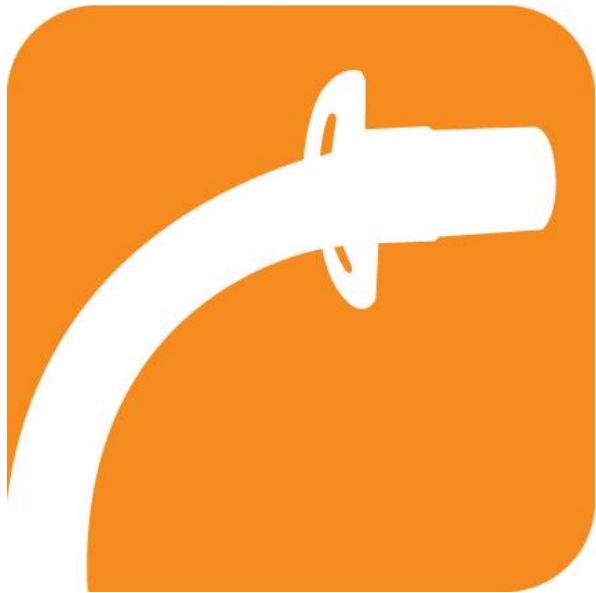


Mr P: the patient

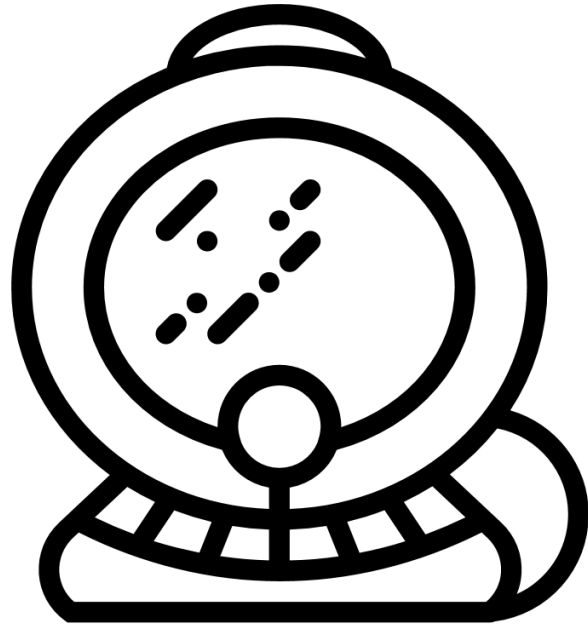




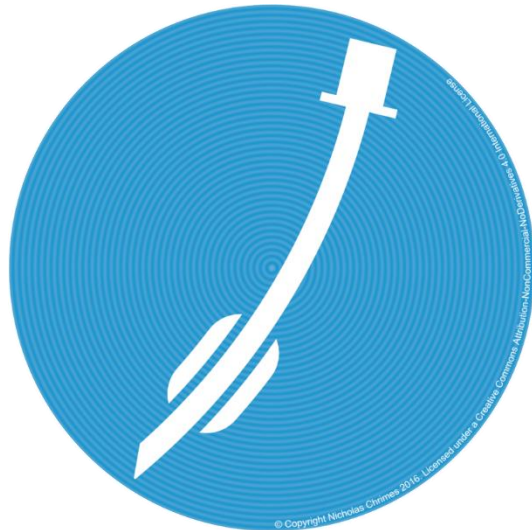
Admitted to ICU with pneumonia



Intubated on admission



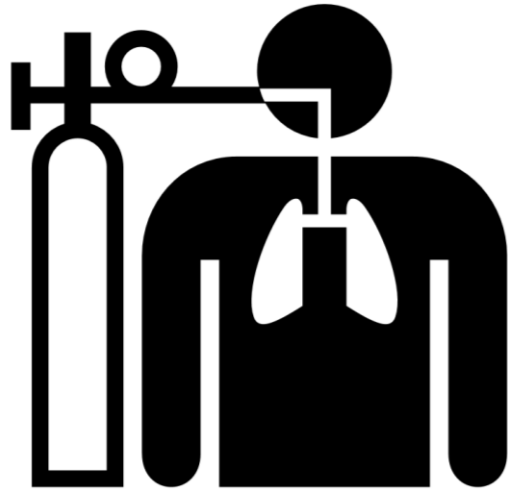
Extubated Day 5 to NIV



Tracheostomy inserted Day 11



Ventilated for 69 days



Ongoing desaturations with
mucus plugging and infections

What is Inspiratory Muscle Training?



Evidence for IMT

- IMT has been shown to:
 - ↑ inspiratory muscle strength
 - ↑ inspiratory muscle endurance
 - ↓ dyspnoea
 - ↑ exercise tolerance
 - ↑ Quality of Life (short AND long-term)
- In the following populations:
 - Athletes (runners, cyclists, swimmers...)
 - COPD (Beckerman 2005, Shoemaker et al. 2009)
 - Heart failure (Dall'Ago et al. 2006)
 - ICU...

Evidence for IMT in the ICU

- In the ICU, evidence suggests IMT:
 - Is feasible and well tolerated in critically ill patients (Vorona et al. 2018)
 - Is associated with acceleration of ventilator weaning (Vorona et al. 2018)
 - Enhances weaning success in patients who have failed to wean from mechanical ventilation (Martin et al. 2011)
- Following successful weaning from mechanical ventilation, IMT results in:
 - ↑ inspiratory muscle strength (Bissett et al. 2016)
 - ↑ Quality of Life (Bissett et al. 2016)

Training method / IMT protocol

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- Canberra Hospital (Bissett et al. 2018)
 - High-intensity training (5 sets of 6 breaths at a minimum of 50% of maximum inspiratory pressure)
 - Performed once per day (weekdays)
 - Intensity increased daily such that patients can only just complete the 6th breath in each set

Review Paper

Inspiratory muscle training for intensive care patients: A multidisciplinary practical guide for clinicians

Bernie Bissett, PhD, Bachelor of Applied Science (Hons) ^{a, c, *}

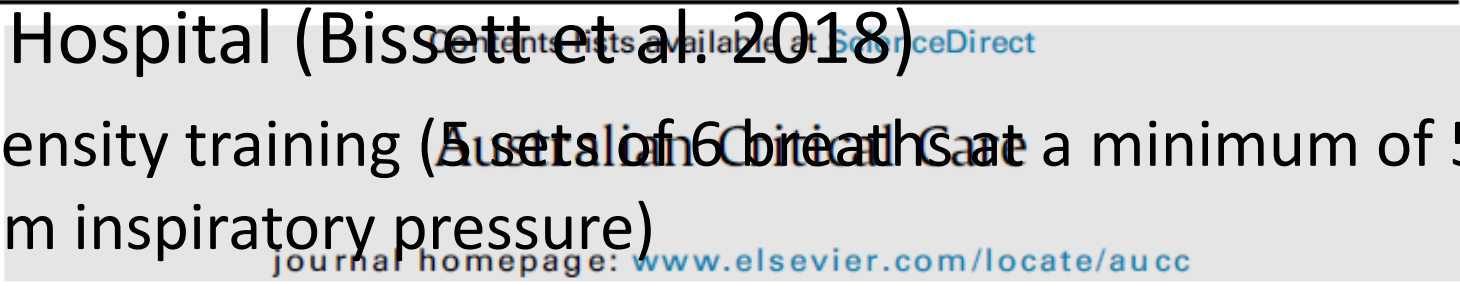
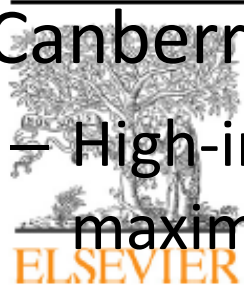
I. Anne Leditschke, MBBS, FRACP, FCICM, MMgt ^b

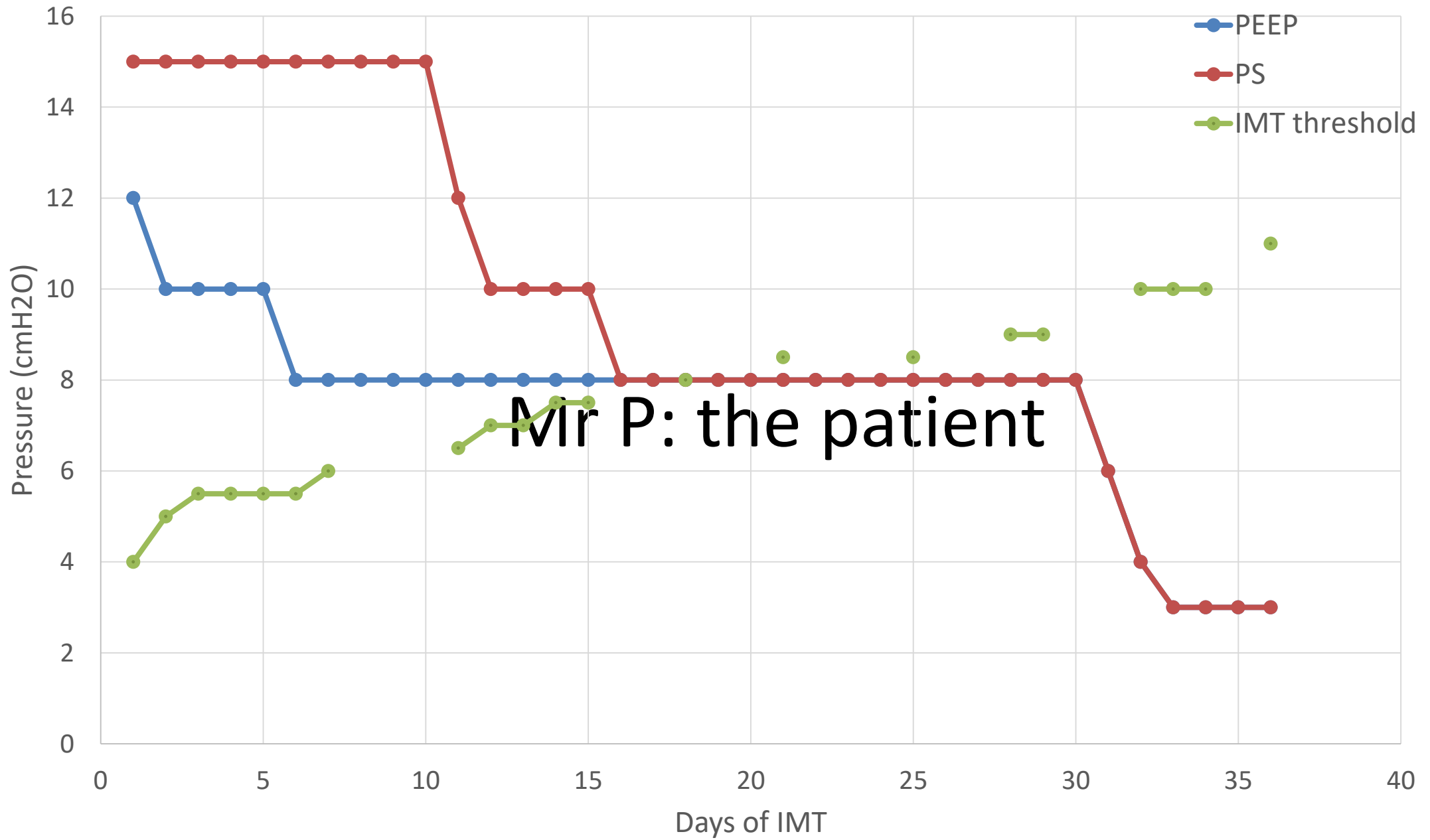
Margot Green, Bachelor of Applied Science ^c

Vince Marzano, Bachelor of Physiotherapy (Hons) ^c

Sarajane Collins, Bachelor of Applied Science (Nursing) ^d

Frank Van Haren, MD, PhD, EDIC, FCICM ^{d, e, f}





Outcome of use of IMT

- IMT was progressed from 4cmH₂O to 11cmH₂O over 35 days
- After a week on PS 3cmH₂O and PEEP 3cmH₂O, Mr P was decannulated
- Tolerated decannulation for approx. 7 hours
- Reintubated due to respiratory failure and secretion retention

Discussion

- Potential reasons for failure
 - Inaccurate MIP pressures
 - Not high enough intensity
 - Small but growing evidence in spinal cord injury population
 - Too late?
- This was only used for one patient
- Potential for success with future patients

Any Questions?

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- Images: Noun Project & Phillips webpage, Bissett paper (2018)