Fondation Hôpital général Lakeshore
Lakeshore General Hospital Foundation

Robotic-Assisted Surgery (RAS) at Lakeshore General Hospital (LGH)

Requesting a total contribution for RAS
Research Assistant = $135,020
Minor Renovations = $50,000

Robotic-Assisted Surgery (RAS):

Lakeshore General Hospital serves a fast-growing, diverse West Island community. Many patients currently travel off-island for robotic-assisted procedures in urology and gynecology—creating access, equity, and experience gaps. We propose establishing a Robotic-Assisted Surgery (RAS) Program at LGH, anchored by a multi-port robotic platform (e.g., da Vinci), with a structured quality and training framework.

International guidance and Canadian HTA work show clear patient-experience and perioperative advantages in select procedures (especially prostatectomy), while emphasizing the need for volume, governance, and rigorous cost management.

With philanthropy as the catalyst, LGHF can bring safer, more precise minimally invasive care closer to home, strengthen recruitment/retention, and elevate LGH's academic profile—while managing costs and risks through disciplined implementation.

Clinical rationale (what improves—and where)

Urologic oncology (radical prostatectomy): Contemporary meta-analyses show better sexual function recovery with robotic approach versus conventional laparoscopy, with broadly similar continence at 12 months and comparable oncologic outcomes. Perioperative metrics (blood loss, transfusions, length of stay) often favor robotic techniques.

Bottom line: RAS is not a universal upgrade for every operation, but for specific indications—notably prostatectomy and select gynecologic/colorectal procedures—it can enhance precision and patient experience when delivered in a high-volume, well-governed program.

Strategic value for LGH & the West Island

- Access & equity: Care closer to home reduces travel, time off work, and caregiver burden for West Island families.
- Recruitment & retention: A modern RAS program helps attract/retain top urologic, general, colorectal and gynecologic surgeons, anesthesiologists, and peri-op nurses.
- Training & academic profile: Dual-console capability supports safe supervision and skill transfer for McGill-affiliated trainees.

- System alignment: Quebec's HTA body (INESSS) is actively evaluating the pertinence of integrating RAS (decision expected Fall 2025); a thoughtful LGH program positions us to align with emerging provincial direction.

Proposed clinical scope

***See research proposal

Fundraising strategy (LGHF)

- Naming opportunities: Program naming; Robotic OR Suite; Dual-Console Education Fund; endowed Patient Outcomes Fund (PROMs/PREMs & registries).
- Donor segments: West Island leadership donors; grateful patient families (urology/gyne); corporate partners with workforce presence locally; family foundations focused on innovation/access.
- Public narrative: "Precision close to home"—keeping complex minimally invasive care in the West Island; recruiting top talent; reporting real outcomes.
- Stewardship: Annual outcomes brief to donors; behind-the-scenes OR tour (non-clinical); patient stories (consented).

The benefits that matter at Lakeshore

- Better peri-operative experience in key indications (esp. prostatectomy).

Across high-quality reviews, RAS consistently shows less blood loss, fewer transfusions and shorter length of stay vs. open surgery—while cancer control is comparable. Recent syntheses also suggest advantages in continence and sexual function versus laparoscopy in several analyses (procedure- and study-dependent). These are tangible wins for patients and beds.

- Frees scarce bed-days.

Shorter stays aren't just "nice to have"—they create real capacity for ED admits and electives. This bed-pressure logic is exactly why the NHS is expanding RAS usage alongside formal guidance from NICE on soft-tissue robotic surgery.

- Access & equity for West Island patients.

Today, many urology/gyne patients travel off-island for robotics. A local program repatriates care, reduces caregiver burden and time away from work, and strengthens continuity within our CIUSSS—without changing indications or lowering standards (robotic vs. laparoscopic vs. open chosen per case).

- Talent magnet + teaching leverage.

Canadian trainees increasingly expect robotic exposure; surveys show strong perceived importance of RAS and broad access to robots during training. If we want to recruit and retain top surgeons—and train them safely (dual console, simulation)—having a program is table stakes

- We can implement it safely and transparently.

Safety depends on governance and experience, not hype. AHRQ's patient-safety review is clear: structure credentialing, proctoring and incident learning, and outcomes follow. That's the program we're proposing.

- The policy wind is at our back.

NICE has issued early-value guidance supporting RAS for soft-tissue procedures, and INESSS is actively evaluating robotic integration for Québec (decision expected Autumn 2025). Lakeshore is better off being ready than playing catch-up.

Despite Costs, benefits are priceless:

- Costs are higher per case; value is higher per program.

Recent economic work confirms robotic cases generally cost more than traditional approaches. But those analyses don't capture local bed relief, patient retention, surgeon recruitment, teaching, and philanthropy—the things that move a hospital and a community forward.

- Beds and throughput are our pressure point.

Even a 0.5–1.0 day LOS reduction in targeted pathways (urology/gyne) yields dozens to hundreds of bed-days/year—capacity we can redeploy to wait-listed cases.

Strategic risk of doing nothing: Without robotics, we risk:

- Losing patients (and case mix) to neighboring centers;
- Losing surgeons and trainees who want modern tools;
- Falling behind emerging provincial guidance;
- Weakening philanthropy—donors want to back visible, high-impact innovation.

"Robotics is not a gadget purchase; it's a capacity and talent strategy. In our highest-value cases, patients bleed less and go home sooner; we open bed-days; we keep West Island care local; and we recruit the surgeons we want training at Lakeshore.

We'll fund the capital through philanthropy, implement with discipline, and publicly report outcomes. That's why it's worth it."

Requesting a total amount for a Research Assistant: $135,020

The project is expected to result in the publication of one paper and will include two lunch-and-learn conferences. The additional two conferences initially planned will either be canceled or funded separately by the IT department as part of continuing professional development for registered nurses. The project will span a period of two years, with the researchers' profiles requiring part-time support during the first year and full-time support in the second year.

Budget Summary:

Category	Amount
Human Ressources	$109,260
Training	$5,950
Material & Equipment	$2,200
Service Fee	$17,610
GRAND TOTAL	**$135,020**

Requesting a total amount for Minor Renovations: $50,000

Renovating the space to accommodate the da Vinci surgical robot is essential to ensure both optimal functionality and patient safety. The system requires a specialized environment with adequate room for the robotic arms to move freely, proper electrical and data connections, and infrastructure that supports advanced imaging and sterile workflows.

A well-designed space not only maximizes the efficiency of the surgical team but also enhances the patient experience, reduces procedure times, and safeguards against equipment limitations or workflow disruptions. Ultimately, the renovation is a critical investment that allows the hospital to fully leverage the capabilities of this advanced technology and deliver the highest standard of care.

Robotic Assisted Surgery Implementation at the Lakeshore Hospital

Evaluating the Clinical, Economic and Patient-Reported Benefits of Robotic Assisted Surgery for Cancer Cases in a Community Hospital Setting.

1. Investigative Team

Co-Principal Investigators (PI): Dr. Yasmin Halwani (Colorectal Surgery) and Dr Assaad El-Hakim (Urology)

Co-Investigators: Multidisciplinary team including Nursing, Finance, Health Economics, Quality & Patient Safety, and Patient Advisors, McGill University Biostatistics Department

2. Background & Significance

Robotic-assisted surgery has transformed oncologic care in tertiary centres in Canada, but evidence specific to community hospitals remains scarce. Early reports indicate reductions in blood loss, complication rates and length of stay, with comparable oncologic margin control and potential cost savings once learning curves are achieved. Understanding how these advantages translate to a mid-size community setting will inform equitable access to advanced technology across Canada.

3. Preliminary Evidence

- 2025 COMPARE meta-analysis (>1 million cases) showed robotic approaches reduced conversions, transfusions, complications and 30-day mortality versus laparoscopic or open surgery across seven cancer procedures.
- Multi-centre data indicate oncologic and continence outcomes after robotic prostatectomy are comparable between high- and lower-volume hospitals once ~100 cases are accrued.
- Community Medical Center in Missoula, Montana reached 5,000 robotic cases this year, reporting faster recoveries and high patient satisfaction, demonstrating feasibility outside academic centres.

4. Study Objectives

This is a multi-tier study designed to compare robotic surgery at our community hospital with contemporaneous and historic open and laparoscopic cancer surgeries. It will also compare outcomes of robotic surgery with a historic prospectively collected database of approximately 1000 cases of robotic radical prostatectomy and partial nephrectomies by one of the two principal investigators at another tertiary hospital.

Primary Objective

- Compare 30-day composite peri-operative morbidity (Clavien-Dindo), length of stay, and readmission rates.

Secondary Objectives

1. Assess cost-effectiveness from hospital and societal perspectives (incremental cost per complication avoided and per QALY gained).

2. Evaluate patient-reported outcomes (PROs) – pain (VAS), quality of life (EQ-5D-5L), functional recovery scales – through 90 days.
3. Characterise institutional learning curve (operating time, console time, conversion rate) across the first 200 robotic cases.
4. Measure staff satisfaction and impact on OR throughput and scheduling.

5. Hypotheses

H1: Robotic surgery will reduce median LOS by ≥1 day and decrease overall complication rate by ≥20 % compared with open and laparoscopic surgery.

H2: Robotic surgery outcomes in a community hospital will be non-inferior (Δ≤5 %) compared to a tertiary hospital.

H3: When capital amortisation is spread over ≥250 cases/year, total cost per episode will be non-inferior (Δ≤5 %) to laparoscopic, and superior to open surgery.

6. Study Design & Methods

- Design: Prospective matched-cohort study with a stepped-wedge roll-out (pre-implementation control period, phased service introduction, full implementation).
- Setting: 250-bed Community Hospital, serving ~400,000 population; newly acquired Robotic Assisted Surgery platform.
- Procedures Included: Colorectal cancer surgery (colectomy and low anterior resection), radical prostatectomy, partial nephrectomy.
- Population: Adults ≥18 y with resectable malignant disease scheduled for curative surgery.
- Sample Size: Based on historical LOS 4.0 ± 1.8 days, detecting 1-day reduction (α 0.05, power 0.80) requires 85 patients/arm; allowing attrition, target n = 200 robotic vs 200 controls over 24 months.
- Matching Variables: Age, ASA class, tumour stage, BMI, surgeon.

7. Intervention & Comparator

- Intervention: Robotic-assisted surgery with standardised ERAS protocols.
- 1st Comparator: Pre-implementation laparoscopic or open approach with equivalent ERAS protocols.
- 2nd comparator: case matched robotic radical prostatectomy and partial nephrectomy performed at another tertiary hospital by Dr El-Hakim

8. Data Collection

Domain	Instruments / Sources	Time Points
Clinical outcomes	EMR, NSQIP definitions	Intra-op, Post-op day 30
Costs	Case-costing system (direct & indirect), patient surveys for out-of-pocket costs	Discharge + 90-days
PROs	EQ-5D-5L, EORTC QLQ-C30, Procedure-specific modules	Baseline, 30-days, 90-days
Learning Curve	OR records (console time, docking, conversions)	Every case
Staff impact	TeamSTEPPS, OR throughput metrics	Quarterly

9. Statistical Analysis

- Descriptive statistics; between-group comparisons via χ^2, t-test/Mann-Whitney; multivariable regression adjusting for confounders.
- Propensity score matching sensitivity analysis.
- Time-series analysis for learning curve (CUSUM).
- Incremental cost-effectiveness ratio (ICER); bootstrap for uncertainty; Cost-Utility using QALYs from EQ-5D.

10. Timeline (Gantt)

Phase	Activities	Months
Start-up	Ethics, training, hire study coordinator	0-3
Baseline Data	Collect conventional cases	0-6
Implementation	Launch robotic programme (surgeon proctoring)	4-6
Recruitment & Data Collection	Ongoing	4-28
Interim Analysis	Safety & learning curve checkpoints	12, 18
Final Data Lock	Clean & verify datasets	18-21
Analysis & Manuscript	Statistical analysis, draft papers	21-23
Dissemination	Conferences, peer-reviewed journals, stakeholder reports	23-24

11. Resources & Budget (CAD)

- Capital: funded via lease x 2 years =
- Operating: Disposable instruments $1850/case x 200 cases =
- Clinical Research Assistant (CRA) 48,000$/year x 2 years =
- **Total incremental research budget**: ≈

12. Ethical & Regulatory Considerations

- IRB approval
- Informed consent; data privacy under PHIPA/GDPR.

13. Knowledge Translation

- Quarterly briefings to hospital leadership and donors.
- Public webinar series; infographics for patients.

14. Anticipated Impact

The study will supply the first Canadian community-level, multicancer dataset quantifying clinical, economic and experiential benefits of robotic assisted surgery. Positive findings could justify broader provincial reimbursement and help rural/regional hospitals adopt advanced minimally invasive cancer care.

15. References

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5. Upstate Community Hospital. da Vinci Robotic Surgery webpage, accessed Aug 2025.
6. NICE Early Value Assessment (HTE21) Robot-Assisted Soft Tissue Procedures, April 2025.