Rural Surgical and Obstetric Networks(RSON)

Dr. Stuart Iglesias MD[1], Dr. Jude Kornelsen PhD[2], Kim Williams RN MSN[3], Dr. Robert Woollard MD[4], Paul Kendall[5]

[1]Enhanced Surgical Skills Lead, Rural Coordination Centre of BC, Family Practice [2]Centre for Rural Health Research, Department of Family Practice University of British Columbia
[3]Network Director, Rural Coordination Centre of BC
[4]Professor of Family Medicine, Department of Family Practice University of British Columbia
[5]Project Coordinator, Rural Coordination Centre of BC

Corresponding author: Dr S Iglesias siglesias64@gmail.com

Mailing address:
Box 18, Denny Island, BC, V0T 1B0

Background

The attrition of small volume rural surgery programs across Western Canada has been significant and sustained over the past 25 years.[1,2] Aside from loss of local access to care and diminished community-level responses to trauma, critical and procedural care, the collateral damage has included the associated attrition of rural maternity care programs, which, without access to local operative delivery, have been difficult to sustain.[3] This loss of service and access has been born by some of Canada's sickest and most vulnerable populations, including the First Nations peoples.

While there are no evidence-based explanations in the literature for the attrition of these small surgical programs, we do know from two decades of related research that there have been several associated influences.[4,5,6] These include a cultural focus within surgery on the relationship of large procedural volume and positive outcomes, demonstrated in complex procedures but not at all in the less complex procedures more likely to be done at small sites.[4] A second influence has been the skepticism from specialist surgeons about the safety of training generalist family physicians in enhanced surgical skills (FPESS), despite a growing evidence base demonstrating safety and efficacy.[5,7] Diagnostic imaging, with the emergence of ultra sound and CT scanning, might have been an equally powerful centralizing force in surgery.

Regardless of cause, there is consensus that the attrition of the rural surgical programs has eroded the rural health care infra-structure which has historically relied on teams of surgical, anesthesia, and nursing surgical professionals that sustain emergency, maternity, trauma, and critical care. In this paper we describe the intellectual and evidence base for a collaborative program (RSON) in British Columbia to support and sustain rural surgical care within a network model.

Joint Position Paper on Rural Surgery and Operative Delivery: Network Models

The Joint Position Paper on Rural Surgery and Operative Delivery (JPP)(17) represented a significant effort by all of the professional stakeholders in Canada to offer a consensus platform for the sustainability of these rural surgery programs and, by extension, the local maternity care programs. The many recommendations coalesced around the recognition that surgical care

should be provided *as close to home as possible* and in a setting best suited to the anticipated clinical needs of the patient and resource needs of the provider. 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 FPESS.

Additionally, the authors recognized that volume of procedures is not a surrogate for the quality of surgical care performed in small programs. The quality and safety of rural surgery rest on the documentation, reporting, and examination of risk adjusted surgical outcomes at both a facility and population level achieved within effective continuous quality improvement (CQI) programs and an evaluation framework.

The Way Forward: Three Issues Unresolved by the JPP

I *How to Build New Relationships between specialist surgeons and FPESS?*

Historically, the relationships between specialist General Surgeons and have been challenging.[7] There is both a tacit and evidence-based recognition that functional relationships underscore health service networks – and perhaps all of health care. Relationships extend from the patient-provider nexus to include inter-professional relationships and those between the pentagram partners (patients/communities, care providers, administrators, researchers and policy makers).

As Kornelsen and Friesen note;

> 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. [8]

It appears clear that any program for effective networked care would have to include a platform for encouraging positive growth in the relationships between specialist Surgeons and the FPESS.

II *Skepticism about i) safety both in low volume programs and 2)the appropriateness of training family physicians in surgery(FPESS)*

A conduit to securing positive and functional inter-professional relationships rests in addressing the concerns expressed by specialists, including skepticism about the safety and quality of rural

surgical programs and about the training programs for FPESS.[1] Fortunately, these represent testable hypotheses. To date, complex issues of methodology, data, low numbers and expense have frustrated clear evidence based resolutions to these debates. In this proposal we suggest a network model where, to answer these questions of volume and training, all outcomes are reported and examined within regional departments of surgery led by specialist surgeons in an iterative CQI process, with feedback loops for service adjustment where necessary. We propose that the answers to these questions about volume and training will be answered by a rigorous, transparent, and collaborative examination of surgical outcomes.

III *Minimum volumes for sustainability*

Although there is a dearth of evidence on minimum volume for service sustainability (both infrastructure and health human resource), 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.[3,8] A program to support and sustain rural surgical services needs to address issues of sustainable capacity.

RSON: A Health Care Program to Build Rural Surgery and Obstetric Networks

Rural Surgery and Obstetrics Networks (RSON) have been presented to policy makers as a solution to enhance both the health status of rural British Columbians and the sustainability of the health services in the communities in which they live by stabilizing, supporting and enhancing BC's rural surgical programs, and by extension, its rural obstetrical programs.[1] The development of RSON represents a collaborative effort between Perinatal Services BC, the UBC Centre for Rural Health Research, and the Rural Coordination Centre for BC in response to the mutually acknowledged need to stem to attrition of rural surgical services. Its target is the small rural surgery programs staffed either by solo General Surgeons or by FPESS. Earlier research identified these programs as most vulnerable to losing their local surgical services.[8] RSON has been given significant funding for 5 years by Joint Standing Committee on Rural Issues – a collaborative committee between the Ministry o Heath, the regional Health Authorities, and the BC medical association(Doctors of BC).

RSON lays out a policy blueprint intended to overcome the challenges facing implementation of the JPP and to build a platform to support the small volume rural surgical programs by nesting them within networks with the larger referral programs. This blue print includes specific policies intended to deliver quality surgical services whose outcomes are documented, reported, and examined. To our knowledge, this work is original, not to be found in existing international literature, nor described in existing health policy. The blueprint is built on five weighted pillars, designed to support rural surgical services across time and changing local conditions. Agility is a key component of the platform to enable adaptation to local conditions.

1. *Clinical Coaching*

Clinical coaching programs offer effective professional development and knowledge translation pathways that are evidence based.[11] The additional benefits to the RSON project is their potential both to nurture the trusting relationships between specialist surgeons and FPESS on which successful networks are built and to deliver individualized iterative CQI that is built on personal practice audit and self-reflection.

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 wide variety of applications, including surgical practice. When most effective, the participation is voluntary, with goals set by the 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.[9,11]

The University of British Columbia Department of Continuing Professional Development introduced a Clinical Coaching for Excellence program in 2014. With their collaboration, we designed a new coaching program for RSON, targeting the small rural surgical programs. Recognizing that competence is a team phenomenon, coaching programs are offered to surgical, anesthetic, and OR 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.[12]

The strategic value of the coaching program extends well beyond its traditional professional development role to include the latent benefits 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, in our view, 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 (CQI)*

Historically, the sustainability of the low volume rural surgical programs has been compromised by the concerns about the safety and quality of the surgery they provide as well as by the controversies about surgical care provided by non-specialists. Ultimately these concerns represent testable hypotheses. A way forward that might be acceptable to all sides is to rigorously document, report and examine *all* outcomes within a framework that is both transparent and iterative, designed to audit and improve these outcomes.

Our proposal will use a NSQUIP-like methodology,[13] capturing original rurally appropriate data on site specific outcomes from a platform of a dedicated RN tasked with data collection and best-practice 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. Good processes deliver good outcomes.

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, journal clubs. Heretofore, we would have expected these to have been difficult to sustain within the small rural silo.

Finally, the coaching relationship between the rural and regional sites, through personal practice audit and self-reflection, is a powerful CQI program.

3. *Remote Presence Technology (RP)*

The geographic distance inherent in rural networks presents challenges to effective network functioning. We know from the evidence that the development of rapport and trust within the coaching relationships requires a minimum volume of coaching encounters.[9,14] Equally, we know that in historical teaching models trust between preceptors and learners in the operating rooms has been built on shoulder to shoulder shared surgical experience. While travel for outreach surgical care by specialists and travel the other way by the rural generalists to participate in the regional operating theatres provide some of the requisite volume on which successful networks depend, 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 RN) and regional specialist, in effect, takes 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 both the potential CQI benefits from the coaching, and offers an intra operative, 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 OR's as essential for their support for FPESS.[14] The integration of RP into the RSON program is foundational to building the relationships on which successful networks rely.

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.[3,8] We have 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 both with recruitment and retention and with currency of skill sets.

Based on this, we have proposed increasing those programs with two or less OR days per week by one additional OR day each week. The clinical case-load 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 affective dimensions of network function and clinical outcomes of network efficacy, the former focused on patient and provider experience with networked care and measurements of less tangible – but essential – attributes such as trust and collaborative intent.[16] 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 both of quality of care but also of successful surgical triage between sites.

Beyond providing a view in to the overarching network effectiveness, 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.

Summary

RSON is an innovative inter-professional collaboration between the pentagram partners for social change (18) – the communities, caregivers, administrators, policy makers, and the universities-- designed to respond to the attrition of procedural care (surgery, maternity, trauma, critical care, emergency) in rural western Canada. Where possible, it is evidenced base. Supported by significant resources over a 5 year time frame, and launched with good will and optimism from all the collaborators, we stand to learn much about knowledge translation and successful policy to support the rural surgical infrastructure.

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