Rural and Remote Health

rrh.org.au

James Cook University ISSN 1445-6354

COMMENTARY

An evidence-based program for rural surgical and obstetrical networks

AUTHORS

Stuart Iglesias[1] MD, Enhanced Surgical Skills Lead

Jude Kornelsen[2] PhD, Co-Director, Centre for Rural Health Research *

CORRESPONDENCE

*Dr Jude Kornelsen jude.kornelsen@familymed.ubc.ca

AFFILIATIONS

[1] Rural Coordination Centre of BC, 620-1665 West Broadway Vancouver BC, V6J 1X1, Canada

[2] Department of Family Practice, University of British Columbia, 5950 University Boulevard, Vancouver BC, V6T 1Z3, Canada

PUBLISHED

4 December 2018 Volume 18 Issue 4

HISTORY

RECEIVED: 4 May 2018

REVISED: 13 September 2018

ACCEPTED: 12 October 2018

CITATION

Iglesias S, Kornelsen J. An evidence-based program for rural surgical and obstetrical networks. Rural and Remote Health 2018; 18: 4921. https://doi.org/10.22605/RRH4921

Except where otherwise noted, this work is licensed under a Creative Commons Attribution 4.0 International Licence

ABSTRACT:

Context: Over the past 25 years, the attrition of small volume rural surgery programs across Western Canada has been significant and sustained. The 'Joint position paper on rural surgery and operative delivery' (JPP) offers a consensus policy framework for the sustainability of rural surgical programs by nesting them within larger regional programs. The many recommendations in the JPP coalesce around the recognition that surgical care should be provided *as close to home as possible*. To achieve this, surgical care should be delivered within rural and regional surgical programs integrated into well-functioning networks staffed by generalist specialist surgeons trained across surgical disciplines and family physicians with enhanced surgical skills (FPESS).
Issues: There are important issues to be addressed in the creation of these networks, not the least of which is the sometimes challenging relationships between the stakeholders in these networks and skepticism about the training of FPESS and the safety and quality of low volume surgical programs. Relationships extend from the patient–provider nexus to include interprofessional relationships and those between the pentagram partners (patients/communities, care providers, administrators, researchers and policymakers). Equally important to resolve is the issue of the minimum threshold volume of local surgical activity required for a sustainable professional workforce in a small rural program.
Lessons learned: A collaborative effort by key stakeholders in British Columbia has produced a program designed to overcome these challenges and build effective networks of rural surgical care, based on the synergistic interplay of five key pillars to support small surgical sites. These five pillars include clinical *coaching*, continuing *quality* improvement (CQI), *remote presence technology* to mitigate geographic challenges, sustainable local surgical *capacity,* and *evaluation* of dimensions of network function and clinical outcomes. This is the first time that the integration of these five pillars, each derived from best available evidence, have been positioned together as deliberate strategic policy to improve rural surgical care.

Keywords:

Canada, evaluation, rural clinical coaching, rural health care, rural networks, rural quality improvement, rural surgical care.

FULL ARTICLE:

Context: 'Joint position paper on rural surgery and operative delivery', 2015

The publication of the 'Joint position paper on rural surgery and operative delivery' (JPP), a collaborative effort by all of Canada's professional stakeholders (Canadian Association of General Surgeons, Society of Obstetricians and Gynecologists of Canada, College of Family Physicians of Canada and Society of Rural Physicians of Canada), offers a compelling rationale for support for the small volume surgical programs in western Canada[1]. Their significant attrition over the past 25 years has eroded the rural healthcare infrastructure which historically has relied on teams of surgical, anesthesia, and nursing surgical professionals that sustain emergency, trauma and critical care[2]. The demise of a local surgical program usually is associated with the demise of the local maternity care program, which is difficult to sustain without local operative delivery capacity[3,4].

Faced with the universal rural reality of the urban concentration of the specialist surgical workforce, and appreciating the obligation to assure competency and safety while preserving access, the organizations endorsing the JPP made detailed and comprehensive recommendations around formal networks of surgical care. Specifically, surgical care should be delivered within rural and regional surgical programs integrated into well-functioning networks staffed by generalist specialist surgeons trained across surgical disciplines and family physicians with enhanced surgical skills (FPESS). Quality and safety of surgery in these networks rest on a transparent examination of surgical outcomes at both facility and population levels, achieved through rigorous documentation, reporting and examination of risk adjusted outcomes within effective continuous quality improvement (CQI) programs and an evaluation framework.

The network model positions surgical care, including operative delivery, as a regional rather than institutional phenomenon, where small operating rooms are recognized as extensions of core referral hospital programs and therefore care programs can be provided through a well-integrated and balanced surgical team, including outreach surgeons and local surgical providers. It recognizes the desire for surgical procedures to be provided in the closest operative facility to the patients' residence, respecting the complexity of the procedure, the risk status of the patient, and the availability of surgical providers with procedural competency. (JPP)

Issues: Challenges to implementation of networks

Relationships between specialist surgeons and FPESS

Historically, the relationships between specialist general surgeons and FPESS have been challenging[5,6]. Unresolved, this is a deal breaker to the creation of networks for the delivery of high quality rural surgical care. There is both a tacit and evidence-based recognition that functional and trusting relationships underscore health service networks – and perhaps all of health care. Relationships extend from the patient–provider nexus to include interprofessional relationships and those between the pentagram partners (patients/communities, care providers, administrators, researchers and policymakers).

Of all the qualities of highly functional health services networks, collaboration and trust have been noted as paramount. Although good facilitation and leadership, as well as repeated interactions among network players, are necessary to develop these core qualities, they need to be underscored by a shared recognition of mutual benefit of network activities arising from all players. Furthermore, just as trust is the leading criteria for successful networks, lack of trust is the primary reason for network failure[7].

Skepticism about outcomes in low volume programs

The pathway to securing positive and functional interprofessional relationships rests in addressing specialists' concerns about the safety and quality of rural surgical programs. While the JPP documented the lack of evidence for a volume–outcome relationship for the low complexity procedures performed in the small rural programs[8], it is also accurate that these low volumes present a unique challenge to quantitative statistical analysis. However, if we design programs where 100% outcomes are documented, reported and examined in an iterative CQI process, with feedback loops for service adjustment where necessary, questions about volume will be answered.

Skepticism about training for FPESS

Similarly, the pathway to these functional relationships between surgical providers requires that we address concerns about training for FPESS. Collaboration between the professional stakeholders has culminated in two curriculum papers identifying cesarean section, appendectomy, uncomplicated inguinal and umbilical hernia repair, colonoscopy and laparoscopic salpingectomy as core procedures for FPESS[9,10]. Responding to the JPP, Canada's two colleges and the specialist societies representing both general surgeons and obstericians have committed to, and are close to completion of, national training standards and a high level accreditation process for the FPESS programs. This will credential the FPESS graduate with a Certificate of Added Competence[11].

Minimum volumes for sustainability

Although there is a dearth of evidence on minimum volume for service sustainability, we do know that a stand-alone operative delivery program is insufficient to recruit and retain surgical, anesthetic and nursing staff that remain current in their skill sets and nourish the requisite surgical culture – a phenomenon poorly described in the literature but commonly used to describe successful small volume surgical programs[3,7,12].

Lessons learned: RSON: A healthcare policy blueprint to build rural surgery networks

Rural surgery and obstetrics networks (RSON) have been formulated as a healthcare policy solution to enhance the health status of rural British Columbians and the sustainability of health services in the communities in which they live by stabilizing, supporting and enhancing British Columbia's rural surgical and obstetrical programs[13]. The development of RSON represents a collaborative effort between Perinatal Services BC, the University of British Columbia (UBC) Centre for Rural Health Research and the Rural Coordination Centre for BC in response to the recognition in the JPP of the need to stem the attrition of rural surgical and maternity services. Its target is the small rural surgery programs staffed either by solo general surgeons or by FPESS, which have been identified as most vulnerable to losing their local surgical services[1,3,4,6].

RSON lays out a policy blueprint intended to overcome the challenges facing implementation of the JPP and to build a platform to support small volume rural surgical programs by nesting them in networks with their larger referral programs. This blueprint includes specific policies intended to deliver quality surgical services whose outcomes are documented, reported, and examined. The blueprint is built on five weighted pillars, designed to support rural surgical services across time and changing local conditions.

1. Clinical coaching

An overarching challenge following the JPP has been to establish pathways to build networks that can overcome the caution of specialists and non-specialists in building relationships of trust and collaboration. Clinical coaching provides an evidence-based platform for professional development, skills enhancement and knowledge translation in a variety of applications, including surgical practice. When most effective, participation is voluntary, with goals set by participants. The coaching relationship encourages practice audit and self-reflection. Over time, the coaching relationship builds rapport, engenders trust and builds mutual respect between coach and coachee[14,15].

The UBC Department of Continuing Professional Development (CPD) introduced a Clinical Coaching for Excellence program in 2014. With their collaboration, a new coaching program for RSON was designed, targeting small rural surgical programs. Recognizing that competence is a team phenomenon, coaching programs are offered to surgical, anesthetic and nursing staff, linking them to coaches in their regional referral hospitals. The program includes formal processes for community engagement, needs assessment, goal development and training for the coaches. It is fully accredited for CPD through the College of Family Physicians of Canada[16].

The strategic value of the coaching program extends beyond its professional development role to include the latent benefit of building trusting relationships to underscore networks. In addition, with its platform of practice audit and self-reflection, iterative by design, coaching has the potential to be a transformational CQI program. The likelihood of safe and quality surgical care is significantly enhanced by a coaching program.

2. Continuing quality improvement

Concerns related to the safety and quality of surgical care provided by low volume rural surgical programs and non-specialists are, ultimately, testable hypotheses. A way forward is to rigorously document, report and examine outcomes within a framework that is both transparent and iterative, designed to audit and improve these outcomes.

A National Surgical Quality Improvement Program-like methodology[17] will be used, capturing original rurally appropriate data on site-specific outcomes from the platform of a dedicated registered nurse tasked with data collection and knowledge translation. These outcomes will be reportable at an individual practitioner-level in a format that protects privacy but encourages self-reflection, at a site-level in a way that encourages team and facility reflection, and at a catchment population level to examine the efficacy of triaged care and the performance of the network in its entirety.

The creation of regional surgical departments inclusive of the smaller sites provides the context and critical mass of surgical activity for the more formal processes of effective CQI – outcome data that is private but offers peer comparisons, mortality and morbidity rounds, and journal clubs.

Finally, the coaching relationship between the rural and regional sites is a powerful CQI program.

3. Remote presence technology

The geographic distance inherent in rural networks presents challenges to effective network function. Research indicates that the development of rapport and trust within the coaching relationships requires a minimum volume of coaching encounters[15,18]. Equally, in historical teaching models, trust between preceptors and learners in the operating rooms (ORs) has been built on shoulder-to-shoulder shared surgical experience. Canadian geography limits the frequency of these encounters.

Remote presence technology, with its capability to offer virtual shoulder-to-shoulder operating experience between the rural surgeon (or anesthetist or registered nurse) and regional specialist, in effect, takes some of the geography out of rural. Its strategic value in networked care is to dramatically increase the flexibility and requisite volumes and variety of the coaching experiences. Further, the technology increases the potential CQI benefits from the coaching and offers an intraoperative, consultative platform, including 'rescue' consultations between rural and regional surgical services.

The 2016 position statement by the Canadian Association of General Surgeons identified these virtual linkages between ORs as essential for their support for FPESS[19]. The integration of remote presence technology into RSON is foundational to building the relationships on which successful networks rely.

Finally, beyond the specific remote presence technology, the larger virtual opportunities for connectivity through telehealth offer platforms for consultation, professional development and patient follow-up without the obligation to travel.

4. Sustainable scope and volume: how much is enough?

Beyond knowing that a stand-alone operative delivery program is insufficient for sustainability, there is no evidence on what the appropriate volumes might be[3,7]. There is considerable anecdotal evidence from the small programs that two OR days per week is problematic and that three or more days seems associated with significantly fewer problems with recruitment and retention, and with currency of skill sets. Based on this, it has been proposed that those programs with two or less OR days per week be increased by one additional OR day each week. The clinical caseload would come from an increased scope of practice delivered either by local generalist staff or by specialist outreach programs.

5. Evaluation

There is much to be learned from this natural experiment going forward and the requisite evidence that will promote 'scale and spread' will be gathered through a robust and thorough evaluation. The streams of the evaluation will focus on both effective dimensions of network function and clinical outcomes of network efficacy, the former focused on patient and provider experiences with networked care and measurements of less tangible – but essential – attributes such as trust and collaborative intent. This stream will be guided by a commitment to comprehensiveness. For example, in the area of costs, health system costs along with the holistic costs associated with leaving one's home for care will be considered. Clinical outcomes measures will consider procedural and health outcomes within sites and within the network catchment as a whole. This is a measure of both quality of care and successful surgical triage between sites.

In addition, the evaluation framework will yield evidence-based resolution for the historical controversies about the safety of low volume programs and the appropriateness of the provision of surgical services by non-specialists.

Each of the pillars of coaching, remote presence, CQI and sustainable volumes will undergo specific targeted evaluations.

The model applied: RSON in British Columbia

Under RSON, eight small rural surgical programs in BC will be resourced to (1) increase their surgical *capacity* by an extra operating day each week, and (2) build formal *networks* with their referral centers within regional departments of surgery. Specialist surgeons in the regional center have undertaken training to be coaches. *Coaching* happens on site either at the rural hospital or in the regional center. *Remote presence* capability extends the coaching opportunities, scheduled or emergent, to happen without the obligation for travel. *Quality* programs resource a local registered nurse position to report 30 day outcomes on 100% of procedures, which form the substrate for formal reflective iterative transparent CQI. A rigorous *evaluation* of both the processes of network function and the clinical outcomes engages all eight of the programs.

The Joint Standing Committee on Rural Issues represents a collaboration between the Doctors of BC, the health authorities, and the BC Ministry of Health. RSON has received significant funding from the committee over a 5-year plan. Successful implementation requires trusting partnerships with all of the pentagram partners, including the health authorities, the professional workforce, the universities, the communities, and the Ministry. The hard work, as described in this article, to build these partnerships is ongoing.

REFERENCES:

1 Iglesias S, Kornelsen J, Woollard R, Caron N, Warnock G, Friesen R, et al. Joint position paper on rural surgery and operative delivery. *Canadian Journal of Rural Medicine* 2015; **20(40):** 129-138. PMid:26447732

2 Iglesias S. *GP Surgery and anesthesia in BC. Presentation to RCCBC.* 2012. Available: http://ess.rccbc.ca/wp-content/uploads

/sites/5/2014/12/RCCBC-Presentation.pdf (Accessed 28 June 2017).

3 Yeates L. *Patients at the centre: sustaining rural maternity – it's all about the surgery! Perinatal Services BC, Western Provinces Collaborative on Sustainable Rural Maternity and Surgical Services White Paper*. 2016. Available: http://www.perinatalservicesbc.ca/Documents/Resources/SystemPlanning/Rural/RuralNetworksWhitePaper_2016.pdf (Accessed 28 June 2017).

4 Kornelsen J, Grzybowski S, Iglesias S. *Is rural maternity care sustainable without GP surgeons? Canadian Journal of Rural Medicine* 2006; **11(3):** 218-220. PMid:16914080

5 Vinden C, Ott MC. GPs with enhanced surgical skills: a questionable solution. *Canadian Journal of Surgery* 2015; **58(6):** 369-371. https://doi.org/10.1503/cjs.015215 PMid:26574827

6 Kornelsen J, Iglesias S, Woollard R. Sustaining rural maternity and surgical care: lessons learned. *Canadian Family Physician* 2016; **62(1):** 21-23. PMid:26796827

7 Kornelsen J, Friesen R. Building rural surgical networks: an evidence-based approach to service delivery and evaluation. *Healthcare Policy* 2016; **12(1):** 37-42. https://doi.org/10.12927/hcpol.2016.24779

8 Urbach DR, Croxford R, MacCallum NL, Stukel TA. How are volume–outcome associations related to models of health care funding and delivery? A comparison of the United States and Canada. *World Journal of Surgery* 2005; **29:** 1230-1283. https://doi.org/10.1007/s00268-005-7994-7 PMid:16132398

9 Iglesias S, Kornelsen J, Woolard R, Caron N, Warnock G, Friesen R, et al. A proposal for the curriculum and evaluation for training rural family physicians in enhanced surgical skills. *Canadian Journal of Surgery* 2015; **58(6).** (419-422) https://doi.org/10.1503/cjs.002215 PMid:26574835

10 Burnett M, Iglesias S, Siverston J, Blake J, Woolard R, Ebert N, et al. A competency-based curriculum for training rural family physicians in operative delivery. *Journal of Obstetrics and Gynaecology Canada* 2017; **39(6):** 474-477. https://doi.org/10.1016/j.jogc.2017.01.016 PMid:28286034

11 Mazowita G. *The journey of certificates of added competence continues.* 2015. Available: https://www.cfpc.ca/President_April_2015/?utm_source=eNews+(no+mainpro)+-+April+2015&utm_campaign=eNews+April+2015&utm_medium=email (Accessed 21 November 2018).

12 Soles H, Soles TL. *Position statement on minimum volume credentialing. Society of Rural Physicians of Canada.* 2015. Available: http://www.srpc.ca/PDF/SRPCPositionpaperMinimumVolumeCredentialing.pdf (Accessed 28 June 2017).

13 Rural Coordination Centre of BC. *Rural surgery, operative delivery, and trauma response networks project summary 2016.* Available: http://ess.rccbc.ca/wp-content/uploads/sites/5/2016/10/Rural-Surgery-Operative-Delivery-and-Trauma-Response-Networks-2-page-Summary.pdf (Accessed 28 June 2017).

14 Greenberg C, Klingensmith M. The continuum of coaching: opportunities for surgical improvement at all levels. *Annals of Surgery* 2015; **262(2):** 217-219. https://doi.org/10.1097/SLA.0000000000001290 PMid:26164427

15 Parnell TA. *Clinical coaching: literature review.* 2014. Available: http://ess.rccbc.ca/wp-content/uploads/sites/5/2017/01/Parnell-2014-Clinical-coaching-literature-review.pdf (Accessed 28 June 2017).

16 Enhanced Surgical Skills Working Group. *Clinical coaching and training.* Available: http://ess.rccbc.ca/clinical-coaching-and-training/ (Accessed 28 June 2017).

17 American College of Surgeons. *ACS National Surgical Quality Improvement Program.* Available: http://www.facs.org/quality-programs/acs-nsqip (Accessed 6 September 2015).

18 Herll S, O'Drobinak B. Role of a coach: dream keeper, supporter, friend. *Journal of Staff Development* 2004; **25(2):** 42-46.

19 Canadian Association of General Surgeons. *CAGS current position on the delivery of general surgical services in rural and remote communities in Canada.* 2016. Available: http://www.srpc.ca/ess2016/summit/CAGS_current_Position_Statement_Rural_and_Remote_Communities_Final (Accessed 28 June 2017).

This PDF has been produced for your convenience. Always refer to the live site https://www.rrh.org.au/journal/article/4921 for the Version of Record.