RESEARCH PAPER

Building Blocks to Sustainable Rural Maternity Care: Toward a Systems Approach to Service Planning

Blocs de construction pour des soins de maternité durables en milieu rural : vers une approche systémique de la planification des services

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Abstract

This qualitative study aimed to understand, document and analyze system supports needed to sustain rural maternity care in communities without local access to Caesarean section. In-depth interviews and focus groups with 58 healthcare providers and administrators from rural British Columbia were conducted in 2017/2018. Themes from the data led to the development of five systems interventions necessary to stabilize local maternity care: (1) building nursing confidence; (2) supporting interprofessional teams; (3) efficient transport to referral sites; (4) clear inclusion criteria for local deliveries; and (5) enhanced relationships with referral centres.

Résumé

Cette étude qualitative vise à comprendre, documenter et analyser les systèmes de soutien nécessaires pour maintenir les soins de maternité en milieu rural dans les communautés sans accès local à la césarienne. Des entrevues approfondies et des groupes de discussion réunissant 58 administrateurs et fournisseurs de soins, provenant de régions rurales en Colombie-Britannique, ont été menés en 2017 et 2018. Les thèmes issus des données ont mené au développement de cinq interventions systémiques nécessaires pour stabiliser les soins de maternité locaux : (1) renforcer la confiance des infirmières, (2) soutenir les équipes interprofessionnelles, (3) assurer un transport efficace vers les sites de services, (4) établir des critères d'inclusion clairs pour les accouchements locaux, et (5) améliorer les relations avec les services centraux.

Introduction

The centralization of healthcare in British Columbia (BC) over the past 20 years has resulted in the closure of many maternity services, especially in rural settings with low birth numbers (Hutcheon et al. 2017). When hospitals close or stop offering intrapartum services, childbearing people need to leave their communities to give birth and may experience stress associated with the social, psychological and financial consequences of leaving their home communities (Grzybowski et al. 2007; Kornelsen et al. 2011).

The maternity care needs of rural childbearing people, their families and communities have been well documented across Canada, including the necessity to access safe care as close to home as possible (BC Ministry of Health 2022, 2015; *Canada Health Act* 1985; Seaton 1991; SOGC 2010). There is consolidated evidence on the health, psycho-social and cultural consequences of *not* providing this care. The Canadian policy context, starting with the *Canada Health Act* (1985) and including province-specific issuances such as the Royal Commission on Healthcare and Costs (Seaton 1991) and successive provincial ministry of health service plans (Alberta Health Services 2012; BC Ministry of Health 2022; Government of New Brunswick 2008; Government of Saskatchewan 2015) emphasize the need for such care. Moreover, our national obstetrical organization, the Society of Obstetricians and Gynecologists of Canada (SOGC), endorses this through two policy statements: "Returning Birth to Rural, Remote and Aboriginal Communities" (SOGC 2010) and the "Joint Position Paper on Rural Maternity Care" (Miller et al. 2012). More recently, both the national Truth and Reconciliation Commission of Canada (2015) and Canada's commitment to the United Nations Declaration on the Rights of Indigenous Peoples (2007) have paved the way for actioning local birth as a cultural mandate and a part of the reconciliation process. Within this supportive policy context and clear articulation of community desire, however, there remains a gap: understanding the system supports needed to sustain local care providers.

In order to address this gap, a two-year project undertaken in BC aimed to understand, document and analyze the system supports needed to sustain rural maternity care in

communities without local access to Caesarean section. Groundwork was done to understand and document the needs of birthers and their families. Once this foundation was established, system supports necessary to actualize the local care desired by the community were identified by care providers. While intensive work was done in a focal study community, the third phase involved engagement with all provincial sites without local access to Caesarean section through telephone interviews and a provincial symposium. This project was built on existing evidence gathered between 2009 and 2016 (Table 1).

TABLE 1. Data sources that informed the building blocks to sustainable rural maternity care

Description	Output/Source	Year	Reference
The need for local maternity care in the study community	Report based on community consultation	November 2008–July 2009	Grzybowski et al. 2009a
Primary evidence derived from BC – and Canada – on the safety of rural maternity care without local access to Caesarean section	Peer-reviewed publications, based on analysis of provincial perinatal data	2011 2015	Grzybowski et al. 2011, 2015
A metric for determining the appropriate level of maternity services in rural settings and indications for health system planning	Peer-reviewed publications	2005 2009 2010 2016	Grzybowski et al. 2009b, 2016; Kornelsen and Grzybowski 2005; Kornelsen and Grzybowski 2010
Systematic realist review on the safety of maternity services without local access to Caesarean section	Report commissioned by the BC Ministry of Health and Perinatal Services, BC	2015	Kornelsen and McCartney 2015b
Systematic realist review on models of distributed maternity care for Indigenous communities	Report commissioned by the First Nations Health Authority	2015	Kornelsen and McCartney 2015a

Understanding how to better support rural maternity services is understood in the context of current cross-jurisdictional political priorities, such as a focus on team-based primary care to achieve seamless patient care. This commitment to interprofessional practice (IPC) reflects the growing international literature on the relationship between teamwork and optimal outcomes (Cornthwaite et al. 2013; Raab et al. 2013; Siassakos et al. 2013). This is particularly crucial in low-volume isolated communities that are supported by a generalist skill set and require close professional collaboration to mitigate the tyranny of distance to specialized care. Interprofessional collaboration must be understood on a continuum from collegial relationships between healthcare professionals co-existing in a defined geography and extending to fully integrated practice and a shared patient load (Reeves et al. 2018).

Current rural maternity service delivery indicates that sustainable care is not a problem unique to low-resource sites. Challenges are felt across the continuum, including at regional referral centres burdened with additional volume due to closures at smaller sites. Interventions to sustain a *system* of maternity care must be understood and applied at all levels of care to mitigate the "domino effect" that the closure of small sites has on the larger

ones. This requires a jurisdictional, evidence-informed approach to planning services within a framework of iterative evaluation to "course correct," should it be necessary. One-off solutions to quell the impact of local closures without appreciation of the interconnectedness of system parts will not offer a robust solution. Results from this work provide a starting point for this larger discussion in many jurisdictions struggling with maintaining local access to maternity care.

Background to Current Study

The study focused on a cluster of small communities (population <1,000–4,434) over 21,157 km^2 of North Vancouver Island, BC. The two largest centres in the region account for approximately 77.3% of the population, and 31.2% of the population identify as Indigenous (Statistics Canada 2017). There were two hospitals in the region with 24/7 emergency coverage: one of the hospitals supported low-risk, vaginal deliveries, although the service supported less than five annual deliveries during 2012–2017 out of an annual birthing population of ~115 over the same time frame. The hospital with undesignated maternity services supported 5–10 annual deliveries during this time. No midwives were practising in the community at the time of data collection.

The birth rate in the study region was substantially higher than the provincial average: between 2011 and 2015, there were on average 78.2 births per 1,000 annually, while in the province as a whole, 57.0 births per 1,000 occurred annually in the same time frame (Centre for Rural Health Research 2019).

Geographic isolation posed a significant challenge regarding access to healthcare for residents in the study communities. Road access to the region is limited to a single lane highway, and the nearest regional referral centre lies 200 km to the south, which is over two hours of travel time by road in ideal conditions. Although there is a local airport in the region, flights can be subject to delays and cancellations due to poor weather conditions. Interviews with 62 birthers in 2017/2018 who live on the North Island revealed that there is a strong interest in local birth. Participants envisioned culturally safe care, local access to midwifery, a space for local traditions and birth in their home community (Centre for Rural Health Research 2019).

Method and Approach

The objectives of this qualitative study were as follows:

1. to understand barriers local care providers and administrators face in providing sustainable maternity services to the community; and
2. to determine the system supports needed to allow for the provision of sustainable maternity services to childbearing people and their families on the North Vancouver Island.

Participants were recruited from the local communities and invited to key informant interviews or focus groups. Data were collected over 18 months, with seven field trips made

to the communities between September 2017 and December 2018. In total, 58 participants were recruited, with the majority of participants being nurses. We included community members and key decision makers on an advisory committee that directed the progress of the study, meeting biweekly. The project leads also worked closely with local physicians through physician leaders, who served as our liaison with the larger physician community. We validated local findings provincially by interviewing physician, nursing, midwifery and administrative representatives from all of the provincial sites offering maternity care without local access to Caesarean section and by presenting and discussing results at a provincial symposium (see Table 2 for a detailed description of the iterative study process).

TABLE 2. Data collection and validation phases

Data collection phase		
This phase consisted of interviews and focus groups with childbearing people (n = 62), nurses (n = 33), physicians (n = 10), community health workers (n = 8) and others – i.e., nurse practitioners, administrators, paramedics and midwifery leaders (n = 7). As there were no local midwives practising during the study period, the research team interviewed provincial midwifery leadership representing the regulatory college and professional association, including a discrete rural midwifery committee and the university-based educational program.	Field work with people on the North Island	2017–2018
Validation phase		
Interviews were conducted with physician, nursing, midwifery and administrative representatives from all of the provincial sites offering maternity care without local access to Caesarean section (n = 14).	Interviews	2018
Group discussions were held with symposium attendees (n = 26) where the foundational "building blocks" were endorsed as relevant to all low-resource maternity sites and actions to stabilize maternity care were prioritized.	Provincial symposium	2018

In-depth interviews and homogeneous focus groups took place in local hospitals, health centres or coffee shops, as per the preference of the participants. All interviews and focus groups were audio recorded with participants' permission and transcribed. Transcriptions underwent thematic analysis using a hybrid model of inductive and deductive coding to interpret raw data based on the principles of social phenomenology as described in detail by Fereday and Muir-Cochrane (2006). The research project was granted approval through the University of British Columbia's Behavioural Research Ethics Board.

Results

Care providers' experiences and challenges with maternity care

Participants recognized the practice consequences of low procedural volume including solo or dyad practices and the attendant lack of wider professional community of practice. All participants articulated the undesirability of solo practice but saw it as an inevitable recourse in low-volume settings in the course of a care billing model.

Outside financial concerns, most participants did not see low procedural volume as a barrier to practice efficacy once consolidation of skills had been achieved. However, all

participants noted the importance of ensuring provider fit with the local community: "You have to find the right people."

System challenges

Most of the overarching system challenges identified were common among all participants and included inadequate procedural volume to maintain confidence, resentment around inequitable payment and lack of transparency and expediency regarding hospital privileging. Midwifery participants identified the challenges of participation in discussion tables around maternity care due to the lack of negotiated funds to support such meetings, and several noted that when funds were forthcoming, they were not on par with physician funding.

All midwifery participants referred to challenges of gaining hospital privileges, a necessary part of full-scope practice. Several felt that there was a lack of transparency on how privileging decisions were made, giving the impression that in communities without a history of local midwifery practice, decisions were heavily weighted toward the preferences of existing physician providers.

An overarching concern, throughout most nurses' narratives, was the lack of clinical preparedness for local delivery, precipitated by their experience of lack of support. Participants stated, "At the best of times, we are hanging on by our fingernails" and "it is scarier than trauma (cases) …" Several nurses voiced medico-legal concerns due to high staff turnover and the challenge of consistently meeting standards that this leads to, suggesting that these concerns lead to "fear" of local deliveries.

In juxtaposition, almost all nurses interviewed recognized the importance of local birth to the community, particularly for populations in vulnerable situations. Participants connected lack of local care to several concomitant risks (such as pregnant people going "underground" and presenting at the hospital in labour). The risks identified here are highlighted by social risks: "One woman['s] kids had to go into foster care so [that] she could go and deliver her baby … She had no family, and there was no one to care for her children." The inevitability of precipitous local deliveries underscored many participant narratives: "We can't close because people are going to have unexpected babies [in the community], period. You can't stop that process."

Nurses clearly expressed their professional needs, which included increased on-the-ground training (mock simulations and practice sessions) and rotating through high-volume maternity exposure.

Building blocks to sustainable rural maternity care

The experience of care providers gave rise to the iterative development of a set of system interventions necessary to stabilize local maternity care, including increased attention to building nursing confidence, interprofessional teams (IPTs), efficient transport to referral sites, clear inclusion criteria for local deliveries and enhanced relationship with referral centres. Each one is described briefly below.

NURSING CONFIDENCE

In small communities with low incidences of birth and the concomitant lack of maternity experience afforded to nurses, maintenance of confidence is challenging (Kenny and Duckett 2003; MacKinnon 2008). Front-line nursing confidence is multifactorial, including initial nursing training, nursing management, professional development opportunities, health authority infrastructure and supports, team work and support from physician colleagues (MacKinnon 2008; Onlock 2014). The following were identified as priorities to stabilize rural maternity nursing: (1) exchange programs to train in higher volume communities that provide relevant experience (e.g., mentoring with a midwife); (2) relevant ongoing education and practical experience and the development of a corresponding curriculum that can be delivered locally; and (3) increased education and funding for training and maintaining nurse competencies in maternity care, ideally on site.

Interprofessional teams

Nurses and allied healthcare providers in the community expressed support for building a local interprofessional maternity care team. There was near unanimous support among nurses and physicians for working with midwives locally. Several participants identified the advantage of midwives' focus on and expertise with maternity care and the key role they could play in education and training. This was underscored by the normalizing approach midwives have to birth and their "most responsible person" role in deliveries.

NURSING PERSPECTIVES

Many nurses pointed out the positive impact midwives would have on their own maternity practice: "I think it [midwifery] would make a significant difference. A significant positive difference … I just love the energy that comes from them." One of the attributes of midwifery that nursing staff recognized and valued was the midwife's active role and presence throughout delivery, relieving nursing staff of being the most responsible provider during labour. One participant explained:

> They [the midwife] would come in and they would do the birth, and the nurse could assist them, but they would be the primary [care provider], and I think all the nurses would be perfectly happy to do that.

Nursing staff also expressed the importance of having a local midwife with cultural context and understanding of the community.

PHYSICIANS' PERSPECTIVES

From the local physician perspective, there was a clear articulation of the desire for team-based care, with midwives playing an integral role on the team, including a potential for

midwives to "lead the maternity program for the region." Some physician participants noted their desire to continue performing deliveries with the understanding that if difficulties are encountered by the midwife, "all hands will be on deck," thus underscoring the importance for all providers to maintain their skills. Others pointed out financial implications of physicians staying within a maternity care team, including receiving incentive fees (General Practice Services Committee 2021).

Several participants suggested that unsupported midwifery would "be a struggle" for existing providers in the region and the midwife who, given the potential caseload, could be at risk for burnout. Others emphasized midwives would not only "take a lot of pressure off" existing providers but could also play an important role in community outreach activities (e.g., sexual health education) and a key role in educating nurses. Concerns were expressed about "losing the (maternity) service to midwifery" instead of midwifery working within a team framework. To this end, emphasis was placed on the need to ensure local input in the midwifery hiring process. This referred to IPC, marked by clear communication between physicians and midwives. As this framework was theoretical and had not yet been developed, explication was limited.

Efficient emergency transport

Interviews and focus groups with providers and administrators revealed emergency maternal and newborn transport as a significant concern for local deliveries, specifically delayed transport and not being able to transfer high-acuity childbearing people during labour efficiently. Transport was consistently described in the focus groups as "not working" due to overarching system characteristics such as difficulty arranging a care provider escort and complex inter-organizational communication. This diminished participants' comfort with offering the option of local birth. Subthemes included challenges of the dilation cut-offs for safe transport (currently at 4 cm), inclement weather conditions and shift change concerns. All physicians expressed concerns regarding the inefficient transport of maternity patients within the context of wider concerns about patient transport. One physician stated: "We [have] come to expect that transport will be complicated" – underscoring a widespread frustration with the current system.

A shortage in health human resources (through escorts) was noted as an additional transport challenge. Having a nurse or designated care provider who could accompany the transport team was suggested to help alleviate this delay. However, pulling a nurse or physician from the hospital creates a potential staffing shortage in the local community. Additionally, there is no funding mechanism for care providers who escort a patient to an accepting site to return to their community. Delays due to complex inter-organizational communication arose as another prominent issue. There were experiences of miscalculated reporting of a situation between organizing bodies, which led to delays when the transport team arrived:

> The biggest challenge for us in our entire province is acceptance … It's about accepting that patient and handing over the confidence from one physician to another to get that acceptance [from] the hospital.

Participants expressed frustrations regarding the many phone calls needed to make decisions around transport, which led to further delays. These frustrations were voiced with the recognition and understanding of the immutable challenges that weather and geography pose to efficient transport; these are challenges that cannot be resolved. There was consensus, however, that system-level interventions described earlier could mitigate some of the overarching challenges with rural patient transport.

Appropriate inclusion criteria for local deliveries

Being "risked-out" or considered "high risk" was a reccurring response we heard from community members and care providers as a rationale for birth outside the community. Many mothers and community members indicated that they were "high risk," though the understanding of what their risk factors were was unclear. Although care provider participants had an awareness of the social risks that leaving the community for birth incurred (financial risks and separation from family and community), the propensity to err on the side of caution in response to any potential risk factors was common to most providers.

Strengthened relationships with regional specialists

We heard from care providers on the North Vancouver Island and midwives working across the province in communities without a Caesarean section backup that stronger networks of regional care would augment their capacity to provide sustainable, safe care. Nurses in low-resource sites expressed a desire to link with maternity nurses at referral centres for ongoing mentorship and support. Likewise, there was consensus among providers from all low-resource sites that there is a need for networking with specialist colleagues to influence, participate and add to the dialogue around sustaining rural maternity care. Participants also expressed a desire for mentorship and interprofessional learning between rural providers and providers at referral sites in order to engage in reciprocal learning and alert the referral sites to the unique challenges of working in a rural setting. Participants identified "trust" as a key determinant of successful relationships. Attention and resources need to focus on building and strengthening networks of care between rural sites and their referral sites as well as between all rural sites.

Provincial validation

Findings from the field work were validated through interviews with physician, nursing, midwifery and administrative representatives from all of the provincial sites offering maternity care without local access to Caesarean section (n = 14) and through discussions at a provincial symposium where the foundational "building blocks" were endorsed as relevant to all

low-resource maternity sites. In addition, actions to stabilize maternity care were prioritized. The overarching provincial priorities included alternative compensation for midwifery (i.e., salaried rather than fee for service) and additional funding for recruitment and retention to support rural nurses involved in maternity care (including funding for skills development in high-volume centres and local simulation training). There was consensus regarding the need to address larger systems challenges with rural transport and interest in building lateral networks between rural sites and with regional referral centres. Lastly, participants also identified the need for developing more functional models of IPTs between physicians and midwives and mechanisms to fund such models. The disparate provider funding sources for maternity care has resulted in inequity between provider groups and barriers to collaborative practice. Participants noted that new interprofessional fund-holding mechanisms needed to be developed to allocate regional funding for maternity care, enabling regional geographies to determine the most responsive application of the funds to meet community needs.

Discussion and Conclusion

Despite the well-documented need for maternity care close to home for rural childbearing people across Canada, and the psycho-social, cultural and health-related consequences of not providing this care, little research has examined the system supports needed to sustain rural maternity care from the perspectives of local care providers

It is important to view challenges in low-resource rural maternity care sites as a systems issue. When a rural maternity service closes or is struggling, the impact is felt at surrounding hospitals because of an influx of maternity patients. An evidence-informed approach to planning services that involves stakeholders from across the region is essential and should be evaluated regularly.

Actions to stabilize maternity care that were identified and prioritized by participants included alternative compensation for fee-for-service providers including on-call funding for maternity care, additional support for rural nurses and other practitioners involved in maternity care, addressing rural transport system challenges, progress in building lateral networks between rural sites and regional referral centres and further need for functional models of IPTs. Following a provincial symposium of healthcare stakeholders, these foundational "building blocks" were validated as relevant to all low-resource (no local Caesarean section service) maternity sites.

The Canadian rural maternity care landscape, akin to other jurisdictions internationally, is shifting dramatically with both the continued erosion of primary maternity care sites without local access to Caesarean section and destabilization of larger services due to the influx of additional rural birthing families. Although midwives have made significant contributions in many of the rural jurisdictions across Canada, for most provinces and territories, supply has not kept up with demand. At a systems level, the model of remuneration and extant challenges to IPC has stymied progress. However, differences in the way midwives and physicians are compensated makes interprofessional collaboration difficult. For example,

in the study jurisdiction (BC), midwives get paid per course of care and provide continuity of care through pregnancy, birth and up to six weeks postpartum. Unlike physicians, midwives are not compensated for providing additional care for people with more complex social and/or medical needs, and they do not receive adequate payment for committee work and other interprofessional activities. In addition, the provincial ministry of health needs to create a provincial strategic framework that values rural maternity care as part of an integrated, wraparound system of care. Key to this is the recognition that closures or understaffing of rural hospitals result in more emergency transfers, put more pressure on referral centres and can lead to referral hospitals reaching capacity and turning away childbearing people. Perturbations in one system stratum have a ripple effect throughout the system. Unabated, perturbations in larger sites may lead to consequences – both anticipated and unanticipated – in tertiary settings. In short, the challenges in low-volume rural maternity sites lead to whole-system challenges.

In BC, interprofessional care has been theoretically embraced through the Patient's Medical Home model and Primary Care Networks based on aspirational collaboration between professions to provide seamless patient care. When applied to maternity care, this implies collaboration between physicians, midwives and nurses at the centre, where collaboration is understood on a continuum to mean anything from respectful collegiality between professions practising in a shared location to full integration of practice responsibilities including sharing patient load. Unfortunately, there is a lack of system infrastructure to actualize such relationships, making implementation troublesome. In small rural maternity services, there needs to be system recognition and incentivization that interprofessional care is essential for safe patient care. This must not limit the autonomy of any profession nor the capacity to work to full scope of practice, but it must instead recognize that safe practice is contingent on having a local community of practice for support should challenges be encountered.

Midwifery scope extension such as well-woman care and skills such as surgical assist with Caesarean sections would contribute to better meeting the needs of rural communities. However, it is essential that additional skills and scope be accompanied by discrete billing codes that allow for appropriate compensation.

The characteristics of successful IPTs and the mechanisms to support IPC are well described in the literature and codified in international, evidence-based frameworks (WHO 2010). There is consensus that interprofessional education is a "necessary step in preparing a 'collaborative practice-ready' health workforce to respond to local health needs" (WHO 2010: 7). Achieving this goal requires an openness to revise and renew curricula in medicine, nursing and midwifery and address how professional cultures and stereotypes impede successful interprofessional education. Curricula should also provide education about the roles and scope of other health professions and opportunities for interprofessional placements (WHO 2013).

Successful IPTs are characterized by leaders and champions who role model and actively support IPC and facilitate mentorship and learning opportunities for members of the IPT. A clear definition of IPC, role clarity and articulation of a shared vision for successful collaboration are important steps in the development of successful IPTs. Other enabling factors include administrative, institutional and work culture support and physical environment and space design (e.g., appropriate spaces for interprofessional learning) (WHO 2013).

Several mechanisms facilitate the ability of a collaborative practice-ready workforce to provide high-quality care. Institutional mechanisms include governance models, structured protocols, shared operating resources, personnel policies and supportive management practices. Strategies to promote a positive work culture include conflict resolution policies and supports, shared decision-making processes and regular opportunities to reflect on successes and failures of IPC (WHO 2010).

More resources are needed at the regional level to implement local support for maternity care, such as funding enough nursing lines, improving hospital infrastructure and resources and fostering a culture of acceptance for rural maternity care without Caesarean section backup. A significant body of evidence documents the safety of birth in these communities (Kornelsen and McCartney 2015a, 2015b) as long as comprehensive risk assessment and a well-functioning referral system are in place.

Another barrier to sustainable rural maternity care is care provider burnout and lack of system support (Stoll and Gallagher 2019). Midwives in most Canadian jurisdictions lack appropriate critical incident support and a comprehensive retention strategy. Likewise, physicians have limited support for professional retention and re-entry. The programs that were implemented by BC Emergency Health Services to support paramedics in BC are good examples of successful and comprehensive mental health, critical incident and retention strategies. For example, BC Emergency Health Services has an award-winning peer counselling program and an extensive network of vetted counsellors with expertise in supporting vicarious trauma and other mental health issues common among healthcare providers (BC Emergency Health Services 2017). We can look to models such as this for best practices.

Although the focus of this study is on the needs of healthcare providers and administrators, it is essential to appreciate that it responds to *the needs of local community members* (alongside a growing and robust evidence base on safety within a supportive policy context). The question of sustainable rural – and urban – maternity care is one that needs to be addressed in a timely way with accountability to communities, including healthcare providers, and to our pan-Canadian commitment to respond to the *Calls to Action* of the Truth and Reconciliation Commission of Canada (2015) and the United Nations (2007) *Declaration on the Rights of Indigenous Peoples*. We have enough evidence to support maternity care for low-risk childbearing people in settings without local access to Caesarean section; it is time to address the community skepticism regarding the decades of inaction and show that improvements are possible.

Findings from this study support the stabilization of rural maternity care in Canadian jurisdictions and other low-resource maternity sites around the world.

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