

LOW-PRESSURE INSUFFLATION DEVICES FOR LAPAROSCOPIC SURGERIES

Can the use of lower intra-abdominal pressure during laparoscopic surgery improve outcomes without increasing risks?

Background

- Pneumoperitoneum inflates the abdomen with gas to create space for laparoscopy.
- It can cause postoperative pain.
- The MUHC must replace its current fleet of insufflation devices (10-20 mmHg).
- Evaluation question: **Does lower pressure (<10 mmHg) during laparoscopic surgery offer better clinical outcomes than standard pressure (≥10 mmHg)?**




Clinical Effectiveness & Cost Impact of Low Pressure

Shoulder pain	✓	May be reduced in the first 24 hours (Relative risk (RR): 0.64; 95% CI: 0.44 to 0.94) <i>Low certainty evidence</i>
Length of stay	✓	Probably reduced by ~8 hours (Mean difference: 0.33 days; 95% CI: -0.55, -0.11) <i>Moderate certainty evidence</i>
Opioid use	✗	No clinically meaningful effect (Mean difference: -1.73 mg; 95% CI: -2.36, -1.10) <i>Moderate certainty evidence</i>
Nausea/vomiting	?	Uncertain impact (RR: 0.61; 95% CI: 0.18, 2.13) <i>Low certainty evidence</i>
Conversion to higher pressure	⚠	May be more likely mid-surgery (RR: 4.71; 95% CI: 2.88 to 7.69) <i>Low certainty evidence</i>
Blood loss and surgery duration	✗	No clinically meaningful effect <i>Low certainty evidence</i>
Cost for cholecystectomies	−	\$18,663 savings/year for 437 patients (range: \$59K saving to \$22K increase) Modest budget impact


Methods

Meta-analysis of 85 randomized controlled trials (Reijnders-Boerboom et al; 2023)

 Population Patients undergoing any laparoscopic surgery

 Intervention Pneumoperitoneum with pressure <10 mmHg

 Comparator Pneumoperitoneum using pressure ≥10 mmHg

 Outcomes Clinical & safety outcomes

Recommendation

The TAU Policy Committee **approved** the following recommendation:

- There is **justification for replacing the current fleet of standard pressure devices with ones that offer both low and standard pressure**. Prospective collection of clinical and cost outcomes is recommended.

