Use of Negative Pressure Wound Therapy for Cesarean Patients with Obesity

Evaluating clinical outcomes and budget impact at the MUHC

What is Negative Pressure Wound Therapy?

- A wound-healing technology that creates a vacuum-sealed environment to improve healing and reduce the risk of infection.
- There are two common devices based on the level of negative pressure: PICO (-80 mmHg) and Prevena (–125 mmHg).

Methods

Meta-analysis of 10 randomized controlled trials

Population	Pregnant patients with obesity (BMI>30kg/m^2) undergoing cesarean
Intervention	Negative pressure wound therapy (NPWT)
Comparator	Standard dressing
Outcomes	Surgical site infections, wound complications, readmissions

Clinical Effectiveness

Surgical Site Infections	20% reduction (RR=0.79, 95% CI: 0.66, 0.95) Moderate quality evidence
Wound Complications	No difference (RR=0.90, 95% CI: 0.73, 1.09) Low quality evidence
Hospital readmissions	No difference (RR=1.41, 95% CI: 0.88, 2.27) Low quality evidence
Pressure level	No significant difference between PICO and Prevena Low quality evidence

Budget Impact

Burden of Illness	Post-cesarean SSI rate at MUHC ranges from 1.5% to 2.8% over past 5 years
Cases prevented if NPWT used	3 to 5 SSI cases annually
Budget impact	PICO device cost: $200 Cost for 200 patients: $40,000/year
Incremental cost-effectiveness ratio	$11,173 to prevent one additional SSI

Conclusions

- Given the very low rate of surgical site infection post-caesarean section at the MUHC;
- Given that there is no evidence of effectiveness of the device on more serious complications and readmissions;
- The opportunity for **impact on clinical benefit and cost savings is minimal.**