



DESCRIPTIVE ARTICLE ARTICLE DESCRIPTIF

Rural and remote obstetric care close to home: program description, evaluation and discussion of Sioux Lookout Meno Ya Win Health Centre obstetrics

J. Dooley, MD
Northern Ontario School of
Medicine, Sioux Lookout, Ont.

Len Kelly, MD
Northern Ontario School of
Medicine, Sioux Lookout, Ont.

N. St Pierre-Hansen, MD
Northern Ontario School of
Medicine, Sioux Lookout, Ont.

I. Antone, MD
Northern Ontario School of
Medicine, Sioux Lookout, Ont.

J. Guilfoyle, MD
Northern Ontario School of
Medicine, Sioux Lookout, Ont.

T. O'Driscoll, MD
Northern Ontario School of
Medicine, Sioux Lookout, Ont.

Correspondence to:
Dr. J. Dooley, Box 489,
Sioux Lookout ON P8T 1A8;
fax 807 757-1771;
jdooley@tbaytel.net

*This article has been peer
reviewed.*

Problem being addressed: Aboriginal and non-Aboriginal women in rural and remote settings struggle to access obstetric care close to home.

Objective of the program: To deliver a full range of modern and safe obstetric care to 28 remote Aboriginal communities served by rural-based health care.

Program description: Rural family physicians provide intrapartum, cesarean delivery and anesthesia services to 350 rural, primarily Aboriginal women in a collegial, supportive environment.

Conclusion: Rural and remote obstetric services need support before they fail. Patient volume, remote location and organizational culture are key elements. Evidence teaches us that outcomes are best when women deliver closer to home.

Problème abordé : Les femmes autochtones et non autochtones vivant en région rurale et éloignée ont du mal à obtenir des soins obstétricaux près de chez elles.

Objectif du programme : Offrir une gamme complète de soins obstétricaux modernes et sécuritaires à 28 communautés autochtones éloignées, desservies par des services de soins de santé ruraux.

Description du programme : Prestation de services intrapartum, de césariennes et d'anesthésie obstétricale par des médecins de famille exerçant en milieu rural, à 350 femmes, surtout autochtones, dans un contexte de collégialité et d'entraide.

Conclusion : Il faut soutenir les services obstétricaux en région rurale et éloignée, faute de quoi ils pourraient disparaître. Le volume de patientes, l'éloignement géographique et la culture organisationnelle sont des éléments clés dont on doit tenir compte. L'expérience nous enseigne que l'issue des grossesses est meilleure lorsque les femmes peuvent accoucher plus près de leur lieu de résidence.

INTRODUCTION

Delivery of obstetric services to remote communities in Canada will always be challenging. Despite decades of experience there are limited descriptions of successful models of care.

In 1997, the Joint Working Group of the Society of Rural Physicians of Canada, the College of Family Physicians of Canada and the Society of Obstetricians and Gynaecologists of Canada (SOGC) identified an "urgent need for Canadian research on the

maternal and neonatal outcomes of births ... in small hospitals."¹ A 2007 SOGC report identified a need for increased opportunities for Aboriginal women to deliver close to home in a familiar environment.²

BARRIERS

Rural women are increasingly required to travel for obstetric services.³ This need for travel results in poorer birth outcomes.⁴ For women from remote Aboriginal communities, the distance

travelled is even greater and the differences in cultural environments and language compound the stress of childbearing.

The geographical challenges that accompany a centralization of obstetric services are identified as one of multiple factors associated with Canada's rising induction rate.⁵ Travel for labour and delivery is associated with higher delivery complications and rates of prematurity,⁴ as well as increased financial, emotional and psychologic stress.^{6,7} Most women choose to deliver in their home community despite limited obstetric services.⁸⁻¹⁰ Zelek and colleagues¹⁰ documented that 77.8% of the eligible (nonprimigravida) women studied preferred to deliver at the rural hospital in Marathon, Ont., which had no cesarean delivery capabilities.

Most studies pertaining to the quality of maternal care by family physicians in rural hospitals indicate safe outcomes comparable to larger urban centres.¹¹⁻¹⁷ A 1984 study of rural obstetrics programs in northern Ontario found small rural hospitals that performed cesarean deliveries regularly had slightly better birth outcomes than urban centres.¹² Similar results from a recent study in Bella Coola, BC, support the conclusion that "low technology environments" are capable of providing excellent maternal outcomes even without cesarean delivery capabilities.¹⁶ A 2007 Canadian study that analyzed 5792 cesarean deliveries compared the outcomes of those performed by general practitioners to those performed by specialists and found similar outcomes.¹⁸

Closures and centralization of rural obstetrics programs in Canada because of physician shortages is not uncommon¹⁹⁻²¹ and is deemed part of the emerging maternity care crisis by the Ontario Women's Health Council.¹⁹ The council and others²²⁻²⁶ identify the need for health human resources and physician retention. Recently, the BC government has allocated funds to re-establish family physician involvement in obstetrics.²⁴

SOLUTIONS

Creative solutions that fit the environment and resources of a community can reduce women's need to travel for obstetric services and allow for the survival of small obstetrics programs. The Weeneebayko Hospital in Moose Factory, Ont., services 6 remote, fly-in communities. The hospital's obstetrics program of 100 deliveries per year has closed at times because of physician shortages, requiring patients to travel to Timmins, Ont., to receive care. Now once again operational, the program has family

physicians performing deliveries, and the general surgeon doing cesarean deliveries with support from obstetricians on itinerant visits. The family physicians involved can access additional training in Timmins. The program, which reopened in 2004, allows women to stay "in zone" to deliver.²⁵

SIoux LOOKOUT MENO YA WIN HEALTH CENTRE PROGRAM

The obstetrics program at the Sioux Lookout Meno Ya Win Health Centre (SLMHC) has been in operation for 25 years and services 28 remote, fly-in Aboriginal communities and the town of Sioux Lookout, Ont., serving a total population of 25 000. The SLMHC has developed a model of care that incorporates Aboriginal values and promotes an environment of culturally sensitive care. The obstetrics program has cesarean delivery, ultrasonography and version capabilities, delivered by rural physicians with appropriate additional training. The program reduces the need for patients to travel more



Four generations pose for a picture in front of the Sioux Lookout Airport, as Beatrice (Ningewance) Kanate and her newborn son, Ethan, prepare to go home to North Caribou Lake First Nation. Ms. Kanate (centre) is pictured with (from far right, counter-clockwise) her grandmother, Agnes Ningewance; her father, Merv Ningewance; her brother, Pawn Ningewance; and her son, Ethan Kanate.

than 300 km to larger centres in Thunder Bay, Ont., or Winnipeg, Man. An average of 350 deliveries are performed at the centre each year.

Prenatal care

Currently there is one federally funded ultrasonography technician who travels to remote communities performing prenatal ultrasonography. In 2007, he made 55 community visits, performing 465 portable obstetric ultrasonography procedures in the local community nursing stations.

Routine prenatal care throughout the pregnancy is provided by visiting family physicians and by the community's expanded-role nurses with telephone access to on-call physicians.

Twice weekly prenatal clinics are held in Sioux Lookout with about 1000 patient visits per year. This allows patients referred for delivery to be followed up regularly after 38 weeks. It also allows for the review of patients referred for earlier complications.

Evaluation of referrals and case management

Multidisciplinary weekly rounds are held to ensure that the 350 pregnant women per year referred to the SLMHC obstetrics program are appropriate for our facility. This provides opportunity for risk assessment and further testing on specialty referrals.

Program coordination

A nurse coordinator facilitates consultations, liaises with nursing stations and ensures patients are oriented to our facility. This coordinator maintains contact with the patients and provides prenatal education while they are in Sioux Lookout. This allows us to ensure complete documentation is received and that the appropriateness of referrals and risk assessment for local delivery is developed.

Labour and delivery staff

The hospital continues to work to ensure that staff covering the labour floor have the appropriate experience. The SOGC ALARM (Advances in Labour and Risk Management) program has been run twice in the past 7 years in Sioux Lookout. The presence of an in-house registered nurse/neonatal resuscitation instructor also allows all care providers to maintain their competence. The continuing education of both the nursing and medical personnel attending deliveries is essential.

Availability of cesarean delivery

Surgical delivery is performed by 3 family physicians (2 local, 1 locum). Anesthesia services are provided by 4 general practitioner-anesthetists (2 local, 2 locum). Six other family physicians provide on-call services for the hospital-based prenatal clinic, labour and delivery.

Cultural supports

For many of our patients, English is a second language. We have Aboriginal interpreters available 16 hours a day for routine translation. Further cultural services are provided through the SLMHC Traditional Healing, Medicine, Foods and Supports Program, which includes a visit by an elder and access to traditional foods. In these ways the program tries to provide as culturally appropriate an environment as close to home as possible.²⁶

Tele-health evaluations

This component of the program commenced in September 2007 to decrease travel from communities for a broad scope of consultations, including mid-trimester assessments. Last year during a blizzard, 2 babies were born in remote communities, assisted by the on-call physician in Sioux Lookout via live video conferencing.

Evaluation

SLMHC is considered a level-1 obstetrics program (providing care to women who anticipate healthy nonemergent births and term newborns), but our patients often present unique cultural and geographic challenges. Both type 2 diabetes and gestational diabetes are becoming common complications. A 1997 study of Native women delivering in Sioux Lookout found the rate of gestational diabetes to be 8.4%, when the national average was 4%.²⁷ Data from 2005/06 showed that our region's rate of smoking during pregnancy and teenage mothers to be the highest in the province.²⁸

Outcomes

Our obstetric outcomes compare well with provincial averages. At 24%, our cesarean delivery rate, from 2005 to 2007, was lower than the provincial averages of 28% for all hospitals and 27% for all level 1 institutions.²⁹ Most of our cesarean deliveries (73%) were

urgent/emergent, and 27% were elective primary or repeats. Of the 627 deliveries, we had 10 failed attempts at vaginal birth after cesarean (VBAC) and 39 successful VBACs — a success rate of 80% versus a provincial success rate of 53%.²⁹ All 17 breech presentations were delivered by cesarean (10 happened to be elective repeat cesarean deliveries).

Complications

Our rate of gestational diabetes, combined with Aboriginal heritage, resulted in a 25.5% rate of large-for-gestational-age babies (> 4 kg), versus a provincial rate of 11%.³⁰ This is in keeping with information from other provinces which also demonstrates higher rates of macrosomia in Aboriginal offspring.³¹

Between 2006 and 2008 there was no intra-partum fetal or maternal death and only 1 readmission for postpartum infection. Six newborns weighing less than 2500 g were delivered in our facility, none of which were predicted or avoidable.

DISCUSSION

Key strengths

Three elements account for maintaining the ongoing success of our program: patient volume, remote location and organizational culture.

Patient volume

The volume of 300–350 deliveries per year ensures that physicians and nurses are busy enough to maintain competence, interest and a reasonable comfort level. The 75 or so annual cesarean deliveries provide enough operative workload to maintain expertise for at least 2 trained family physicians. Programs that do not sustain reasonable volumes need funding for physicians and nurses to regularly visit regional centres to maintain competence without experiencing financial penalties. We note the recent BC initiative to facilitate retraining of family physicians to rejoin obstetric service provision.⁹ Would preemptive funding and maintenance programs help obstetric service and prevent their closure?

Remote location

The remote location of our program is an asset. It ensures that broad-scope family physicians and multiskilled nurses will be the care providers. This allows for ownership of the service — including

stepping forward for advanced training where needed. In both anesthesia and cesarean delivery, we have support from a small number of trusted locum family physicians with these additional skills. In Sioux Lookout, such multiskilled locum physicians provide emergency department and family physician coverage as well as contributing to the obstetrics program.

Organizational culture

The organizational culture of a sustainable program needs champions, collegiality, coordination, safety and purpose. The ALARM courses we hosted were invaluable in identifying and supporting physicians and nurses keen to provide up-to-date and safe obstetric care. It contributed to a shared sense of commitment. Additionally, our largely Aboriginal population receives most of the rest of their medical care in Sioux Lookout. This contributes to the cultural competence and experience of care providers. There is a sense of teamwork among our local providers. We access collegial and appropriate telephone support from Winnipeg and Thunder Bay when required. Complex patients requiring more advanced care are air transferred to one of these centres as needed.

Needs and challenges

Travel from home communities to distant centres increases emotional stress and has the potential to have a negative impact on pregnancy outcomes. Although SLMHC ensures a more local and familiar facility for most of the patients, the women do have to spend time away from their families. One of the greatest limitations of the present program is inadequate federal funding support for escorts, to allow women the support of a family member during labour. This option is not funded despite evidence of improved delivery outcomes associated with labour support.^{32–33}

Our program's reliance on a small core group of family physicians to ensure anesthesia and cesarean delivery capabilities reveals both the strength of the program and a potential for difficulties in the future. There is a clear need to develop an employment package that would attract new physicians interested in providing this type of care, beyond present fee-for-service funding. Sustainability will need to be secured by achieving program-specific funding for service provision, mentoring and training. Such initiatives are in the planning stages.

In addition, rural and remote obstetric services need

- local, broadly skilled personnel: physicians, nurses, midwives, ultrasonography capability and the establishment of a critical mass of capable clinicians, including support for mentoring;
- regional support for specialist back-up, patient transfer, training, research, relationship-building, and locum nursing and physician support when needed.

CONCLUSION

It is crucial that regional and national funding bodies acknowledge the mandate to provide obstetric services close to the patient's home. This may involve identifying key regional programs and providing robust programming support and funding to enhance longevity.

Programs based on the goodwill and practice profiles of small groups of individual clinicians can carry us only so far. We have seen the closing of many rural obstetrics programs and the decline in family physicians involved in obstetrics in urban areas, where specialist obstetricians shoulder the workload. Such fallback positions are not available in rural and remote Canada. The time for a more committed approach is upon us.

Competing interests: None declared.

REFERENCES

1. Iglesias S, Grzybowski S, Klein MC, et al. Joint position paper on rural maternity care. *Can J Rural Med* 1998;3:75-80.
2. Society of Obstetricians and Gynecologists of Canada. *Study: diminishing health resources in rural areas leading to more c-sections, preterm births*. Ottawa (ON): The Society; 2007. Available: www.sogc.org/media/advisories-20070621g_e.asp (accessed 2009 Mar 5).
3. Helewa M. Maternity care: crisis within and without. *J Obstet Gynaecol Can* 2005;27:845-6.
4. Nesbitt TS, Connell FA, Hart LG, et al. Access to obstetric care in rural areas: effect on birth outcomes. *Am J Public Health* 1990;80:814-8.
5. Banks W. What's really behind rising induction rates? A tale of pain avoidance, geography and follow the leader. *National Review of Medicine*. 2004;1. Available: www.nationalreviewofmedicine.com/issue/2004/10_30/feature06_20.html (accessed 2009 Mar 4).
6. Chamberlain M, Barclay K. Psychosocial costs of transferring indigenous women from their community for birth. *Midwifery* 2000;16:116-22.
7. Kornelsen J, Grzybowski S. The reality of resistance: the experiences of rural parturient women. *J Midwifery Womens Health* 2006;51:260-5.
8. Fitzpatrick JM. Obstetric health services in Far North Queensland: Is choice an option? *Am J Public Health* 1995;19:580-8.
9. Smith M, Askew DA. Choosing childbirth provider location: rural women's perspective. *Rural and Remote Health* 6 2006:510. Available: www.rrh.org.au/articles/subviewnew.asp?ArticleID=510 (accessed 2009 Mar 19).
10. Zelek B, Orrantia E, Poole H, et al. Home or away? Factors affecting where women choose to give birth. *Can Fam Physician* 2007;53:78-83.

11. Iglesias S, Bott N, Ellehoj E, et al. Outcomes of maternity care services in Alberta, 1999 and 2000: a population-based analysis. *J Obstet Gynaecol Can* 2005;27:855-63.
12. Black DP, Fyfe IM. The safety of obstetric services in small communities in northern Ontario. *Can Med Assoc J* 1984;130:571-6.
13. Peddle LJ, Brown H, Buckley J, et al. Voluntary regionalization and associated trends in perinatal care: the Nova Scotia reproductive care program. *Am J Obstet Gynecol* 1983;145:170-6.
14. Heaphy PE, Bernard LB. Maternal complications of normal deliveries: variation among rural hospitals. *J Rural Health* 2000;16:139-47.
15. Klein MC, Spence A, Kaczorowski, KA, et al. Does delivery volume of family physician predict maternal and newborn outcome? *CMAJ* 2002;166:1257-63.
16. Thommasen HV, Klein MC, Mackenzie T, et al. Obstetric maternal outcomes at Bella Coola General Hospital: 1940 to 2001. *Can J Rural Med* 2005;10:13-21.
17. Kriebel SH, Pitts JD. Obstetric outcomes in a rural family practice: an eight-year experience. *Journal of Family Practice*. 1988;27:377-84.
18. Aubrey-Bassler K, Newbery S, Kelly L, et al. Maternal outcomes of cesarean sections: Do generalists' patients have different outcomes than specialists' patients? *Can Fam Physician* 2007;53:2132-8.
19. Ontario Maternity Care Expert Panel. *Maternity care in Ontario 2006: emerging crisis, emerging solutions*. Ottawa (ON): Ontario Women's Health Council; 2006.
20. Kornelsen J, Grzybowski S, Iglesias S. Is rural maternity care sustainable without general practitioner surgeons? *Can J Rural Med* 2006;11:218-20.
21. Larimore WL, Davis A. Relation of infant mortality to the availability of maternity care in rural Florida. *Journal Am Board Fam Pract* 1996; 9:72-3.
22. The College of Canadian Family Physicians. *Women's Health Scholarship*. Mississauga (ON): The College; 2005. Available: www.cfpc.ca/Local/files/Programs/awards/Awards_in_Action/Womens_Health-Dr_Truslel.pdf (accessed 2009 Mar 5).
23. Price D, Howard M, Shaw E, et al. Family medicine obstetrics: collaborative interdisciplinary programs for a declining resource. *Can Fam Physician* 2005;51:68-71.
24. Dines G. MC4BC: supporting family physicians' return to obstetrics. *BC Med J* 2008;50:218. Available: www.bcmj.org/files/BCMj_50Vol4_gpsc.pdf (accessed 2009 Mar 4).
25. Torr E. *Report on the findings of the Consensus Conference on Obstetrical Services in Rural or Remote Communities*. Vancouver (BC): British Columbia Reproductive Care Program; 2000. Available: www.bcphp.ca/sites/bcrp/files/ConsensusSymposiumStatement.pdf (accessed 2009 Mar 5).
26. Walker R, Cromarty H, Linkewich B, et al. Achieving cultural integration in health services: design of a comprehensive model for traditional healing, medicines, foods and supports. *Journal of Aboriginal Health*. In press.
27. Harris SB, Caulfield LE, Sugamori ME, et al. The epidemiology of diabetes in pregnant Native Canadians. *Diabetes Care* 1997;20:1422-5.
28. Ontario Perinatal Programs Partnership. *Tailoring services to pregnant women and their babies in Ontario: 2006 Provincial Perinatal Report*. Ottawa (ON): The Partnership; 2006. Available: www.pppeso.on.ca/site/ppeso/ (accessed 2009 Mar 5).
29. Niday Database. Provincial maternal key indicator report: 01-Dec-06 – 30-Nov-07. www.pppeso.on.ca/download.php?d=FGy3ZUEdMSvSbkrAvBOZaVHV5-plus...equals--equals-&ts=1233979179&f=54.
30. Sosa R, Kennel J, Klaus M, et al. The effects of a supportive companion on perinatal problems, length of labor, and mother-infant interaction. *N Engl J Med* 1980;303:597-600.
31. Kierans W, Luo ZC, Wilkins R, et al. Infant macrosomia among First Nations in British Columbia: prevalence, trends and characteristics. Government of British Columbia. Available: www.vs.gov.bc.ca/stats/indian/REPORT_Macrosomia.pdf (accessed 2009 Mar 5).
32. Sauls DJ. Effects of labor support on mothers, babies, and birth outcomes. *J Obstet Gynecol Neonatal Nurs* 2002;31:733-41.
33. Klaus M, Kennel J, Berkowitz G, et al. Maternal assistance and support in labor: Father, nurse, midwife, or doula? *Clinical Consultations in Obstetrics and Gynecology* 1992;4:211-7.