

Mapping Surgical Services in Rural British Columbia: An Environmental Scan

Shreya Luthra, Brooke McDonald, BA; Rachel Jane Livergant, BScH, MBT; Catherine Joanne Binda, HBSoc; Emilie Joos, MD, MSc, FRCSC, FACS.
Department of Surgery, University of British Columbia, Vancouver, Canada.

Introduction

- Quality surgical care is essential to a well-functioning health system
- There has been significant attrition of small-volume surgical sites in Canada, notably in rural regions of British Columbia (BC).¹
- Family practice surgical providers - Enhanced Surgical Skills (ESS) and Obstetrical Skills (OSS) – are key providers of surgical care in rural contexts.⁷
- Despite this recognition, little is known about ESS/OSS volumes and distribution across rural BC.^{2,3,4,5,7}

Purpose

- To conduct an environmental scan of surgical care in rural BC, including practice locations and procedures performed by ESS/OSS.
- To support maintenance and improvement of rural surgical care by proposing a collaboration with our Rural Surgery Working Group to identify Continuing Professional Development (CPD) priorities for ESS/OSS physicians in rural BC.

Methods

Rural BC communities with functioning hospitals and populations ranging 1,000 - 25,000 were included.⁸ Data was collected between Jan 1 – Nov 30 2022, including:

- Hospital locations
- Practice locations of ESS, OSS, family practice anesthesia (FPA), anesthesiologists, general surgeons, and OBGYN
- Procedures billed by family physicians (FP), general surgeons, and obstetrician-gynaecologists (OBGYN) in rural BC communities

Results

Mapping of Surgical Sites and Personnel

- 45 rural BC communities
 - 17 with local specialty surgeons
 - 5 with ESS/OSS as only local surgical providers
 - 23 with no local surgical personnel
- 48 general surgeons
- 34 OBGYN
- 27 anesthesiologists
- 76 FPA
- 11 ESS/18 OSS practicing in 15 (33.3%) communities
- ESS/OSS were the sole local surgical providers in five communities: Creston, Fernie, Revelstoke, Smithers, and Vanderhoof.



Figure 1. Distribution of rural surgical personnel in included BC communities.

Procedures Performed by FPs

- High number of obstetric procedures including C-sections, sterilizations, and surgical abortions.
- Various general surgical procedures: colonoscopies, hernia repairs, and open and laparoscopic appendectomies.
- Select procedures from other surgical domains (Table 1, Table 2).

Table 1. MSP Billing Data 2021-22 for Major Procedures Performed by Family Physicians in the 15 ESS/OSS Communities: *Creston, Dawson Creek, Fernie, Golden, Kitimat, Nelson, Powell River, Prince Rupert, Revelstoke, Salmon Arm, Sechelt, Smithers, Terrace, Trail, Vanderhoof.

Domain	Procedure	Total Billed	
General Surgery	Colonoscopy	559	
	Gastric polypectomy	8	
	Inguinal, incisional, umbilical hernia repair	83	
	Appendectomy, open and laparoscopic	13	
	Laparoscopy	8	
	Chest tube insertion	31	
	Abscess, incision & drainage under GA	10	
	Hemorrhoid, surgical management	55	
	Pilonidal cyst, surgical management	8	
	Perianal abscess/fistula, surgical management	48	
	Sphincter repair	18	
	Lymph gland biopsy	4	
	Obstetrics & Gynecology	Cesarean Section	349
		Surgical Abortion	245
		Oophorectomy/salpingectomy	36
Sterilizations, tubal		23	
Bartholin's cyst/abscess, surgical management		11	
Urology	Hysterectomy	2	
	Vasectomy	266	
	Circumcision	26	
	Cystostomy	11	
	Spermatocele/hydrocele excision	3	
Plastics	Tendon repair	14	
	Palmar/plantar fasciectomy	13	
	Skin flap and graft	13	
	Digit amputation	5	
	Foreign body removal with GA	3	
ENT	Open reduction MCP or IP joint	2	
	Tonsillectomy	46	
	Adenoidectomy	20	
Orthopedics	Peritonsillar abscess, surgical management	9	
	Prepatellar bursa, excision	3	
Vascular	Sclerotherapy	12	
	Venous ligation	6	
	Venous stripping	4	

Table 2. Comparative Volumes of Select Procedures by Specialty in the 15 ESS/OSS Communities*

	Family Physicians	OBGYN	General Surgeons
C-section	349	3	37
Emergency	218	0	34
Elective	118	3	3
Other	13	0	0
Appendectomy	13	0	264
Laparoscopic	5	0	225
Open	8	0	39
Inguinal/Femoral Hernia Repair	52	0	513
Colonoscopy	559	0	4,165

Conclusion

Despite a provincial and national movement to improve access to and quality of surgical care in remote and rural communities, surgical care in remote and rural BC remains limited. Family physicians provide core surgical services in rural BC, sometimes as the sole local surgical providers. Supporting these providers is integral to the wellbeing of rural patients and the healthcare systems they access. These physicians require further support in post-graduate CPD to maintain their competencies, volumes, and confidence. We call on surgical care providers in BC to join a Rural Surgery Working Group and collaborate to identify CPD priorities for ESS/OSS physicians in rural BC.

References

- Humber, N., & Frecker, T. (2008). Delivery models of rural surgical services in British Columbia (1996–2005): Are general practitioner–surgeons still part of the picture? *Canadian Journal of Surgery*, 51(3), 173–178. [https://doi.org/10.1016/S0008-428X\(08\)50045-2](https://doi.org/10.1016/S0008-428X(08)50045-2)
- Jazdarehee, A., Parajulee, A., & Kornelsen, J. (2021). The experiences of rural British Columbians accessing surgical and obstetrical care. *Patient Experience Journal*, 8(1), 126–134. <https://doi.org/10.35680/2372-0247.1505>
- Humber, N., & Dickinson, P. (2010). Rural patients' experiences accessing surgery in British Columbia. *Canadian Journal of Surgery*, 53(6), 373–378.
- Oelke, N., Plamondon, K., & Kornelsen, J. (2021). Rural stories of getting back home: An integrated knowledge translation study of people's experiences of navigating access to healthcare from rural and remote communities in British Columbia, Canada. *International Journal of Integrated Care*, 20(3), 106. <https://doi.org/10.5334/ijic.s4106>
- Grzybowski, S., Stoll, K., & Kornelsen, J. (2011). Distance matters: A population based study examining access to maternity services for rural women. *BMC Health Services Research*, 11(1), 147–147. <https://doi.org/10.1186/1472-6963-11-147>
- College of Family Physicians of Canada. Map of Awarded Certificates in Added Competence in ESS/OSS. <https://www.google.ca/maps/d/viewer?mid=1GWBB1XRIVBpwwhJUjO3stcNTs7TRcPG7&ll=54.66586461858307%2C-97.51775325&z=17>
- Iglesias, S., Kornelsen, J., Woollard, R., et al. (2015). Joint position paper on rural surgery and operative delivery. *Canadian Journal of Rural Medicine*, 20(4), 129–138.
- Government of British Columbia. Hospitals Address List. <https://www2.gov.bc.ca/assets/gov/health/about-bc-s-health-care-system/health-care->