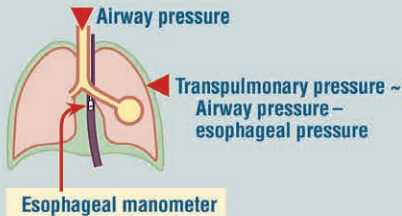


INFOGRAPHICS IN ANESTHESIOLOGY

Complex Information for Anesthesiologists Presented Quickly and Clearly

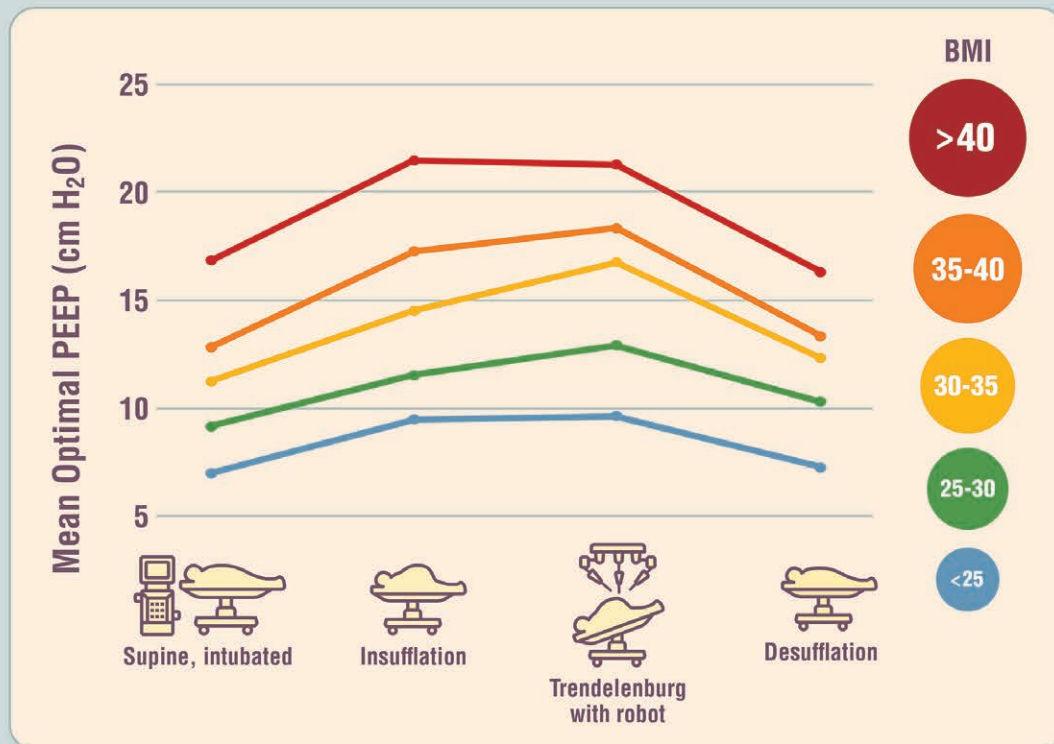
VENTILATORS vs. ROBOTS Optimizing for Obese PEEP



Ventilator airway pressure is distributed between the lungs (*transpulmonary pressure*) and the chest wall (*pleural pressure*). Obesity and surgical conditions can reduce the compliance of the lungs and chest wall, necessitating higher airway pressures for optimal ventilation.¹

Tharp *et al.*² evaluated respiratory mechanics in 91 patients with diverse BMIs undergoing laparoscopic robotic abdominal surgery.

Optimal PEEP was calculated as set PEEP minus end-expiratory transpulmonary pressure:



Transpulmonary pressure increased by 1.9 ± 0.5 cm H₂O per BMI category, $P < 0.006$.

Pressure rose further with pneumoperitoneum (2.8 ± 0.7) and Trendelenburg (4.7 ± 1), $P < 0.001$.

Optimal PEEP varied widely by patient and surgical phase, from 0 to 36.6 cm H₂O. PEEP may need individualization based on BMI and surgical conditions.

BMI, body mass index; PEEP, positive end-expiratory pressure.

Infographic created by Jonathan P. Wanderer, Vanderbilt University Medical Center, and James P. Rathmell, Brigham and Women's Health Care/Harvard Medical School. Illustration by Annemarie Johnson, Vivo Visuals. Address correspondence to Dr. Wanderer: jon.wanderer@vumc.org.

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2. Tharp WG, Murphy S, Breidenstein MW, Love C, Booms A, Rafferty MN, Friend AF, Perrapato S, Ahern TP, Dixon AE, Bates JHT, Bender SP: Body habitus and dynamic surgical conditions independently impair pulmonary mechanics during robotic-assisted laparoscopic surgery: A cross-sectional study. *ANESTHESIOLOGY* 2020; 133:750–63