SUSTAINABLE SERVICES TO MEET THE NEEDS OF LOCAL WOMEN AND FAMILIES

A Report on Local Maternity Care in the Greater Tofino Catchment

Centre for Rural Health Research
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Centre For Rural Health Research

THE CENTRE FOR RURAL HEALTH RESEARCH

The Centre for Rural Health Research (CRHR) was formed in 2005 in response to the need for evidence to develop policies and inform decision making in the area of rural health. This mandate is based on an understanding of the known health inequities between rural and urban residents arising in part from the difference between their respective health needs and service delivery context. Under the direction of Drs Stefan Grzybowski (a rural family physician) and Jude Kornelsen (a medical sociologist who specializes in maternity care), the CRHR is supported by both the Vancouver Coastal Health Research Institute and the Department of Family Practice at the University of British Columbia, and receives project funding predominantly from the Canadian Institutes of Health Research (CIHR). To date the program of research has focused primarily on rural maternity care and developing strategic approaches to planning sustainable rural maternity services in British Columbia. Please see www.ruralmatresearch.net for a complete list of projects and recent publications.

ABOUT THIS PROJECT

From April 5-9, 2009, the Centre for Rural Health Research conducted a consultation on maternity service delivery in Tofino and the surrounding catchment to 1) determine the community's desire for local maternity care services, including level of risk tolerance, and 2) to assess resources currently available. This consultation was funded by the Vancouver Island Health Authority, with endorsement from the BC Ministry of Health Services and the support of community and hospital stakeholders in the Tofino area.[i] This report communicates the results of the consultation and includes recommendations for a sustainable model of local maternity care, based on the findings from interviews and focus groups and informed by our understanding of sustainable models of maternity service in rural British Columbia.

[i] See Appendix, Letter of Support from Vancouver Island Health Authority.

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EXECUTIVE SUMMARY

This report, *Creating a Sustainable Service: A Report on Local Maternity Care in the Tofino Catchment*, documents findings from the Centre for Rural Health Research (CRHR) consultation on maternity service delivery in Tofino and area, undertaken with funding from the Vancouver Island Health Authority, endorsement from the BC Ministry of Health Services, and with the support of local community and hospital stakeholders.

Despite having a long and successful history of providing local maternity care, Tofino Hospital closed elective intrapartum services in 2007 due to a constellation of factors including challenges in recruiting and retaining maternity care providers. The **goal** of this project was to undertake a community-based consultation with key stakeholders in the rural BC communities comprising the Tofino General Hospital catchment to determine the health service delivery conditions necessary to support sustainable local maternity services. Objectives included:

1. Determining the community's desire for local maternity care services;
2. Identifying the resources and activities that are necessary to support the needs of resident parturient women – either locally or in referral communities.
3. Defining recommendations that support optimal and sustainable services for the women and families of the Tofino population catchment.

The Centre for Rural Health Research sent one principal investigator and three research members to the Tofino area to conduct a consultation on local maternity services from April 5-9, 2009. Interviews and focus groups were conducted with key stakeholders, including: community members (birthing women, mothers, fathers, family members and Elders); allied health professionals (public health nurses, Family Ties staff, outreach workers, doulas, emergency transport personnel); care providers (local nurses and physicians, as well as obstetricians and midwives from referral communities); community leaders (Aboriginal Band Council members, administrators, and mayors); and Vancouver Island Health Authority administrators, health planners, and policy makers. In total, over 100 people were involved in this community consultation.

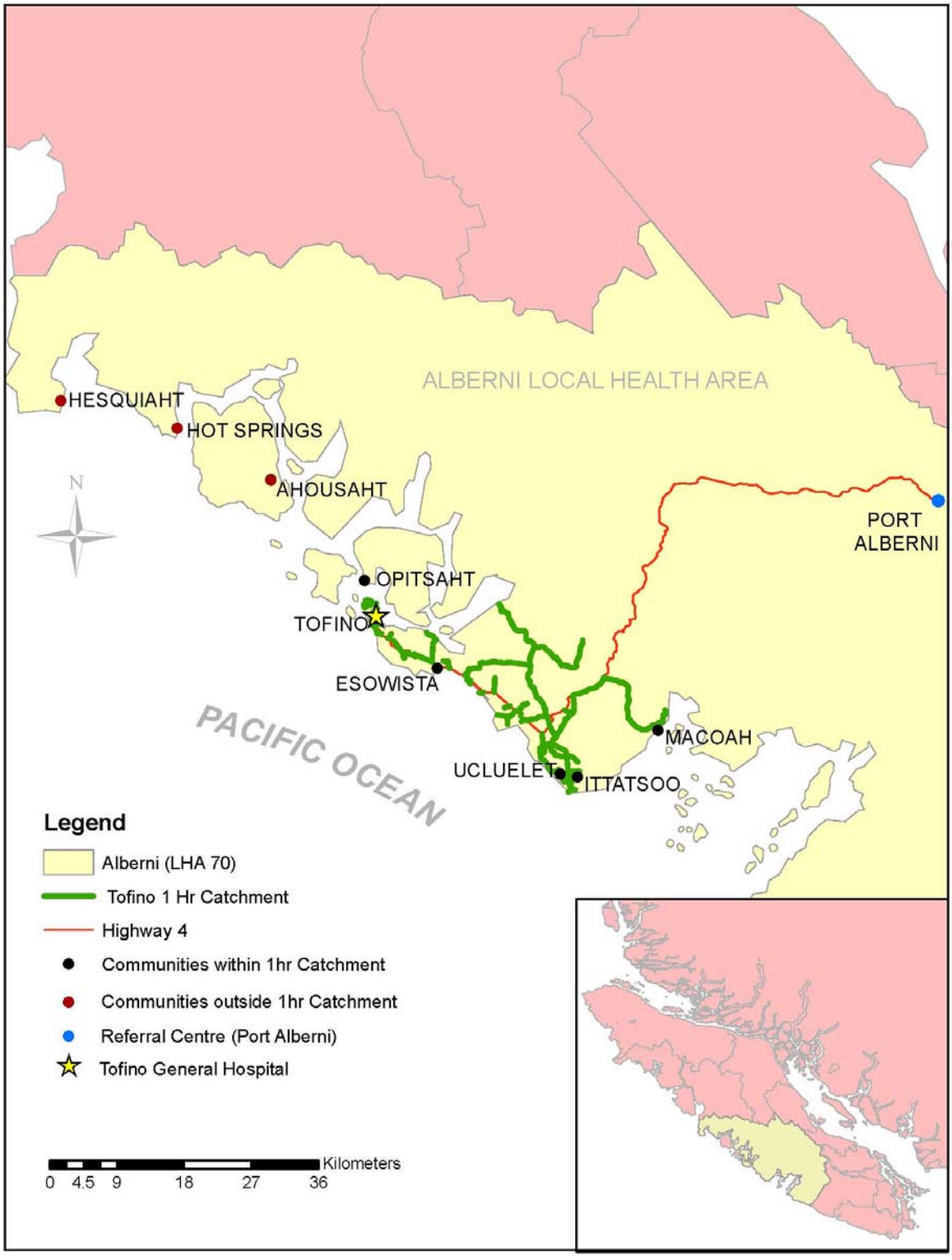
Complimenting this extensive qualitative data was quantitative data on local birth outcomes. Between 2003-2007, there was on average 53 recorded deliveries per year to the women and families resident within one hour of the Tofino General Hospital (TGH) and 20 deliveries per year to the women and families who lived greater than one hour from TGH but naturally drained into their hospital service catchment. Prior to the closure of local maternity services in Tofino, there was a steady decline in the number of deliveries that occurred locally at the Tofino Hospital. From 2003 to 2007, the number of deliveries at Tofino Hospital dropped from a high of 44% of total births to women in the Tofino area to a low of only 10% of all births. Interviews and focus groups revealed that this decline was due to a number of factors: primarily loss of staff confidence in local maternity care with the loss of two key care providers (a nurse-midwife and physician); strict criteria for low-risk local deliveries; and a shortage of skilled nurses. Since the closure of elective birthing services, all parturient women from the greater Tofino catchment have been encouraged to travel to a referral centre to give birth. However, there continue to be a small number of emergent deliveries at Tofino General Hospital.

Additional themes emerging from the consultation centered on the importance of local birth, the experience of giving birth in referral centres, and current challenges to the sustainable provision of maternity services at Tofino Hospital. Birthing women spoke clearly of the importance and meaning of local birth to their community, and emphasized that the "choice" of local birth should be offered to women of the Tofino area. Women's experiences of birth away were characterized by social, financial, and cultural stress. These stressors were felt most acutely by Aboriginal and teenage mothers. Many noted that with the closure of local intrapartum care, not enough services were put in place to provide support to women accessing prenatal and intrapartum care in referral centres. Some women found the decision making process highly challenging. These decisions included choosing place of birth, care provider, mode of transport, accommodation, negotiating time off work, budgeting expenses, and finding care for other children. Women spoke of the lack of continuity of care that accompanied the closure of intrapartum services, including limited postnatal follow-up. Some sought midwifery services in the hopes of receiving continuity of care and enhanced psychosocial support, while others knew of women who chose to remain in the community and present at the hospital at an advanced stage in labor to preclude transfer from the community.

Physicians and hospital nurses noted practice challenges that hindered sustainable local maternity services, including the onerous burden of on-call work, the lack of locums with maternity skills, a shortage of nurses confident and competent in maternity care, the loss of nurse-midwives on staff, and concerns with the low complement of nurses per shift. There is a perception amongst some staff and community members that VIHA is not currently supportive of retraining initiatives for nurses which is seen as central to rebuilding on site intrapartum services.

Recommendations emerging from this consultation consist of a three-phase model to rebuild local elective maternity services for the greater Tofino catchment, within a sustainable, multi-year, feasibility dependent timeline. Specifically, the three-phase model provides a step-wise series of recommendations to improve training and support for care providers, increase the nursing complement, and enhance support for women who choose to give birth away from Tofino. Detailed recommendations can be found on page 57. In summary, the three phases consist of:

1. Phase 1 (short): Strengthening the current model of no local elective deliveries by enhancing supports for women who birth away and ensuring emergency delivery maternity skills training for care providers;
2. Phase 2 (medium): Reinstating local maternity care provided by local family physicians through the support of obstetrically trained nurses or nurse-midwives;
3. Phase 3 (long term): Introducing local low-risk surgical services (GP Surgery, GP Anesthesia) in response to sufficient growth in the local parturient population and potentially introducing community-based midwifery.

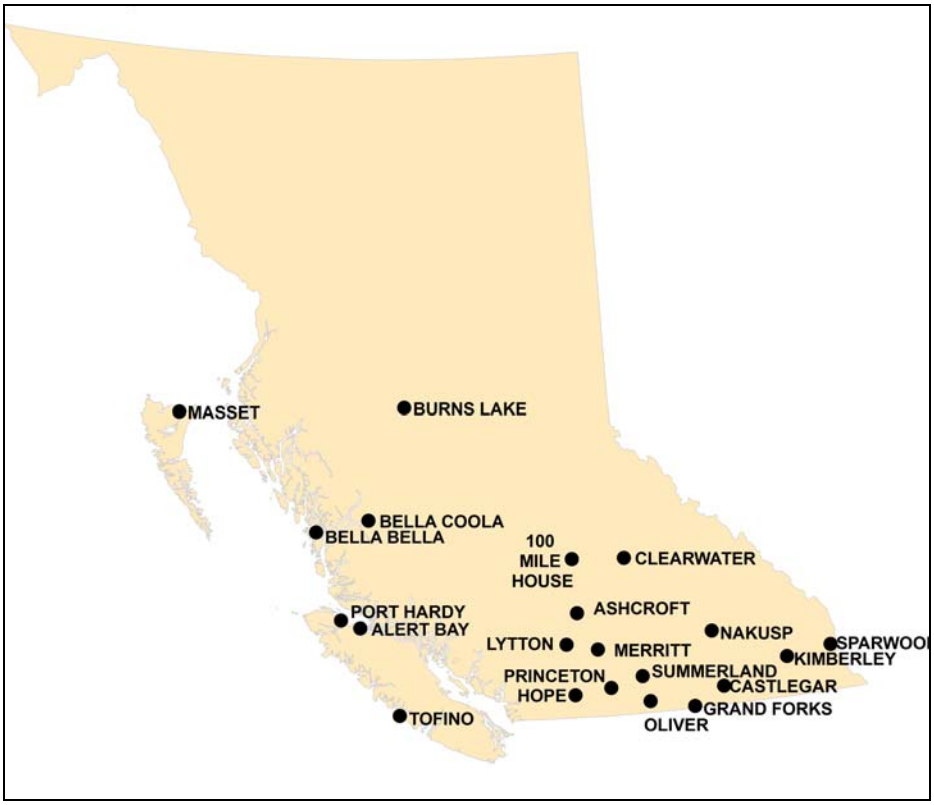


Map 1: Greater Tofino Catchment

1. FRAMING THE ISSUE

a. Rural Maternity Care in British Columbia

There has been a significant decline in the number of rural hospitals offering maternity care in BC since 2000, mirroring trends of closures and service reductions that are occurring across Canada [1] [2] and internationally.[3] In Nova Scotia between 1970 and 2002, 31 of 42 hospitals ceased to provide maternity services.[4] [5] In Ontario, 11 small hospitals that provided obstetric care in 1988 closed their services by 1995.[6] [7] In British Columbia alone, 21 communities[1] have closed local services since 2000 (see Map 2 below).[8]



Map 2: Hospital closures in British Columbia since 2000. (*Source:* BC Perinatal Database Registry)

A convergence of factors has led to the lack of access of maternity services including structural-economic changes in rural communities,[9] [10] [11] health care restructuring,[12]a changing context of care that supervaluates access to technology and specialists,[13] and health human resource issues. The latter provide the most significant challenges, which include providing surgical care in low-resource environments, shortages in obstetrically-trained nurses,[14] and the growing attrition of family physicians from rural practice. This attrition has been well-documented and is attributed to general

[1] Closures since 2000 include the communities of 100 Mile House, Alert Bay, Ashcroft, Bella Bella, Bella Coola, Burns Lake, Castlegar, Clearwater, Grand Forks, Hope, Kimberley, Lytton, Masset, Merritt, Nakusp, Oliver, Port Hardy, Princeton, Sparwood, Summerland, and Tofino.

workplace stress among rural physicians,[15] [16] [17] [18] [19] [20] [21] [22] [23] demanding call schedules,[24] and, in British Columbia, the lack of remuneration for on-call obstetrics as many physicians take up the opportunity to participate in remunerated competing call groups such as Emergency, Pediatrics, or Psychiatry.

Rural service closures give rise to inequities in access to care for rural parturient women, and lead to place of residence becoming a determinant of maternal and newborn health.[25] [26] [27] A review of the existing literature indicates that negative health consequences for the maternal-newborn population can occur as a result of these changing patterns of access to services, as has been found in rural Florida and Washington State.[28] [29] [30] Closures of small-volume maternity units flies in the face of evidence from several large population-based studies from countries such as New Zealand, Finland, and Norway, which have shown that small hospitals can provide safe maternity services.[31] [32] [33] Low risk pregnancies may in fact have fewer risk factors in a minimal-technology environment such as a small rural facility: "delivery with no known risk factors may actually be put at risk by the increased medical attention of technologically advanced maternity units, and low risk deliveries may benefit from the minimal intervention approach in small maternity units."[34]

While concern for safe birth outcomes is often cited as a reason for closing services, there is evidence that when adequately supported, small rural maternity services can safely serve rural parturient women,[35] [36] [37] including in the absence of local cesarean section capability,[38] [39] [40] suggesting that within a regionalized perinatal system, small maternity services can be as safe as tertiary obstetrical units, provided an efficient mechanism for intrapartum transfer has been established.[41] [42]

In addition, research shows that evacuating women to give birth causes psychosocial stress for women, families, and communities, thus accentuating their vulnerability.[43] [44] [45] [46] [47] [48] We have an emerging understanding of the psychosocial consequences for pregnant women from communities without local services, many of whom experience labour and delivery in referral communities as a crisis event fraught with anxiety, because they cannot plan for birth with any certainty.[49] [50] [51] Not surprisingly, these social consequences have the greatest effect on women with limited social and economic resources. Studies have also demonstrated a number of adverse effects associated with travel for rural parturient women, which include increased intervention rates; stress; financial loss;[52] separation from spouse, children and community; and lack of continuity of care.[53] [54] [55] [56] [57]

Long Beach, Tofino

For mothers with other children or dependent parents at home, leaving them behind can be emotionally stressful and it can be expensive to arrange care for them. To avoid these stresses, women may stay in their communities and wait until labour begins before traveling to the referral community, risking having their baby en route or at their less well equipped local hospital. Limited numbers of rural women choose not to travel at all and have unassisted home births with lay

attendants instead.[58] Another strategy that mothers and care providers use to avoid long stays away from home is geographic induction (elective induction of labour chosen to reduce a pregnant woman's time away from home when she is in a referral community). Rural parturient women who have to travel for care are 1.3 times more likely to undergo induction of labour than women who do not have to travel.[59] Many mothers have no choice but to undergo a geographic induction so that they can avoid a prolonged stay away from their families. Alternatively, in the case of intermittent services in their local communities, some women choose to be induced prior to the services being temporarily unavailable if it is close to their due date and physiological conditions are favorable.

Although emerging evidence clearly suggests the importance of maintaining local services (where warranted by population need), there are no clearly articulated policies aimed at strengthening the infrastructure for care on a provincial level.[60] This has lead to challenges for regional health planners and ad hoc solutions to meeting the needs of rural parturient women in different communities.

While the nuances of the situation are unique to rural environments, the challenges facing the provision of maternity care extend to urban settings as well where planners must also contend with the attrition of providers and the lack of obstetrically trained nurses.[61] [62] This has forced consideration of new models of care and renewed interest in evidence regarding outcomes in situations without local access to cesarean section capacity.

b. Aboriginal Maternity Care

Although all rural women experience the impact of reductions in local maternity services, qualitative evidence suggests that these impacts are felt more acutely in Aboriginal communities. This is due in part to the historical place of birth in Aboriginal life where it was a community event that strengthened ties within families and nations.[63] In Canada's far north we have seen the systematic evacuation of women from their communities due to shifting policy and practice including immigration restrictions on foreign-trained nurse-midwives who traditionally staffed remote outposts.[64] The consequences have been severe, leading away from birth as a community event to birth as an isolating experience resulting in feelings of loss of control for women.[65] [66] There are also implications for the community. In describing the Pauktuutit (Inuit Women's Association) perspective, Martha Greig notes that the loss of self-sufficiency and competency is felt by older women as well, for those who acted as midwives in the past believe their own knowledge has been discredited, wasted, and ignored.[67]

Ucluelet Inlet

When talking of their evacuation experience, northern Aboriginal women themselves express regret at not having family close by to share their birthing experience and note the difficulty for women to focus on giving birth to a newborn when they are anxious about being away from their homes and children for extended periods of time.[68] In a comprehensive overview of the unintended consequences of maternal evacuation from the far north, Jennifer Stonier lists the detrimental health effects on women (e.g., loneliness, worry, anxiety, loss of appetite, increased

smoking behaviour) and those on the children and family left behind (increased rates of illness and school problems for other children of evacuated women and the loss of understanding of the birth process among men).[69] Stonier also describes that with so much energy, time, and money devoted to the immediate intrapartum period, fewer resources were available for care and education services within the community, contributing to the diminishment of prenatal preparation and postnatal support.

Studies in Australia and New Zealand indicate that there are significant disparities between Aboriginal and non-Aboriginal perinatal health outcomes, with Aboriginal women experiencing higher rates of preterm birth (less than 37 weeks gestation), an increased risk of having small for gestational age babies (birth weight <2500g), and a decreased likelihood of breastfeeding.[70] [71] Studies in North America have found similar negative outcomes,[72] [73] [74] [75] in addition to finding that rural Aboriginal women are more likely to receive inadequate prenatal care compared to their urban and non-Aboriginal counterparts.[76] [77]

Opitsaht

In Canada, Aboriginal women have rates of infant mortality and stillbirth double that of the national average.[78] National efforts for improving rural perinatal outcomes for Aboriginal peoples in Canada emphasize the importance of keeping maternity services close to home, with community members playing a significant decision making role in the service planning process.[79] [80] Successful examples of rural Aboriginal maternity care include birthing centres in the Canadian north.

In the isolated region of Nunavik in northern Québec, the Inuulitsivik birth centres in the communities of Puvurnituq, Inukjuak, and Salluit provide birthing services without local access to cesarean section for 5,500 people. Established in 1986, the Puvirnituq birth centre is staffed by registered midwives, community midwives, maternity workers, nurses, and physicians. Midwives, community midwives, and community workers attend births and provide prenatal and postnatal care at the Puvirnituq birth centre, with nurses available for back-up as second attendants when needed. Although physicians are on-call 24 hours a day, they do not provide intrapartum maternity care services. The physician on-call is responsible for arranging evacuations after consultation with attending midwives.[81] The Puvirnituq staff are governed by an interdisciplinary council that sets policy and protocols, while a perinatal committee led by the midwives review maternity care cases.[82] The Nunavik region is extremely isolated at 110 miles north of Montréal, accessible by a 4-8 hour, weather dependent plane ride.[83] The program attempts to maintain Inuit mothers' connection to the land and community by keeping birth close to home and integrated with Inuit culture.[84]

The Inuulitsivik program has led to a significant increase in the number of local births, low preterm birth rates, and low intervention rates for women who do leave the community to give birth.[85] The birth centres support approximately 80% of deliveries locally, due in large part to the careful risk screening process conducted by an interdisciplinary care team and the highly comprehensive prenatal care provided.[86] Outcomes have been good with data between

1986-2004 showing no maternal deaths and a perinatal mortality rate of 9/1000 (0.9%), slightly above the national average but significantly below the average for Aboriginal populations across Canada.[87] Such birthing projects in Arctic communities produce many psychosocial benefits including decreased family disruption, greater parent satisfaction, and greater community involvement with the newborn baby.[88]

Listening to Aboriginal women's birthing desires provides the foundational knowledge for building their maternity care programs, authenticates their knowledge, and ensures that programs are culturally appropriate.[89] [90] [91] [92] First Nations and Inuit Health and the National Aboriginal Health Organization advocate for approaches to service development that are grounded in Aboriginal culture, that build on community strengths, and that require care providers to be sensitive to Aboriginal sociocultural needs.[93]

c. Midwifery Care in British Columbia

Seven provinces and one territory in Canada have regulated midwifery care: Saskatchewan, Manitoba, Alberta, British Columbia, Ontario, Québec, Nova Scotia, and the Northwest Territories. While New Brunswick and Nunavut are all in the process of regulating midwifery, Newfoundland and Labrador, Prince Edward Island, and the Yukon have not yet addressed the regulation of midwifery care.

Midwives in BC function as independent care providers, each offering primary maternity care services to an average of 40 women per year. The College of Midwives of BC (CMBC) regulates these health professionals, while the provincial government provides legislation for their practice under the Health Professions Act. The BC Medical Services Plan provides funding for midwives.[94]

Midwives provide continuous, comprehensive maternity care, including prenatal education, screening, and support; intrapartum services, either at home or in a hospital; and post-partum care and support. They treat birth as a normal physiological process and offer informed choice to women and families as to where and under what circumstances a birth should take place.

The majority of BC midwives currently practice in urban environments; however, there are a number of midwives who have successfully established their practice in rural communities. In rural settings, midwives are faced with many of the same challenges as rural physicians who provide obstetrical care: lack of cesarean section backup, emergency transport challenges, and onerous call schedules. Midwives must also form healthy professional relationships with nurses, physicians, and other care providers and health care professionals in order to provide optimal care for their patients. Consultation of the literature suggests that shared models of care between midwives and physicians offer low incidences of poor birthing outcomes,[95] increased patient satisfaction,[96] and a more cost-efficient service.[97] It has also been suggested that midwifery can help alleviate the crisis linked to the shortage of maternity care providers in rural communities across the country.[98]

Currently in British Columbia the majority of midwives practice with local access to cesarean section. However, midwives do practice obstetrics in several rural communities without local surgical backup. The community of Salt Spring Island, for example, receives its obstetrical care from midwives only, as local physicians do not provide intrapartum care. Women can choose to birth either at home or at the Lady Minto Hospital, the island's main medical facility. When surgery is deemed necessary, the patient is transported by helicopter, usually to Victoria General

Hospital on Vancouver Island, to receive specialist care. However, there is a financial disincentive to transfer of patient care, as midwives offer fee-for-service care. This is considered the biggest challenge to a sustainable maternity care service in a community without cesarean capability.

In the West Kootenay region of BC near Gray Creek and Nelson, midwives have historically been willing to attend home births for women in remote areas over one hour from cesarean section backup. These midwives carefully screen their clients throughout the pregnancy to assess the risk, only allowing home births for women who meet a strict set of criteria. A similar situation exists in the rural and remote areas around Prince George, where one midwife has also agreed to provide home births for low-risk women, some of whom live up to four hours from Prince George Regional Hospital.

d. Nurse-Midwifery

Nurse-midwives are health care practitioners who have formal training in both nursing and midwifery. Although the majority of these nurses have not been accredited to practice midwifery in Canada, historically, rural obstetrical services have employed some generalist nurses who have received international training in midwifery. These "nurse-midwives" have been key practitioners in rural maternity services, particularly in the far north, providing expertise in perinatal care, skills training for other practitioners, and keeping birthing services close to home for Aboriginal women.[99] The majority of these nurses with specialist maternity skills received their midwifery training in Japan, Australia, New Zealand, the United Kingdom, Sweden, or other European nations.

Tofino Marina

While, internationally, many jurisdictions provide joint training programs in nursing and midwifery, in Canada nurse-midwifery is not a recognized profession. Consequently, in Canada there are currently no training programs for nurse-midwives, only direct entry programs for either nursing or midwifery. Prior to the 1980's there were a number of universities that offered postgraduate training in midwifery to nurses through an Outpost Nursing program, suggesting that the advanced skill set was directed specifically for nurses intending on rural practice.[100] In Europe, practitioners with a degree in nursing can continue their education for an additional 18 months to become a midwife, training which is often completed within the same institution.[101] [102] In the United States, a nurse can conduct post-graduate work in midwifery to become a nurse-midwife, or practicing registered nurses can upgrade their skills through a specialized nurse-midwifery program.[103]

Preliminary findings from the Centre for Rural Health Research suggest that generalist nurses with enhanced perinatal training are invaluable practitioners in rural and remote communities because of their broad scope of practice. Nurses who are able to provide nursing care with an additional skill set in obstetrics provide very important support to family physicians in small rural communities. Further, nurses with midwifery training could potentially provide a broader range of support for parturient women which might prenatal and postnatal care within the community and educational programs to upgrade maternity skills for local nursing staff. Interprofessional relationships between

nurses with enhanced maternity skills and physicians in rural British Columbia have been positive, due to their overlap in skills and practice knowledge. Currently, many nurse-midwives in rural British Columbia are at or past retirement age, causing a significant health human resource gap in rural maternity care programs across the province. Some family physicians have stated that they are not comfortable providing obstetrical services without nurses with specialized perinatal training, which has resulted in the closure of small maternity programs.

e. Maternity Care without Local Cesarean Section Access

Current evidence suggests that the practice of obstetrics without local access to cesarean section does not increase the rate of adverse birthing outcomes.[104] [105] [106] Indeed, the literature shows that, within a regionalized system, small maternity services can be as safe as tertiary care centres, provided there exists an efficient and timely emergency transport service.[107] [108]

Despite this evidence, those programs that do provide local maternity care without immediate access to cesarean section have a high maternity patient outflow[109] and are not likely to be sustainable in the current health services environment.[110] In British Columbia in the past decade, the number of small-volume maternity programs without local cesarean section access has steadily declined. These closures are primarily attributed to the stress experienced by rural care providers and their communities due to the perceived risks of local birth and lack of sufficient support for their maintenance.[111]

f. Maternity Care with General Practitioner (GP) Surgery

In a number of rural British Columbian communities, low-volume rural maternity programs are currently sustained by on-site cesarean section, provided by General Practitioner (GP) Surgeons and Anesthetists. These family physicians have enhanced skills training in low-risk surgeries and anesthesia, respectively, [112] and are able to perform a variety of low-risk surgical procedures, including appendectomy, endoscopy, gastroscopy, colonoscopy, hand surgery, herniorraphy, tonsillectomy, laparoscopic tubal ligation, and D&C, in addition to cesarean section.[113] The range of procedural scope varies somewhat from practitioner to practitioner.

In 2000, there were 76 communities in western Canada with local surgical services provided by GP Surgery and GP Anesthesia teams. Twenty of these services were located in British Columbia. In the past decade, the number of communities providing local rural surgical services in British Columbia has dropped to 15. Typically, GP Surgeons support programs in rural communities with populations of 5-15,000, while mixed models of GP Surgeons and Specialist Surgeons support communities of 15-25,000.[114]

On average in each GP surgical program in BC, 200 procedures are performed annually by GP Surgeons.[115] Each GP surgeon performed an average of 17 cesarean sections annually in BC from 1996 to 2005.[116] Research has shown that, in order to maintain competency in cesarean sections, in particular, a GP Surgeon should perform between 5 and 23 cesarean sections each year.[117] An analysis of the outcomes of GP Surgery has indicated that their quality of care is equal to or better than that offered in larger centres acknowledging that higher risk patients are referred.[118]

Specialist clinic in Port Alberni

The physicians supporting these rural surgical programs are either Canadian-trained general practitioners with ad-hoc surgical training in BC or Alberta, some with international surgical experience, or internationally trained medical graduates (IMG's) with a foreign fellowship, typically from South Africa, who form two-thirds of the GP Surgeon population in Western Canada.[119] [120] Additionally, there are many South African trained family physicians in British Columbia who have a procedural skill set that could easily be utilized through a GP Surgery or Anesthesia practice, given the opportunity for skill upgrading and regulatory accreditation. In British Columbia, training is supported in part by REAP (the Rural Education Action Plan) and takes place in high-volume settings with surgical preceptors. The volume of procedures required for certification varies between individual practitioners and their preceptors.[121]

In addition to GP Surgery/Anesthesia teams, GP surgical programs also require the employment of trained Operating Room (OR) nurses. On average in British Columbia, a GP surgical practice employs a minimum of 2 OR nurses for every GP Surgeon.[122] As in other areas of nursing, OR nurses are increasingly difficult to recruit and retain, particularly in rural surgical practices, where OR work is on a casual basis only.[123]

Sustainable rural surgical practices typically consist of 1 GP Surgeon, 1 GP Anesthetist, and 1 GP with combined training in Surgery/Anesthesia, as well as 4 OR nurses. This model provides the opportunity for a rotating call schedule and locum relief to ensure care provider satisfaction and to preclude burn-out. Infrastructure for such a service includes an operating room, surgical equipment, and local sterilization services.[124]

The sustainability of rural GP Surgical programs is a key issue for practitioners and decision makers. Centralization of services has lead to the closure of small volume surgical programs, while the existing GP Surgeon population in BC is aging and nearing retirement.[125] [126] To mitigate these threats to rural surgery, researchers have put forward evidence and recommendations for a formal training and accreditation program for GP Surgery in BC.[127]

g. Planning Sustainable Rural Maternity Services

Province-wide, health planners are tasked with making resource allocation decisions that are economically viable and meet the maternity health care needs of rural populations within a context of competing priorities.[128] [129] Additional pressures arise out of the nature of health care delivery systems themselves, which are characterized by their dynamic complexity and lack of stasis. This is further complicated by the lack of a systematic approach to rural health services planning and the absence of a robust evidence base to inform such planning.[130] [131] [132] As a consequence, much of the decision making with respect to rural maternity services has occurred in an ad hoc manner in response to a local or regional sense of crisis, such as when a community experiences a traumatic perinatal outcome or if an experienced maternity provider ceases to provide care.[133]

In response to the lack of evidence for the systematic planning of rural health services, the Centre for Rural Health Research has developed a mathematical model for predicting the optimal level of maternity service for a given rural community – the Rural Birth Index (RBI).[134] The development of the tool was based on the CRHR's extensive immersion in the phenomena of rural maternity services, which led to insights into the factors that are most significant in influencing the sustainability of services: *population birth numbers, social vulnerability,* and *geographic isolation*. The RBI is intended for rural British Columbia communities with populations under 25,000 and calculates a score for the 1 hour population catchment ranging from no local maternity services to local access to services provided by a specialist (see Table 1 below).

Table 1: Application of the Rural Birth Index (RBI) score to community service levels

RBI score	Maternity service level
0–7.0	No local intrapartum services
7.0–9.0	Local intrapartum services without operative delivery
9.0–14	Local GP surgical services
14–27	Mixed model of specialists and GP surgeons
>27	Specialist only models

The formula is RBI = [PBS x APV] + IF, where:

- PBS represents a *population birth score*, calculating average number of births over five years;
- APV represents an *adjustment for population vulnerability,* ranging from 0.8-1.4; and
- IF represents an *isolation factor*, representing distance to the next nearest cesarean section service.

Our research suggests that when a community does not provide the optimal level of maternity service for its population, certain effects may occur (see Figure 1 below). If a community is under-served, a number of women will choose alternatives to traveling to access maternity care at referral hospitals, such as arriving at their local hospital in active labour, timing their pregnancy to avoid giving birth in the winter months when seasonal weather impedes travel, and choosing unassisted home birth.[135] [136] These effects are enhanced as the social and financial resources of the women decrease. Communities whose RBI score is out of synch with existing service will have significant challenges to sustainability and will encounter sub-optimal maternal and newborn outcomes.[137] [138] Over-served communities are likely to experience increased intervention rates and difficulties in provider retention. The RBI score can be used in such circumstances to define the optimal level of service for the community.

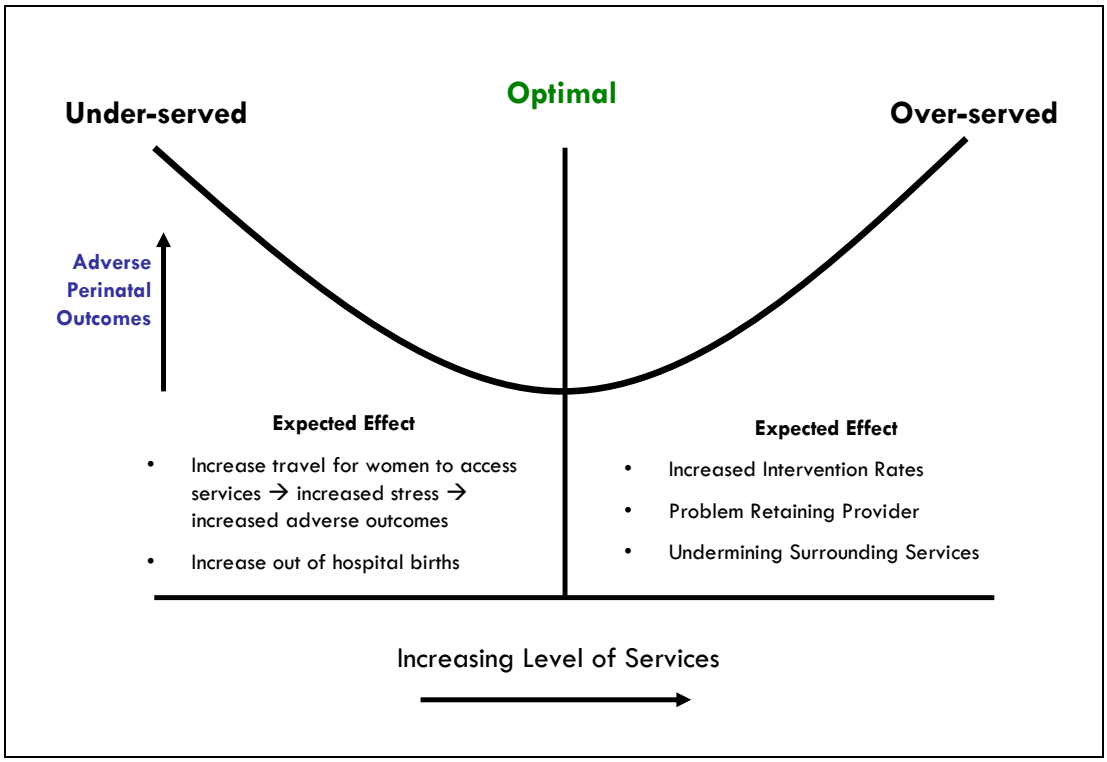


Figure 1: Level of maternity service and population need

The CRHR recommends planning rural maternity services within a 3-stage process (see Figure 2 below), of which the RBI represents stage one, the deterministic stage of objectively measuring the characteristics of population need related to the service under study: population size, vulnerability, and isolation. Stage two, the feasibility stage, addresses the question: *What are the pragmatic issues that need to be considered in locating a particular health service in a given rural community?* These issues may involve a review of existing facilities, availability of health human resources, history of the service in the community, and consideration of transport and economic issues. Stage three, the prioritizing stage, is addressed at the senior planning table for the health administrative agency and involves establishing the importance of the given service within a context of competing service issues. For information on Tofino's RBI score, see page 47.

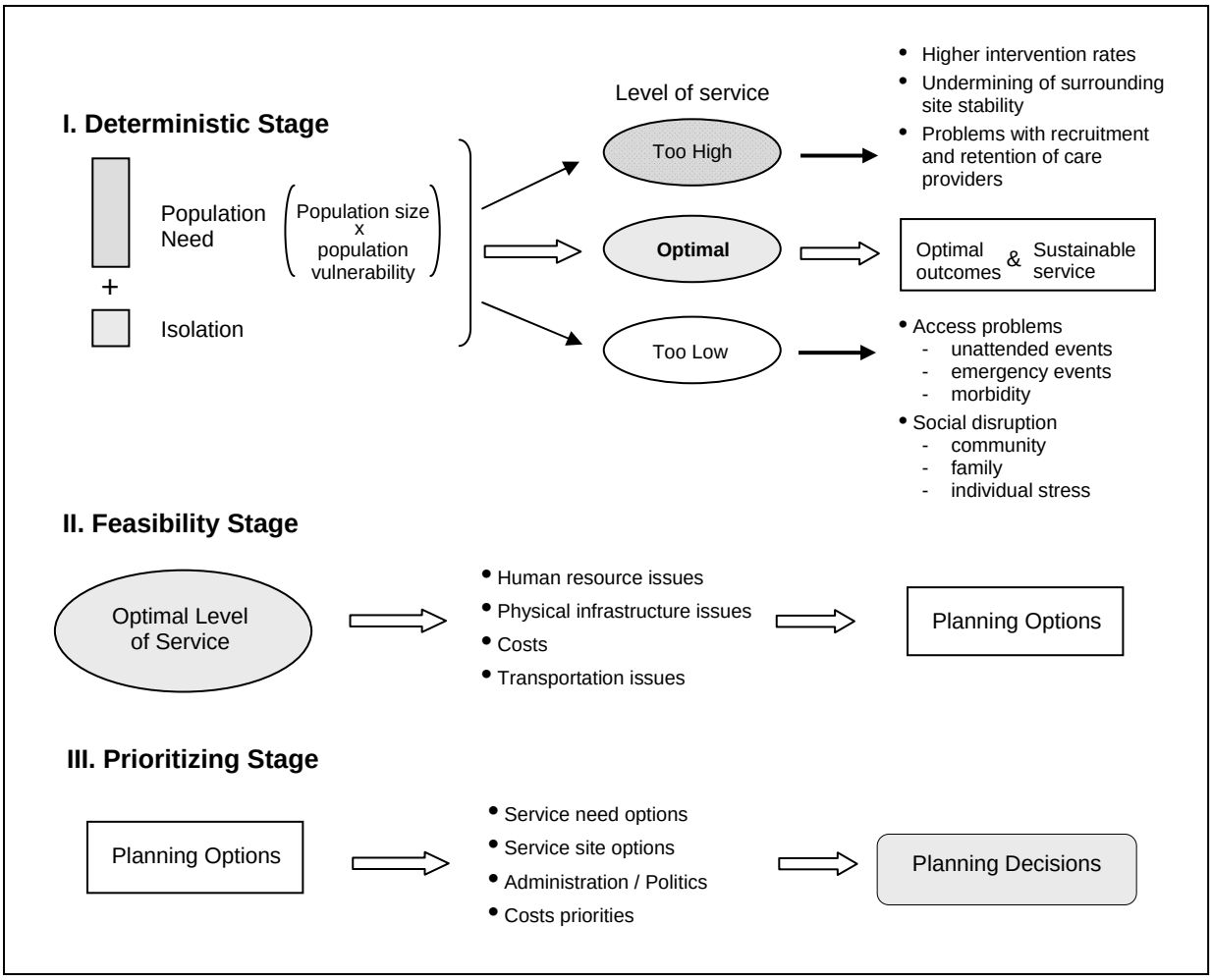


Figure 2: A theoretical framework of planning and evaluating rural health services

Planning maternity services in a prospective, rather than reactive, manner can help ensure that local services are appropriate and sustainable and enhance the efficiency of administration. These planning methods are particularly significant for communities that project an increase in the local birthing population. In Tofino, for instance, where demographic projections indicate an increase of births in the future, services can be planned to support future population demands.

2. PROJECT BACKGROUND AND DESCRIPTION

a. Goals and Objectives

The mandate of the Centre for Rural Health Research is to contribute to an evidence base for decision making about the optimal provision of health care to rural parturient women. As one of the challenges to the provision of rural maternity care has been the *closure* of services, a key task at the centre has been to investigate the components of sustainable services. To this end, the Vancouver Island Health Authority contracted the Centre for Rural Health Research to investigate the issues surrounding sustainable maternity care for Tofino and surrounding communities.

The **goal** of the project was to undertake a community-based consultation involving key stakeholders in the rural BC communities comprising the Tofino General Hospital catchment to determine the health service delivery conditions necessary to support sustainable local maternity services. Objectives include:

1. Determining the community's desire for local maternity care services;
2. Identifying the resources and activities that are necessary to support the needs of resident parturient women – either locally or in referral communities.
3. Defining recommendations that support optimal and sustainable services for the women and families of the Tofino population catchment.

b. Methods

To determine community desire and capacity for maternity care services, a research team from the Centre for Rural Health Research (one principal investigator and three research assistants):

1. Compiled an overview of current and historical catchment population outcomes including service access patterns, adverse outcomes, and intervention rates using data from the BCPHP;
2. Conducted onsite community consultations with key stakeholders, including: maternity care consumers (birthing families); allied health professionals (public health nurses, doulas); care providers (local nurses and physicians, as well as obstetricians and midwives from referral communities); community leaders (Aboriginal Band Council members, mayors); health planners responsible for Tofino; and
3. Thematically analyzed data from the consultation to determine the participants' values and priorities around birth, barriers to local maternity care, and solutions for a sustainable system, as well as areas and levels of consensus and disagreement regarding maternity services.

Centre for Rural Health Research team members Shelagh Levangie (left) and Sarah Munro.

c. Data Collection

Primary data gathering took place from April 5-9, 2009, with follow-up interviews conducted by telephone in the following weeks. Data collection consisted of an onsite community consultation with key stakeholders. The four project team members conducted 28 one-on-one interviews, 11 focus groups, and received 5 written testimonials. Interviews and focus groups took place in Tofino, Opitsaht, Ahousat, Ucluelet and Ittatsoo. In total, 109 people were involved in this community consultation. See Table 2 below for participant cohort:

Table 2: List of Participants

Participant Designation	# of Participants
Mothers, Fathers and Elders	56
Physicians	6
Nurses	10
Public Health Nurses	8
Midwives	1
Obstetricians	1
Allied Health Professionals	7
Perinatal Educators/ Mother Support Workers	3
VIHA Administrators	4
Nuuchahnulth Tribal Council Representatives	3
Community Leaders	4
General community members	6
Total	109

3. BACKGROUND AND CONTEXT

a. History and Demographics of the Community

Tofino General Hospital serves the municipalities of Tofino and Ucluelet, as well as the communities of Ahousat, Ittatsoo, Esowista, Hot Springs, Opitsaht, Macoah, and Hesquiaht on the west coast of Vancouver Island (see Map 1).

The greater Tofino catchment has a permanent population of approximately 5,900,[139] while the influx of tourists and seasonal workers during summer brings an estimated additional 20,000 people daily to the region (see Table 3).[140] According to local data collected by the Coastal Health Care Committee, "census data, information from business associations, and First Nation Band Councils" indicate that the population of the greater Tofino catchment is growing dramatically. Federal census data illustrates that between 1996-2006, the municipality of Tofino's population grew by 29% while that of Port Alberni declined by 6.5%.[141]

Table 3: Population of Communities in the Greater Tofino Catchment, 2006

Hesquiaht	Macoah	Opitsaht	Hot Springs Cove	Esowista	Ittatsoo	Ahousat	Other	Ucluelet	Tofino	Total
6	15	150	150	150*	206	902*	1000	1487*†	1655†	**5886**

*Communities with projected **increases in population.**
†Populations increase dramatically in summer months due to influx of tourists.
Source: Federal Census Statistics, 2006, also cited in Coastal Health Care Committee, Planning for sustainable health care delivery: West Health Area (Tofino: Coastal Health Care Committee, 2007).

Tofino is home to a number of Aboriginal groups, most of which are members of the Nuu-cha-nulth Tribal Council. The traditional territory of the Nuu-chah-nulth Nation measures 3,336 square kilometres along the Pacific coast of Vancouver Island, with Brooks Peninsula as its northernmost point and Point-no-Point as its southern boundary.[142] There are fourteen member groups of this nation, divided into three regions. The Tofino and Ucluelet areas are included in the southernmost region, which is home to the Ahousat, Hesquiat, Tla-o-qui-aht, Toquaht, and Ucluelet First Nations.

Historically, Tofino's economy was focused on the forestry and fishing industry. With the decline of these industries, tourism has become the main economic driver. The flourishing tourist industry has created a housing crisis for local residents, as a result of rising housing prices (on average $698,394 in 2008)[143] and the conversion of rental suites into tourist accommodations. Affordable housing has become an issue in particular for young, childbearing families.

Long Beach, Tofino

According to provincial statistics, the infant mortality rate in the Alberni Local Health Area (which includes Tofino, Ucluelet, Ahousat, Itatsoo, Opitsaht, and the surrounding communities) was 10.7/1000 in 2008, more than twice the provincial average (see Table 4).[144]

The youth population of the Tofino catchment suffers from considerable social vulnerability. Teen pregnancy rates averaged 36.4 per 1,000 women aged 15 to 17 from 2004 to 2006, more than double the provincial average of 16.2 per 1,000. In British Columbia, 0.6% of all youth between 19 and 24 years of age are single parents and receive income assistance, however in the Alberni LHA, this proportion is 1.6%.

There are also concerns over substance abuse in many of the communities. Alcohol sales are over 80% higher than provincial norms: 188 litres per adult were purchased in the Alberni LHA in 2008, compared to 112 litres per person on average in the province.[145]

Table 4: Tofino Demographics, 2007-2008

Social Indicators	Tofino Catchment	British Columbia
Population within 1 hr of Tofino General Hospital[i]	3,600	
Population within greater Tofino catchment[i]	5,900	
Aboriginal Population (within 1 hr)[i]	16%	
Aboriginal Population (within 4 hrs)[i]	38%	
Social Economic Index[ii]	0.76	
Unemployment Rate[iii]	5.8%	2.5%
Infant Mortality Rate (per 1,000 live births)[iii]	10.7	4.2
Teen Pregnancy (per 1,000 women 15-17)[iii]	36.4	16.2

Note
i Centre for Rural Health Research, Community Profile: Tofino, 2008.
ii BC Stats, Socio-Economic Index, LHA 70 (Alberni) http://www.bcstats.gov.bc.ca/data/sep/i_lha/charts/lha70.pdf
iii BC Stats, Statistical Profile, LHA 70 (Alberni), http://www.bcstats.gov.bc.ca/data/sep/lha/lha_70.pdf

b. Health Services and Tofino General Hospital Governance

Historically, governance of local Tofino health services belonged to a community volunteer board that made health service decisions locally. With the restructuring of health services in British Columbia in the mid 1990s, local hospital boards were disbanded province-wide in favour of centralized governance structures in the form of regional health authorities. Since 2001, the supervision and maintenance of health services in the greater Tofino catchment have been overseen by the Vancouver Island Health Authority.

In 2006, the Tofino community formed the Coastal Health Care Committee (CHCC) in response to growing unrest over local health care provision. A diverse collection of representatives have participated in the coalition meetings, including the hospital site manager, local First Nations leaders, municipal government members, and interested community members.

c. History of Maternity Services at Tofino General Hospital

Historically, local maternity services in Tofino were provided by physicians and registered nurses, some of whom had international midwifery training. Twenty years ago, women chose to birth locally and Tofino General served 50 to 60 deliveries per year.[146] Community efforts to encourage local birth included fundraising to outfit the hospital with a birthing bed and a comfortable labour and delivery room. For a time, local cesarean section services were provided by general practitioners with advanced training in low-risk surgery and anesthesia. After local surgical capability was lost, anesthesia services were maintained until 1999. Local maternity capacity diminished over time due to the loss of trained physicians, attrition of nurses with midwifery training (nurse-midwives), loss of the anesthetic machine, and a decreasing number of births at Tofino General Hospital due to stricter criteria for local elective deliveries.

In the mid-2000's a newborn death and the departure of two local birthing advocates, Dr. Charmaine Enns and the remaining nurse-midwife Rory Patterson, contributed to the devolution of local maternity services and lack of hospital staff confidence in providing local intrapartum care. Immediately prior to closure, four physicians were offering maternity care with in-hospital support from registered nurses with varied maternity skills. In January 2007, Dr. Brian Killins resigned his obstetrical privileges due to the low volume of deliveries and an increase in high-risk deliveries (such as teen and grand-multiparous pregnancies), leaving the remaining local physicians to provide intrapartum services in a 1:2 call schedule. Dr. John Armstrong resigned his privileges in March 2007 as a result of the overwhelming burden of call, followed by Dr. Pam Frazee and Dr. John O'Brien discontinuing intrapartum services in November 2007. The Vancouver Island Health Authority (VIHA) placed a moratorium on elective deliveries in Tofino that same month.

In a statement presented to the community, the closure of elective services was attributed to a critical nursing shortage, arguing that it was not safe for parturient women to arrive at the hospital with its current staffing conditions.[147] A statement from VIHA in 2006 recommended further assessment of the situation including consultation with all relevant parties, and outlined four possible outcomes along with their implications.[148]

Although local elective maternity services closed in 2007, the number of local deliveries at Tofino General Hospital had already begun to decline in 2004 by over 50% (see Table 9 and Figure 3). This decrease cannot be accounted

for by a drop in overall births for the catchment, as the number of deliveries to women in the greater Tofino catchment fell by only 8% between 2003 and 2004. Since 2004, there has been a trend for women to access maternity services in Port Alberni, Nanaimo, and Comox. However, in spite of the closure of local maternity services in 2007, emergency deliveries continue to take place at Tofino Hospital.[149]

d. Current Maternity Service Delivery

Currently there are six physicians with hospital privileges working in Tofino. They are Dr. Pam Frazee, Dr. John O'Brien, Dr. John Armstrong, Dr. Luke Williston, and Dr. Ariana Murata / Dr. Kristin Stogryn (each sharing 50% of a full-time practice). Two of the Tofino physicians, Dr. Frazee and Dr. Armstrong, provide maternity care. In Ucluelet, this care is provided by Dr. Brian Killins and Dr. O'Brien.

There are 7 full-time, 3 part-time, and 3 casual nurses, four of whom are experienced in labour and delivery. Historically, management of Tofino General nursing was the responsibility of the Head Nurse, and later the part-time Clinical Nursing Manager. Since March 2008, Tofino General Hospital has had a local rural site manager. This position, currently filled by Kathryn Kilpatrick, was created out of the advocacy of the Coastal Health Care Committee, who argued that Tofino General needed a full-time site manager.

Locum coverage is a consistent challenge for Tofino General Hospital. Physician locums typically do not have maternity skills and are uncomfortable with providing emergency intrapartum care. Physician and nurse locums are generally urban practitioners unused to practice in a generalist, rural environment.

Community-based perinatal care

Tofino has recently hired a public health nurse, which will help to stabilize prenatal and post-partum outreach care in the area. The new public health nurse fills a position that has stood vacant for approximately one year.

Family Ties, the community perinatal outreach centre, in Tofino.

Additional prenatal and postpartum support in the Tofino region is provided through a pregnancy outreach program called Family Ties. The program offers advice and support to new and future mothers in the area and is funded by the provincial and federal governments. Weekly sessions are held in Tofino and Ucluelet, with guest speakers addressing a wide variety of perinatal and family health issues. The program is jointly sponsored by the Nuu-chah-nulth community and the Vancouver Island Health Authority.

The First Nations communities of Ahousat and Opitsaht also have local prenatal and postpartum care initiatives in place. In Ahousat, there are two physicians working clinic hours four days per week, both of whom provide prenatal and postnatal care. In addition, the community employs two full-time community health nurses. Two additional community nurses also work on a part-time basis in Ahousat, providing home visitation care to pregnant and postpartum women. The community is also visited by a Port Alberni pediatrician once per month.

In Opitsaht, a community health nurse visits the community twice a week, offering home visitation to postpartum clients. Regular screening for mothers and babies is offered at home. The majority of prenatal check-ups are conducted at the Opitsaht Health Clinic. A similar program exists in the community of Esowista, which is served by one community health nurse twice per week.

In Ittatsoo, on-reserve prenatal and post-partum care is offered by one community health nurse who works four days per week. In general women receive care at the health centre, but the nurse also offers home care according to the client's wishes. All other perinatal care is received off-reserve with local physicians, public health nurses, or through Family Ties.

e. History of Reports on Local Maternity Services

In 2007, the Coastal Health Care Committee produced a report articulating the health care priorities for the Tofino area, including specific recommendations related to maternity services. This report reflects a resurgence of local initiative for planning health services. The recommendations for local maternity care included:

- "All nursing staff must be adequately trained to assist in emergency deliveries. Locum physicians and ER doctors must be aware that they might be required to provide this service.
- Data regarding the birth rate of WHA [the greater Tofino catchment], broken down by community, locations of delivery, parity, and maternal age should be analyzed. A community dialog is needed to explore the possibility of reviving elective obstetrics."[150]

4. FINDINGS

a) Birth Statistics for Tofino

Tofino General Hospital serves the municipalities of Tofino and Ucluelet, as well as the communities of Hesquiaht, Hot Springs, Ahousat, Opitsaht, Esowista, Ittatsoo, and Macoah on the west coast of Vancouver Island. For the purposes of this report, the populations served by the Tofino General Hospital are referred to as 1) the Tofino General Hospital 1 hour population catchment, or the TGH 1 hour population catchment and 2) the Tofino General Hospital's remote community catchment, or the TGH remote community catchment. The Tofino General Hospital 1 hour catchment includes communities that are within one hour surface travel distance from the Hospital. Tofino's remote community catchment includes communities that naturally drain into Tofino, but are greater than 1 hour travel time away. CRHR has calculated population catchments for all rural communities in British Columbia, using postal code-linked population data, GIS mapping technology, and Google Maps travel times. The 1 hour TGH catchment contains two postal codes, representing Tofino and Opitsaht (V0R 2Z0), and Ucluelet and Ittatsoo (V0R 3A0) (see Map 1, page 5). The TGH remote communities' catchment includes the Ahousat postal code (V0R 1A0).

On average, from 2003-2007 there were approximately 53 deliveries per year to the women and families of the 1 hour TGH catchment (see Table 5). For the TGH remote communities catchment between 2003-2007, there were approximately 20 deliveries per year (see Table 6).

Table 5: Number of Deliveries in the TGH 1 hr Catchment, 2003-2007

2003	2004	2005	2006	2007	Average/year for the last 5 years
48	50	48	55	65	**53**

Note: Births to women living in the 1 hour postal code catchment. This includes postal codes V0R 2Z0 and V0R 3A0
(Source: BC Perinatal Database Registry- Rural Catchment Data)

Table 6: Number of Deliveries in TGH Remote Communities' Catchment, 2003-2007

2003	2004	2005	2006	2007	Average/year for the last 5 years
27	19	15	20	18	**20**

Note: Births to women living in V0R 1A0, 2003-2007
(Source: BC Perinatal Database Registry- Rural Catchment Data)

Since the closure of elective birthing services, all parturient women from the Tofino catchment have been encouraged to travel to a referral centre to give birth, with the nearest centre being West Coast General Hospital in Port Alberni.

Maternity care in Port Alberni is provided by a single obstetrician who is nearing retirement. The hospital provides cesarean section services and is the nearest site for ultrasound services. Women who desire to access midwifery services travel to Nanaimo or Comox to access care. Status Aboriginal women are generally funded to access the nearest maternity care service available and predominantly access maternity care services in Port Alberni.

Table 7: Where Women from the TGH 1 hour Catchment Deliver						
Community	**2003**	**2004**	**2005**	**2006**	**2007**	**Average/yr**
Port Alberni	9	13	17	15	22	15
Tofino	19	14	7	9	6	11
Nanaimo	13	12	12	13	16	13
Comox	3	5	5	10	9	6
Other	4	6	6	7	12	7
Home Births	0	0	1	1	0	0.4
Total	**48**	**50**	**48**	**55**	**65**	**53**

Table 8: Where Women from TGH Remote Communities' Catchment Deliver						
Community	**2003**	**2004**	**2005**	**2006**	**2007**	**Average/yr**
Port Alberni	6	5	7	9	6	7
Nanaimo	4	6	5	6	9	6
Tofino	11	2	2	4	2	4
Other	6	6	1	1	1	3
Total	**27**	**19**	**15**	**20**	**18**	**20**

The most commonly chosen referral centres to give birth are Port Alberni (120 kilometres east) and Nanaimo (200 kilometres east). A small number of women also choose to deliver at St. Joseph's Memorial Hospital in Comox, which is 228 kilometres from Tofino. Residents often face adverse driving conditions when traveling on the Pacific Rim Highway, which is the sole land access route in and out of the region. Winter driving conditions in particular can be extremely treacherous.

Residents of Hesquiaht, Hot Springs, Ahousat, and Opitsaht, face even more onerous travel barriers. As both communities are located off-shore, they are required to travel by boat or float plane to reach the coast of Vancouver Island before driving to the referral centre.

There was a steady decline in the number of births at Tofino Hospital prior to the moratorium in November 2007. From 2003 to 2007, the number of local deliveries dropped from a high of 44% to a low of only 10% of all births to greater Tofino women. Preliminary BC Perinatal Database Registry figures for the 2007/2008 and 2008/2009 fiscal years indicate that Tofino Hospital birth numbers continued to decline. Between April 1, 2007 and March 31, 2008, only 5 births took place at Tofino Hospital. This period included the first five months of the moratorium on local deliveries. From April 1, 2008 to March 31, 2009, there were 3 deliveries at Tofino Hospital, in spite of the closure of local intrapartum services. Interviews with hospital staff revealed that these births were to women who presented at the hospital in active labour, and that transporting the women to a higher level of care would have been dangerous.

Table 9: Births at Tofino General Hospital, 2001-2007						
2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
17	23	33	16	9	13	8
Source: BC Perinatal Database Registry						

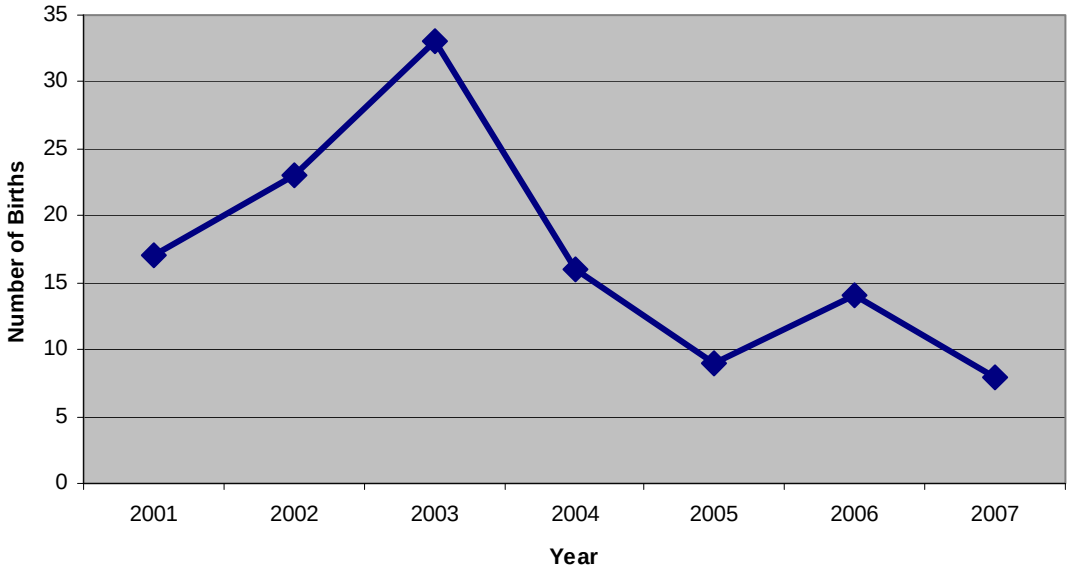


Figure 3: Deliveries at Tofino General Hospital (2001-2007).

(*Source:* BC Perinatal Database Registry)

b) Themes from Interviews and Focus Groups

Overview

Several themes emerged from the interviews and focus groups that spoke to factors necessary to underpin sustainable maternity care program for women of the Tofino General Hospital catchment and surrounding areas. These included the importance of local birth, the experience of giving birth in referral centres, and current challenges to the sustainable provision of maternity services at Tofino. All participants spoke of the importance of local birth to the community. Women emphasized that with the loss of the choice of local birth, they incur significant social and financial costs in leaving their home communities to deliver in referral centres. Many expressed that these indirect costs were experienced more acutely by First Nations and socially vulnerable women. Current challenges to creating a sustainable maternity program at the Tofino General Hospital centred on nursing training, recruitment, and retention. The challenges were amplified, participants expressed, by a perceived lack of responsiveness to the community's health care needs on the part of the Vancouver Island Health Authority. Each of these themes is discussed in detail below.

1) Local Birth

Importance and Meaning of Local Birth

Community and hospital participants provided rich descriptions of the importance of birth to their community both explicitly and through their own personal accounts. Women and care providers who experienced local birth before the moratorium on local elective services spoke of the community involvement and support that accompanied local deliveries. Women spoke of nourishing experiences of social support where the community offered child care and prepared meals. For many care providers, supporting intrapartum care for family practice patients was a rewarding experience that enriched their practice and created strong bonds with the community. The excitement of local birth also extended to the community at large, for whom local birth represented the creation of strong community roots. One participant in particular described that, as Tofino is a tourist destination with a large transient population, local birth creates a feeling that families are being "grown" in the community and creating future Tofino generations. Another participant whose partner had delivered in Tofino noted that, had local intrapartum services not been available during their childbearing year, they would have chosen not to live in the community. Others suggested that, with the loss of local birth, they would likely see young families choosing to move away from Tofino. This indicates the potential for a ripple effect, whereby the loss of birthing services degrades overall community capacity. As one participant expressed: "There's a part of the community that's missing [without local birthing services]. You can't grow your own community" (Focus Group #003).

Importance and Meaning of Local Birth	
Importance of birth to community sustainability and culture	"When you have a small town where the children are born in the town, it gives it a stronger sense of community and continuity. It's like a real place. And if the children are not born here it seems like an unreal place; more like a stopping-in place." (Focus Group #009) "I think it [local birthing services] would help the feeling of sustainability of the community… it would be nice to have. It would be nice to keep everyone here to share those [birthing] experiences. That is definitely part of what makes a community work; in that sense I think it would be valuable. Maintaining the culture of a small town with the tourist impact and the number of people that come through makes it hard to create a sustainable community." (Participant #001) "If my wife had been asked to leave Tofino and travel to Nanaimo for a month to have a baby, I wouldn't live here." (Participant #013) "I find a great pride in knowing that two of my children were born in Tofino." (Participant #013) "My husband was born here, and for us to have our children here was special for him." (Focus Group #003)
Positive impact of birth on hospital	"I remember a patient that must have been in here for a long time… saying that they could feel the energy in this facility when a baby was born. There was this huge amount of energy and a huge happiness. It's a bonding experience for all the people that work in this hospital – the kitchen staff, the cleaning staff – everyone is involved in some way. It's a very involving experience and it's a very happy experience." (Participant #005) "The community came together and created this birthing room and it just does not seem right for the hospital to not have that." (Participant #005) "Each time you have a birth in that hospital, you can feel it through the whole hospital." (Focus Group #005)
Importance of local support to women	"Being here [in Tofino], I could look out the [hospital] window and watch my other children playing at the daycare…the level of support is huge." (Focus Group #010) "[Before services closed] my friend delivered the babies, my neighbours and friends were the nurses, and my children ran down the street from our house to greet their new sisters." (Participant #013) "Everyone here knows each other, so you're really well taken care of." (Focus Group #010) "We had three children with the same doctor. He's a friend of ours. All the trust was there, we didn't feel we needed to go away…we didn't feel like a traditional, big institution was the place to go." (Focus Group #010) "That strength that you have from being around people that you know and trust, and being at home, you can't buy that." (Focus Group #010)

Importance of Choice

The majority of women interviewed were strongly in favour of a local birthing service at the Tofino hospital. In addition, many women emphasized the importance of having the *option* to birth locally. For some women, the lack of choice was a larger issue than the current lack of local obstetrical services. As one participant noted, "It's frustrating…when it seems that basic fundamental choices for other communities are just not present [in Tofino]." (Focus Group #010)

Importance of Choice	
Desire for local birth	"I think more women would choose to birth here if one, the option was here and two, the education was here." (Focus Group #008) "If I had my choice, I would stay here." (Focus Group #001) "I would like our child to be born here, but because of the policy now, the chances of that are slimmer." (Focus Group #008) "I would have liked to have had [my daughter] in Tofino…for the family support. And then I wouldn't be lonely, and in Nanaimo." (Focus Group #001) "I think everybody would like to be home in your own bed, have your nurse come and check on how the breastfeeding and everything's going afterwards, at home where you've had your chance to nest and set everything up." (Focus Group #004)
Importance of choice	"Women just want their choice, no matter what." (Focus Group #007) "You definitely expect to have a choice." (Focus Group #010) "Because of the way the hospital's being operated now, we're being told what to do. I understand the hospital has its difficulties too, but isn't that why we hire politicians to fix these problems?" (Focus Group #001)

Perceptions of Safety

While many women expressed that with competent and confident care providers they would feel very safe birthing locally, some women did express a concern about the safety of birth in Tofino, both before and since the moratorium, citing the lack of trained nurses, lack of local cesarean section, and historical bad outcomes as factors influencing this perception. Some participants noted that a clear set of criteria to determine a parturient woman's eligibility to birth locally would improve care providers' confidence and reduce the risk of a bad outcome. Additionally, participants felt that proper education around birthing policy and available services in Tofino would counter any misconceptions in the community and would help to reduce the frequency of high-risk emergent deliveries.

Perceptions of Safety
"I think [local birth] is quite safe. I certainly wasn't concerned about it. You know, just like anything, there's certain risks involved." (Participant #001)
"If I need a C-Section, for whatever health reasons for my baby, I want to have that option." (Focus Group #010)
"All it takes is one bad experience and it colours the community's perception for the next decade, possibly, because the communities are so close-knit." (Participant #010)
"There needs to be a focused and definitive education series…in the newspapers or brochures…to the public…in people understanding risks. Low risk defined totally, with no exceptions." (Participant #007)

2) Birth Away

Participants described the current model of maternity care for the Tofino General Hospital catchment, noting that the service typically consists of local prenatal care by family physicians, who provide women with a referral for intrapartum care with a care provider in a regional centre. Women are encouraged to leave the community at 36 weeks gestation to become settled in the referral community and to preclude the possibility of giving birth in Tofino. This current system, participants emphasized, is unsatisfactory and inadequate, creating extreme social, financial, and physical stress on birthing women.

Decision-making process

Many women shared that when they got pregnant they were unaware that Tofino no longer provided maternity care services and were surprised when they found out they could not give birth in their home community. Consequently, these pregnant women were faced with the challenge of deciding where to go to deliver. One participant told us,

> "I'm 32 weeks pregnant and I don't know [where to deliver my baby]" (Focus Group #008).

Children attended the Family Ties moms' focus group

First Nations women who receive patient travel funding from the Nuu-chah-nulth Tribal Council have limited choices as they are encouraged to go to the nearest hospital service for financial reasons; the majority receive funding for care in Port Alberni, which has a designated motel where the women stay for the perinatal period. While Aboriginal women have limited choices in terms of the location of their birth, non-Aboriginal women have a number of options. However, many women expressed that they did not feel they were given information to make the decision for place of birth and care provider. Some stated that they were at a loss as to how to access information on available services and how to make the choice. Others noted that their physician made suggestions of different care providers, but the birthing women had to contact the referral care provider themselves. Care providers had preferred physicians and midwives to whom they referred:

> "I would say maybe 30-40% go to the midwives. Usually the Comox group … And then a third would be obstetricians … And then I have a favourite GP in Nanaimo who is very good at deliveries and obstetric care. Less than a third would go to him. Maybe 20% or something." (Participant #004)

Many women had heard negative stories about birthing in West Coast General Hospital in Port Alberni, which they described as a highly interventionist facility that is unsupportive of natural childbirth. As one woman noted:

> "I just know of at least three birth experiences [in Port Alberni] that worked out … the way I wouldn't want mine to work out" (Focus Group #007).

Further, participants explained that many women in the community have had bad experiences receiving ultrasounds in Port Alberni, a problem that became significant enough for the community to write a letter to Port Alberni care providers complaining of the care they received. Women indicated that Nanaimo and Comox provide more options for care, including midwifery, homebirth, and the newly renovated maternity ward at Nanaimo Regional General Hospital.

Accessing Midwifery Care

If women chose to birth with a midwife, they faced having to travel for all pre- and post-natal appointments, which caused huge financial and travel challenges. Due to the distances between Tofino and midwifery services, many women had to take two days off work to attend appointments. This was not only disruptive for their work and home lives but also extremely expensive. Women had to pay for the cost of traveling to the midwifery appointment as well as the cost of a hotel room for the evening. In addition to traveling for prenatal appointments, these women were asked by their midwives to stay in the referral community for up to a week postpartum for daily visits. This was an increased cost borne by the birthing women that further delayed their return home. Many of the mothers who were accessing midwifery services and were traveling for care were first-time mothers. Women who had other children were generally less flexible to take the two days off per month to travel out of town. One woman noted that although midwifery was her chosen mode of care, she would forego the benefits of midwifery in order to give birth at Tofino Hospital: "I know I would give up seeing my midwife to give birth here" (Focus Group #006).

Lack of Continuity of Care

Other women chose to birth with physicians in Port Alberni, Nanaimo, or Victoria and to receive their prenatal care locally. While this reduced the amount of time they spent traveling to access prenatal care, this shared care often meant that they would not meet their labour and delivery care provider until the day they went into labour. This lack of continuity in care was disruptive and upsetting to many women.

Lack of Continuity of Care
"You kind of feel like, your doctor here, you've seen him for a while, and you just get shoved off and it's like, 'good luck'." (Focus Group #007)
"It's almost like an interruption of the momentum that builds when birth is imminent." (Participant#010)
"If you're following your pregnancy with your family doctor here…and then right at the end, you have to switch to another doctor who doesn't know you, you haven't built the rapport and the trust…that can be a challenge." (Focus Group #004)
"For our first child, we really wanted to have that level of comfort and support, knowing that it's the same person [delivering care]." (Focus Group #006)

Remaining in the Community

For other women, the choice to leave the community to give birth was so unappealing that they refused to leave the community and would show up in labour at the Tofino hospital. Many care provider participants felt that this practice is extremely unsafe from a clinical perspective. However, for women who choose this suboptimal mode of delivery, the social risks of leaving the community outweigh the clinical risks of staying to deliver.

> "They [the parturient women] won't tell you they're not going to Port Alberni. They'll just show up in Tofino and say, 'I'm ready to push'." (Focus Group #005)
>
> "There will be women in the community who are adamant – who are not going out of the community." (Participant #004)
>
> "If somebody shows up [at the Tofino hospital] in labour who's a multip, and you put them on the road, they're going to deliver in the Ambulance. You have a very, very good chance of that happening." (Participant #004)

Social Costs of Leaving Home

Women described the social isolation that resulted from traveling to their referral community at 36 weeks gestation, leaving partners and community behind. To limit the amount of time they had to stay in the referral centre, some women chose to wait at home until going into labour, driving 4 to 6 hours to reach their referral centre. These women noted that they were taking the risk of delivering en route, and that some sections of the highway lack cell phone coverage.

Social Costs
"All my support people are here [in Tofino]." (Focus Group #007)
"My partner had to drive me and then come back…he couldn't leave me the car…I was stuck. And that was really hard emotionally." (Focus Group #010)
You're uncomfortable and you're miserable, I mean, I was in tears every day." (Focus Group #010)
"I didn't like it. It was really long, I didn't like it. I came home a couple times." (Focus Group #001)

Aboriginal Women's Experiences

The majority of First Nations women who delivered at a referral centre described incredible emotional hardship in leaving the community to give birth. Interestingly, some care providers expressed that women from reserve communities are content to deliver in Port Alberni, suggesting that the women enjoy having access to shopping and appreciate taking time away from dependent children and elders. As one noted: "Being in Port Alberni for the delivery isn't as big a deal [for Ahousat women] as you might expect" (Participant #004). This perception was not validated in our research. First Nations mothers unanimously expressed regret not being able to deliver locally. Fathers and relatives were also unhappy with the current system, citing difficulties in traveling to be with their partners and family members during their deliveries. For the majority of First Nations participants, the absence of family at a birth was seen as a loss:

> "It's harder… if you have to have your child in Port Alberni. Probably 70 or 80 per cent of your family won't be there." (Focus Group #001)

First Nations participants also indicated that teenage mothers should not be routinely referred outside of the community due to the "high risk" of their young age. Young moms face high social risks, they emphasized, from being separated from their social support network, which outweigh the clinical risks of teen birth. Some participants likened the removal of birthing women from the community to the residential school experience.

Two Aboriginal midwives in Ahousat spoke of the history of birth in the community, noting that the removal of birth has contributed to diminished practice of community rituals around pregnancy, including rites involving the baby's placenta. Many of the women's partners were unable to leave their work for six weeks, leaving the woman alone in the referral community until they go into labour. Many First Nations participants felt that local birth would provide a greater opportunity to restore cultural practices around birth:

> "The chances of moms and dads having the birth be culturally the way they want it are probably easier here than in a big centre." (Focus Group #004)

Aboriginal Women's Experiences

"[To suggest] that women in Ahousat would somehow maybe like to go to Nanaimo or Port Alberni and live there, or that they would enjoy a month out of town … to me, it reeks of racism." (Participant #013)

"My oldest son was born in Vancouver – not by choice. It does make a difference. They're [the children] bothered by it, so it does make a difference." (Focus Group #001)

"People are pretty unhappy that they can't deliver here. I'd say especially the natives… because they're very family oriented. So having to take everybody to Nanaimo and everything… that's a pretty onerous task." (Participant #001)

"I didn't get to see the birth of my nephew. I really wanted to be there with my sister, but it just didn't work out, eh? But if she had been allowed to have her baby here, I would have been 30 minutes away." (Focus Group #001)

"We're being restricted because we live in a rural area. And it's been – it's something we're all used to, but…they throw another blow on us, saying that they're not going to allow babies to be born here. We're supposed to be taking steps forward, not backward." (Focus Group #001)

"It's a disconnect…you've got to go away. It just doesn't seem right." (Focus Group #001)

Financial Concerns

The expense of traveling to access care was a common theme for participants. One couple had calculated their expenses for road travel, accommodation, and food, finding that they spent $3,000 during their time in the referral centre. Some noted that they went into debt, while others reflected on the financial burden they placed on the parents and relatives with whom they stayed. Participants who had no family connections in their referral community found it challenging to find a suitable hotel with kitchen facilities. Other women preparing to be out of the community for up to six weeks rented a house or a suite in the referral community. This was extremely costly but provided them

with a home-like space to spend the last few weeks of their pregnancy and a portion of their postpartum period if they chose.

For women with limited financial resources, the stress of accessing maternity care services in a referral community was significant. One participant spoke of a friend who stayed in a campsite near her referral hospital in the weeks leading up to her birth. To avoid having to pay for a hotel room for weeks in advance of their delivery, some women chose to travel to the referral community upon the onset of labour. While this reduced the cost of accessing maternity care services, it did increase the chances that the woman would not be able to get out of the community in time or would be birthing on the side of the road on the way to the referral community.

Moms' focus group, Family Ties, Ucluelet

While women are able to get back some of the money that they spent on accessing care through filing their income taxes, the amount being returned varies and the process assumes that birthing families have the money up-front to pay for travel costs. Status First Nations participants did receive patient travel funding from their band council; the amount provided does not cover the total cost of being out of the community. Further, the hotels in which the women are often requested to stay range in terms of cleanliness and desirability.

Financial Concerns
"And I really feel that the women who are not supported by funding from First Nations should be somehow charging VIHA for their costs. That's just the financial part of it." (Focus Group #009)
"It's obviously expensive, eating out and that sort of thing. We were lucky that we could afford it…it was miserable, and I think that really added to the stress." (Focus Group #010)
"You sort of have to gauge around your due date, and then if you're late, you're paying rent in two places. That can't be manageable." (Focus Group #010)
"I had one patient that was pretty poor. And she ended up driving in labour to Comox. It just was a disaster. It was not safe." (Participant #005)

Logistical Concerns

Many women noted that when maternity services were removed from Tofino, no support structure was left in place to enhance access to services in other communities. This created logistical challenges for birthing women in establishing transportation, accommodation, and work arrangements for the 4-6 weeks they were recommended to spend in referral communities. Many women had to be dropped off at their referral community at 36 weeks, with their partner returning home with their one car to work for the remainder of the pregnancy. Other women had no vehicle access at all and had to make arrangements to and from their referral centre by bus. As many women did not know when they would be going into labour, it was challenging to book a check-out time for their accommodations, which some hotels

demanded. For multiparous women, these logistical challenges were compounded by their responsibility to care for their other children. Some women chose to take their children out of school for up to 6 weeks and bring them to the referral community, as they had no alternatives for child care or did not want to separate their family for such a lengthy period. In speaking with a principal of one of the local schools, we were told that the disruption of older children being out of the community and out of school for up to six weeks is significant for both teachers and students.

Logistical Concerns	
Finding Accommodation	"I thought when I got to Nanaimo [for an induction] that I'd be admitted. But you're not admitted. They expect you to find a hotel room." (Focus Group #006) "They [referral hospital staff] didn't even tell me where to get a hotel room. They're like, 'there's some pregnancy rates at hotels'. I didn't know where any of those were." (Focus Group #006)
Implications of travel for multiparous women	"Primips - it's not such a big deal for them to go out but they don't have other children and stuff. It's more the multips I think is a bigger deal." (Participant #004) "I have no one where I move to to look after her [older child] when I decide to go into labour at four o'clock in the morning." (Focus Group #010) "My daughter-in-law had five [kids], okay, she's going to go for her sixth one now. Who's going to watch her five at home?" (Participant #016)
Securing transportation to the hospital	"'How do I get to the hospital if I go into labour?' You have no one to drive you … that's the reality." (Focus Group #007)
Making arrangements to return home	"He [husband] will be there [in Victoria] for a few days, we're going to take two cars, but then we're going to drive back together, so how do we get my car from Victoria back to here? It's just extra little logistics that you shouldn't have to think about when you've just had a baby." (Focus Group #007) "It was really hard having to travel, with her being real small." (Focus Group #001)

Prenatal and Postpartum Care

The current system poses challenges for adequate prenatal and postpartum care. When women leave the community at 36 weeks, allied health professionals told us, they are unable to access community support and prenatal education, which are essential in the final month of pregnancy. Further, when women are discharged postpartum and return home, there is often limited communication between the referral centre and Tofino nurses. This leads to gaps in care and significant challenges for women, including breastfeeding crises and untreated postpartum depression. The greater Tofino

Moms' focus group in Tofino

catchment has only recently filled its public health nursing line. The Family Ties programs in Tofino and Ucluelet, as well as local doulas, are other community-based support options for prenatal and postpartum care.

Prenatal and Postpartum Care

"We get a call Friday night, saying they're [parturient women] coming home Saturday, can we see them right away and we don't see them until Tuesday or Wednesday, because we don't work weekends." (Focus Group #011)

"We have a first and only prenatal visit a week before they [the mother] go to Port Alberni. Then we don't see them again until they come back to the community with the baby.' (Focus Group #011)

"I've seen moms come back, and they go into a cocoon." (Participant #010)

"There isn't always necessarily enough communication between the hospital where the birth occurred and the community…the mom will be returning to." (Participant #010)

3) Current Challenges

While birthing women and community members spoke predominantly of the characteristics of local birth versus birth in referral centres, care providers and allied health professionals focused on the current challenges to sustainable maternity care in the Tofino General Hospital catchment. These participants identified the barriers that led to the decision to close local maternity services in 2007 and articulated that these challenges would need to be addressed in order to re-instate local care. The barriers included onerous on-call schedules, lack of skilled locums, limited nursing coverage, lack of nursing confidence and competence, difficulties accessing maternity care training, and the loss of local nurse-midwives. Additionally, participants spoke of the costs and benefits of integrating two new services that could potentially enhance the quality of local maternity care; namely, local cesarean section capability and local community-based midwifery. Participants emphasized that the current challenges to providing care were exacerbated by a lack of local flexibility in decision making. Notably, two of the seven doctors with whom we spoke were interested in re-instating maternity services pending additional support from VIHA. The themes emerging from participants discussions of current challenges are summarized below:

Call Schedule

Care providers noted that onerous call was one of the contributing factors to the moratorium on local intrapartum services. In early 2007, one physician stopped providing intrapartum services, shortly followed by another physician, leaving the remaining two doctors in a 1:2 call schedule. This cascading physician attrition led within months to the cessation of intrapartum care in Tofino. Physicians described the onerous workload as follows:

> "I'm on call Tuesday night for emergency, the next night I've got a primip and I'm up all night, and it becomes very onerous." (Participant #004)

> "[The biggest barrier is] the flexibility to manage work load, and enough physicians who can sustain taking that on top of their regular call." (Participant #007)

Experienced physicians expressed that remuneration for maternity on-call work would not provide them with enough incentive to again provide to intrapartum services within the existing system. Rather, a 1:4 call physician group and an appropriately skilled nursing staff were the key factors they identified as necessary to re-open intrapartum services.

Lack of Skilled Locums

Care providers also noted that the majority of locums in Tofino were either unable or unwilling to provide obstetrical care, resulting in intermittent services. This tendency applied to both locum physicians and nurses. One care provider commented that it had been over fifteen years since he had been able to find a locum who provided obstetrical service. Moreover, nurses noted that, while their locums were competent, they did not offer obstetrical care:

"Sometimes, you'll have two nurses. One is from Victoria, casual; one is from Vancouver, casual. None of them are our regular staff; they come here once every two to three months. They're safe enough, and they're good nurses, but they don't have obstetrical/maternity component." (Focus Group #005)

Concerns with Nursing Complement

One significant challenge to the re-instatement of local maternity care services is the lack of adequate nursing coverage in the event of a labour and delivery. It was noted that the current staffing complement, two nurses per hospital shift, is insufficient and poses significant challenges during emergent deliveries. BC Perinatal Health Program guidelines dictate that women must receive 1:1 care during labour, which is challenging to provide with only two nurses available per shift, as they are also responsible for individuals occupying in-patient acute care beds and for the emergency ward. Historically there were two RNs and one LPN on every hospital shift at Tofino Hospital. This additional nursing line provided the extra coverage that was required to support the maternity care patients, as well as cover the rest of the hospital. As a result of reducing the nursing staff to only two nurses per shift, on-site learning opportunities were lost. When there were two nurses and an LPN per shift, an inexperienced nurse had the flexibility, if the hospital was relatively quiet, to work beside a more experienced nurse and learn on the job. Currently, with only two nurses per shift, less experienced nurses are never afforded the opportunity to watch or be supervised by someone more knowledgeable. Care provider participants expressed a strong desire to reinstate the nurse staffing model where there are three nurses per shift (1 to focus on labour and delivery, 1 to focus on acute events, and 1 LPN to care for ward patients). Since the completion of this study, an eight hour shift LPN has been added to the nursing line.

Concerns with Nursing Complement	
Nursing shortage at Tofino General Hospital	"The biggest crisis was the nursing staff. There was not enough nursing staff. We were closing the hospital. You cannot expect …a person to do an elective delivery, which takes a lot of energy and staff time …if the hospital is closed. We were just hanging on by a string. It was terrible." (Participant #004) "Last year, inpatients were not the problem…they were manageable. It's the emerg that kicks off. So the docs, the plan there was, you tell BC ambulance to pick them off the road and take them to Port Alberni, and anyone who walk in, we triage, and send them elsewhere.…The contingency here is a non-contingency." (Participant #007)
Limited Nursing Coverage	"And when the mother with the baby arrives, they need the 2 nurses, right? For delivery. And then who looks after the other 10 patients?" (Focus Group #009) "We'll have the 2 nurses in the delivery room, and there's no one for the unconscious patient." (Focus Group #009) "You are getting total care patients and one nurse trying to manage 4 to 5 people who need assistance for everything…and then you get two people in emerg or even one in the trauma room." (Participant #007) "When we're short one nurse in our hospital, we're short 50%. Any other unit has 6 nurses per floor. They're short one nurse, they're short only 15%." (Focus Group #009)

Lack of Nursing Confidence and Competence

All participants were aware of the challenge of providing services without trained and confident labor and delivery nurses. Some nurses reflected that they have limited or no labour and delivery experience. Many of the newer graduates leave school with limited obstetrical training and do not feel equipped to be the only maternity care nurse in a labour and delivery situation. As a result, the nursing staff relies heavily on older, more experienced nurses to cover for labour and delivery. All nurses, including experienced ones, incur a considerable amount of stress and fear at the prospect of being involved in a labour and delivery. These feelings result in a lack of desire to continue providing maternity care services. With the nurses feeling under-prepared for labour and delivery, this adds to the burden carried by the physician, whose role needs to be more encompassing to compensate for the nurses' lack of experience and confidence.

Lack of Nursing Confidence and Competence	
Historical training models for labour and delivery nurses	"The nurses of twenty years ago… it was expected that you assisted at deliveries. There were these experienced and trained nurses within the cohort of nurses." (Participant #004) "The education piece needs to be consolidated. Because the facility and staffing is tight, I am really nervous about someone is saying…'OK everyone do a little net-learning, and we will-do a few little on-site sessions.'" (Participant #007)
Limited labour and delivery experience	"I think I saw 2 or 3 natural deliveries and all the rests were cesarean. So I came home freaked out." (Focus Group #009) "I have to be in there to be the doula for most of the labour, because the nurses aren't comfortable with it." (Participant #004)
Stress related to maternity care	"It is less stressful [after the maternity closures]. I mean, you come to work and you don't have to be concerned about that [a labour and delivery situation]. And it's still stressful because there will be times when we get that unexpected, unplanned emergency." (Focus Group #009) "I don't want to set the community up, and set the nurses up in a way, where we say, 'yes, we are ready now', and while they are about to catch this baby, they are worried about the guy who is going to vomit in his mask in the trauma room. That is not providing a good obstetrical program, nor is it providing good emergency care." (Participant #007)

Challenges in Accessing Maternity Care Training

Nurses and physicians all agreed that they need to upgrade their training in labour and delivery if maternity care services were to re-open. However, accessing this training for nurses was perceived to be a challenge. Currently, VIHA does not provide funds for nurses to leave the community to get trained. To maintain their skills or to upgrade their maternity care experience, the nurses have to pay for the course, as well as for their travel and accommodation expenses. This cost is a significant disincentive to nurses accessing more experience and training in maternity care. Notably, maternity care is one of many sub-specialties in which the generalist nurses in Tofino need to be trained, but maternity skills enhance nurses overall scope of practice:

"It [maternity care] also tests our skills as medical practitioners and our stamina. …It challenges us to be better, and so losing that skill kind of diminishes our overall skill level." (Participant #005)

"We have to do all these courses, we have to do cardiac arrest, we have to do pediatrics life support, we have to do neonatal resuscitation, so sometimes to add obstetrics to that… it's just a little mouthful. Because we have our families, we work part time or full time or whatever it is… it's a lot." (Focus Group #009)

In previous years, VIHA has provided on-site instruction provided by a VIHA staff member who came to the community. Although helpful, the training was not sufficient to build the confidence of the nursing staff. An additional challenge the nurses face is the current low volume of deliveries at the Tofino hospital, as they have limited opportunities to practice their labour and delivery skills. To gain more experience, nurses expressed an interest in doing a nursing exchange or swap with nurses from a high volume site. They envisioned that while a Tofino nurse goes to practice in a high-volume maternity facility, such as Nanaimo, a nurse from that facility would practice in Tofino. This exchange program would also mitigate the staff shortage that typically results when a nurse must leave the community for training. In instances of on-site learning, participants emphasized that all team members should be involved, reflecting a MORE^{OB} approach to maternity skills training.

Challenges in Accessing Maternity Care Training	
Lack of training as a significant barrier to local maternity care	"If they're going to re-open it [maternity services in Tofino], they're going to need to make sure that…the nurses are trained." (Focus Group #007) "I think it's hard to go back to obstetrics after you've stopped. And then for the new doctors it's hard to start obstetrics once you haven't done it for a while. So I think probably most of the physicians would want to do some kind of refresher. I certainly would want to do that. I think having courses here would keep people a little more confident in their skills." (Participant #005) "If we are resuscitating somebody, I want the people in there knowing what they are doing. I don't want them totally terrified, not thinking straight and making simple errors that are avoidable by just allowing them to learn." (Participant #007)
Lack of support to access training	"At one time when we were doing deliveries, nurses were coming in without experience and they [VIHA] would not even pay…or provide a Neonatal Resuscitation Course for us." (Focus Group #005) "My point being, and the health authority doesn't get this, there is a point where [they] have to stop asking people to do more and more, with less and less. If the idea is that they should do their obstetrical training online, then they should be freed up and paid to do that, because it's a mandatory thing." (Participant #007) "VIHA just said to us: no there's no more funding…because of course you need to care for the trauma patients. So if this [obstetrical training] becomes mandatory then they would have to cover the fees. Well if they're going to be prepared to cover the fees for obstetrics, they need to be prepared to cover the fees for emergency nursing, trauma nursing… otherwise I'm thinking… no!" (Focus Group #009)

	"And the cost of these courses are not cheap. I just know that for a while VIHA was paying for tuition… something like $1,500. And now they're saying 'no, we won't be paying your tuition anymore', so I think what's going to happen that way is if the health authority doesn't support us financially for education, then any nurse in my position won't be able to get those courses." (Focus Group #009)
Proposed solutions	"We [should] have a training system set up so that our nurses could go and spend a week on a busy obstetrics ward. Paid for their work and accommodation paid. So that they would feel comfortable and familiar with doing obstetrics … and the same for physicians." (Participant #005) "If a lot of the training [was] on-site it would be cheaper, it will enable the docs to attend, it will allow us to work as a team, which is what we need." (Participant #007)

Loss of Nurse-Midwives

One of the significant findings that emerged from this consultation was the historical importance of nurses with midwifery training (nurse-midwives) to the sustainability of local maternity care services at Tofino General. Historically, maternity care services at the Tofino hospital were buttressed by the presence of nurse-midwives trained internationally in Japan, Germany, and the Commonwealth countries. These nurse-midwives came to Canada to practice, usually in the 1960s and 1970s, and as midwifery was not legalized in Canada at the time, they were only licensed to practice as nurses. Many of these nurse-midwives worked in rural communities and provided general nursing support, while bringing to their practice the skills and experience they had gained as practicing midwives in their home countries.

Over the years, several nurse-midwives have worked at the Tofino hospital. The last nurse-midwife retired around 2003, approximately the same time that local services at the hospital began to decline. These nurse-midwives covered every aspect of care in the hospital and were often called upon to assist with deliveries. They provided on-site training to colleagues, many of whom developed their maternity skills by working alongside the nurse-midwives. Current nurses expressed their appreciation of having nurse-midwives on staff. Similarly, many of the physicians spoke enthusiastically about the support they felt by having highly skilled nurse-midwives working as part of the maternity care team. The care providers felt confident that a labouring woman was in capable hands and often relied on the advice and expertise that the nurse-midwife provided. Participants indicated that historically nurse-midwives have been the backbone of maternity care in Tofino.

Nurse-midwives	
History of local nurse-midwifery	"When I came here there were probably 4 nurse-midwives, many trained in Europe." (Participant #004) "It was daunting if it happened that your patient arrived in labour when you had the less skilled nurses on. It meant more responsibility was on your shoulders and you had sort of unskilled assistance with your delivery. But we managed. But it certainly felt great when you had your nurse-midwife on. You felt well-supported. And we had a particularly strong practitioner who would do her own delivery sometimes with the doctor around or whatever. And she provided some in-house nursing training courses for obstetrics and the new nurses came on with less and less training." (Participant #004)
Importance of nurse-midwives	"That'd be the deluxe, most perfect thing of all: nurse-midwives." (Participant #005) "There has been one applicant who was a nurse-midwife, so I guess targeted advertising would help with that in the United Kingdom and places like that. I think it's great. And that could bolster staffing enough to help us do obstetrics." (Participant #007)
Nurse-midwives provided education	"The midwife from Scotland, she ran us all through a labour and delivery course that she had made up." (Focus Group #009) "Our nurse-midwife provided training here for nurses and that was a terrific service to have." (Focus Group #005)

Lack of Local Cesarean Section Services

One of the contributing barriers to the provision of maternity care services at Tofino has been the lack of local cesarean section back-up. Tofino Hospital has provided low-risk maternity care services without cesarean section services for many years. Historically though, in the 1980s and 1990s, the community was served by a GP Surgeon and a GP Anesthetist who provided local cesarean sections in addition to other low risk surgical procedures. Since their retirement, local care providers have provided maternity care services relying on the availability of emergency transport personnel to transport patients to the nearest referral centre or to BC Women's in the case of an emergency. While this arrangement has worked for many years, the stress on care providers is significant and the lack of local cesarean section services means that only a small percentage of the total number of births in their catchment can be delivered locally; many women choose to birth away or are recommended to go to a referral centre due to the potential for complications.

Lack of Local Cesarean Section Services	
Experience of having no local cesarean section services	"It's quite intimidating to do deliveries here and I think it always will be because you don't have any cesarean section back-up. But you did have the support of your fellow GPs and that's how we managed anytime there was a difficult delivery. We would call in our colleagues." (Participant #004) "If I need a c-section, for whatever health reasons for my baby, I want to have that option." (Focus Group #010)

Potential solutions	"I think that would be what I would see for the future of this facility is that we get a GP Anesthetist, we get a GP Surgeon and of course that could support obstetrics, make obstetrics feel better if we could do c-sections here. …In order to do that kind of thing… it would take more resources. We'd need to turn our trauma room back into an OR, we'd need CSR support." (Participant #004)

Community-Based Midwifery

The introduction of local midwifery was one new model of care discussed by participants. Care providers noted that many birthing women travel to access care from the Courtenay/Comox or Errington midwives. Those women who have accessed midwifery care expressed that they were attracted to the potential to build a strong relationship with their care provider, to have this provider support them throughout labour and delivery, and to have a care provider who approached birth as a natural process, with minimal interventions. Many women noted that if midwifery care was made available as an option in the greater Tofino catchment, they would access that service. However, other women expressed that without adequate cesarean section back-up, they would feel that local midwifery care, in particular homebirth, would be unsafe. Physicians echoed this sentiment, and perceived that in the event of a homebirth crisis they would be responsible for "cleaning up the mess." To facilitate the integration of midwives into the Tofino community, care providers stressed the need for local cesarean section access, in addition to team-building activities and discussions with midwives about scopes of practice, roles and responsibilities, as well as guidelines for selection of homebirth clients. Consequently, they felt that local midwifery care would be a long-term goal, but that women should continue to be supported in accessing midwives in other communities.

Community-Based Midwifery	
Interprofessional collaboration challenges	"I can see many ways in which it would be exceedingly challenging for midwives to operate on the coast…but in an ideal world, midwives would be another option open to birthing moms." (Focus Group #011)
Benefits of midwifery option	"The thing about midwives is that they would just be focused on deliveries and that. You know, they wouldn't have the other responsibilities. Hopefully they could raise some enthusiasm and confidence too." (Participant #005) "For our first child, we really wanted to have that level of comfort and support, knowing that it's the same person [delivering care]." (Focus Group #010)
Physicians' fears of home birth	"It would fill me with resentment if there was a problem in the home birth and then they came here and then I had to get involved in some kind of a disaster that I felt was exacerbated by the fact that they were doing it at home. But I do understand the mandate of midwives is that they're supposed to do homebirths if that's what the patient wants." (Participant #005)
Lack of cesarean section back-up	"Midwives that are working here will have to have a certain courage to be aware that there's going to be no c-sections instantly available to them. It's the same kind of courage that we have to do here as GPs. It is daunting at times. It's stressful." (Participant #004)

Lack of Local Flexibility in Decision-Making

A consistent theme that emerged from this consultation was the need for more local flexibility to make decisions regarding the organization of health services. Historically, hospital services at Tofino General were administered by a local hospital board. Since 2001, the Vancouver Island Health Authority (VIHA) has administrated health services in the greater Tofino catchment. In recent years, Tofino Hospital has placed requests to VIHA for nurses to access continuing maternity skills education in a high-volume setting, supported through coverage of expenses and locum relief. VIHA's choice not to support this education has led to a community perception that the health authority is not responsive to Tofino's health care needs. As one participant stated: "I am sorry but to be very clear, but you cannot count on VIHA in any way, period" (Participant #007). Other participants noted that physicians at West Coast General Hospital in Port Alberni have been historically unsupportive of birth at Tofino Hospital:

> "He [Port Alberni physician] tells all his patients you cannot deliver there [Tofino], it's unsafe, you need to deliver here. That's just his style. But if you have someone in labour and you want to send them he's always very willing to accept." (Participant #004)

Other participants noted that the lack of local decision making capacity has contributed to the current unsafe level of service, arguing that regional decision makers do not understand the health service issues facing Tofino Hospital on the ground. One care provider noted that decision makers consider Tofino General to be a "sleepy" hospital that receives little patient volume, adding that this perception overlooks the vast seasonal population increase that takes place during the summer, creating a considerable rise in emergency and acute care patient numbers.

Examples of local efforts to engage in community-responsive decision making include the formation of the Coastal Health Care Committee (CHCC) and the committee's report on local health services. VIHA has become more engaged in Tofino's health services through the commission of the Centre for Rural Health Research to conduct this community consultation and their engagement in a Rural Health Services Project, reflecting the health authority's priority of meeting rural health care needs.

Lack of Local Flexibility in Decision-Making	
Importance of local decision-making capacity	"We have… an administrator who's made a huge difference to our hospital. We were just flapping in the breeze for however many years. We had no administrator here. It was terrible. The hospital really devolved. And you know, you always like to hate administrators but it really requires an administrator to make a facility run properly." (Participant #003) "I certainly think that having the decision-making move away from the community [as a result of regionalization] left our community short, our community facility. And they made many decisions that were not to the benefit of the community. They were to the benefit of Vancouver Island, perhaps." (Participant #005) "Typically what happens over the course of a few years is, managers get really tired of having to fight for everything, and leave." (Participant #007)

5. DISCUSSION

a) Rural Birth Index Scores: Tofino and Ahousat

To facilitate a sustainable planning process for the population of the Tofino General Hospital catchment, the Centre for Rural Health Research has calculated a Rural Birth Index score for TGH's one hour catchment, predicting the optimal level of maternity service for the community. Based on *population birth score* (PBS), *adjusted population vulnerability* (APV), and *geographic isolation factor* (IF), the score corresponds to an appropriate service level (see Table 1). These scores have been calculated for all rural communities in the province. When compared to like-sized communities with similar characteristics, TGH demonstrates the need for a higher level of service than is currently provided.

The Rural Birth Index formula (RBI = [PBS x APV] + IF) for Tofino indicates that based on an average 52 births per year, high degree of social vulnerability, and greater than one hour travel time to the next nearest cesarean section service (Port Alberni), Tofino would currently be optimally served by a maternity service that provided local intrapartum care but cesarean section services would be currently difficult to sustain. The Ahousat catchment has an RBI score of 6.6, indicating that no local intrapartum services is the appropriate service level.

If Ahousat is seen to drain into Tofino and services were planned to serve the Ahousat population in Tofino a greater Tofino catchment could be created and the increased need could be used to justify local maternity and surgical services supported by GP Surgeons and GP Anesthetists. This may become an important part of planning particularly if the local population birthing projections are for an increase in numbers and VIHA is considering building a new hospital in Tofino.

The current local level of care at Tofino General Hospital, no local elective intrapartum services, does not provide the optimal level of maternity care for the Tofino population. Our research suggests than when a community is under-served, as in Tofino's case, a number of women will choose sub-optimal alternatives to traveling to access maternity care at referral hospitals (see pages 16 and 17 above).

Table 10: Rural Birth Index Score for 1 hr Catchments								
Community	**Average # of Births[1]**	**PBS[2]**	**APV[3]**	**Nearest C-section Service**	**Travel Time**	**Isolation Factor (IF)[4]**	**RBI**	**Recommended Level of Service**
Tofino	53	5.3	1.3	Port Alberni	90 min	2	**8.9**	Local services without C/S
Ahousat	20	2.0	1.3	Port Alberni	4+ hrs	4	**6.6**	No local intrapartum services

1 Average births in 1 hr catchment over 5 years (2003-2007)
2 Population Birth Score
3 Adjustment for Population Vulnerability
4 Isolation factor is calculated to weight surface travel time to the nearest cesarean section service, and increases in value as a service is more isolated.

b) New Local Models of Care

When asked what their ideal model of local maternity care would look like, participants recommended the re-establishment of local birthing services with additional supports. Care providers emphasized that although local low-risk elective delivery services have stopped in Tofino, the hospital still has an emergency labour and delivery program. Women continue to present at the hospital and deliver their babies locally, in spite of the moratorium. Some women choose to wait until their active labour is established before presenting at Tofino General, to preclude transfer to another hospital. One care provider reflecting on this phenomenon stated that a Tofino woman "votes with her dilating cervix." In addition to this ongoing demand for emergency services, other factors influenced care providers' perception of the need for local birthing services, including the importance of birth to the fabric of the community and to local women. Demographic projections predict a continuing increase in the Tofino population, which also indicates the need for the return of local birth to meet the community's growing needs.

The demand for local services on the part of birthing women was founded for many in their desire for the "choice" or "option" of local birth. The importance of local birth to women was so strong that some suggested they would bypass the system and present at Tofino Hospital in labour to avoid leaving the community. Others who spoke highly of the midwifery services they accessed in referral communities said that they would forego midwifery care for subsequent pregnancies in order to give birth in Tofino. Many women did not have extended family living in the greater Tofino catchment and had given birth in the communities where their parents lived. A number of these women expressed that they would give up this familial support in order to have their babies close to home.

Nurses

Care providers, allied health professionals, and birthing families alike consistently recommended that, in order to re-establish birthing services, Tofino Hospital would need to build capacity for local birth. Specifically, as the hospital and community's trust in the safety of local birth rests on the confidence and competence of nursing staff, participants emphasized that local nurses must receive perinatal skills training. Additionally, care providers suggested that, to

maintain a sustainable and skilled nursing complement, Tofino Hospital should hire nurses with perinatal skills, or with midwifery training, to practice as generalist nurses and provide in-house maternity skills mentorship to staff. This recommendation was founded in the participants' positive experiences of working with nurse-midwives in Tofino Hospital in previous years. Nurse-midwives played an integral role in maternity care team-building, training, and retention.

Cesarean Section Services

Currently Tofino's catchment's RBI score suggests that the appropriate model is elective intrapartum services without local GP Surgical cesarean section services. If birthing numbers in the one hour catchment increase as projected then this need will grow in ensuing years as the size of the birthing population increases. In 2008, Tofino had no local elective maternity services (Model A), but delivered approximately 7% of birthing women in its population catchment, which is slightly higher than the provincial average of 2% among like-sized Model A communities.[151] If Tofino Hospital were to re-establish an elective maternity service without local access to cesarean section supported by family physicians (Model B), the community would likely deliver 30-40% of women locally.[152] This percentage could increase as confidence in the service grows and maternity care providers develop a careful risk screening process for local birth versus birth away. However, there will continue to be a large number of women whose clinical and/or social risk factors preclude the choice of local birth.

However, if Tofino Hospital were to establish an intrapartum service with local cesarean section back-up (Model C), the hospital would be able to support 85% of births locally, with only 15% of women having to leave the community to give birth.[153] The ongoing stability of obstetrician services in Port Alberni will play a role in this decision, as well as the financial position and priorities of the Vancouver Island Health Authority.

Community-Based Midwifery

Many birthing women we spoke with had accessed midwifery care in referral communities and expressed an interest in having such services available locally. Some noted that they knew of midwives who were interested to set up practice in the Tofino area. However, there are a number of potential barriers to the sustainable implementation of a midwifery service in Tofino without an active intrapartum service at Tofino Hospital or local cesarean section.

In rural British Columbia, there are a number of communities in which midwives and family physicians provide maternity services with surgical back-up from GP Surgeons and Obstetricians. This model of care (Model C) supports midwives and family physicians working in parallel and relatively independent fashion each able to consult directly with specialists (or GP's with enhanced skills) to determine if a parturient woman needs surgical support. In this model, family physicians are not responsible for backing-up home births or for providing care in emergency situations for midwifery clients. Based on our research into interprofessional collaboration in rural British Columbia, this model of care seems to work effectively.

There are limited examples of rural midwifery practices in British Columbia communities that do not have local surgical back-up. On Salt Spring Island, the only Model B community in British Columbia where maternity services are provided solely by midwives, approximately 70% of midwifery clients deliver locally; 15% of births away are

intrapartum transfers while the other 15% are deemed too high risk for local birth at the outset of pregnancy. Few women elect not to use the midwifery service and instead receive care from doctors on Vancouver Island or the Lower Mainland.[154] Although Salt Spring Island has a successful midwifery service, the community is demographically different from the greater Tofino catchment: it has a long history of local midwifery, a relatively socially advantaged population, no First Nations community, and close proximity to air or water ambulance to cesarean section back-up at Victoria General Hospital.

There are currently no examples in British Columbia of communities that have local cesarean section back-up and have midwives as the sole providers of maternity care (no family physicians providing maternity care).

In order for local community-based midwifery services to flourish in the greater Tofino catchment, it is likely that a number of steps would need to take place first. Nurses at the hospital would need perinatal skills updating and training. It is likely that midwifery services would only be sustainable with a minimum of 2 midwives. If operative delivery remains unavailable locally then it would be useful to consider developing incentives to encourage interprofessional collaboration to support the building of relationships with current care providers at the Tofino Hospital.

6. RECOMMENDATIONS

Based on an analysis of interview and focus group transcripts with care providers, community members, and other key stakeholders, a three-phase model of sustainable maternity services emerged. This model includes the recommendation that local elective maternity services be reinstated for the Tofino catchment, within a sustainable, multi-year timeline. There is an overwhelming level of interest from both hospital and community members in having the "choice" of local maternity care provided by well-trained and supported staff. When compared to like-sized rural BC communities, the greater Tofino catchment has the birthing population numbers, level of social need, and degree of isolation that indicate the need for local, low-risk maternity services. Additionally, based on population projections and the natural drainage patterns of the population of Ahousat a cogent argument could be made for local surgical services provided by a GP Surgeon and a GP Anesthetist in the foreseeable future.

To encourage the sustainable re-introduction of local maternity services, a three-phase model is proposed. This provides a step-wise series of recommendations to improve training and support for care providers, increase the strength of the nursing team, and enhance support for women who choose to give birth away from Tofino. Given the challenging fiscal climate faced by the Vancouver Island Health Authority, these evidence-based recommendations are subject to feasibility. The three phases are:

1. Phase 1 (short): Strengthening the current model of no local elective deliveries by enhancing supports for women who birth away and ensuring emergency delivery maternity skills training for local care providers;
2. Phase 2 (medium): Reinstating local maternity care provided by local family physicians through the support of obstetrically trained nurses or nurse-midwives;
3. Phase 3 (long term): Introducing local low-risk surgical services (GP Surgery, GP Anesthesia) in response to sufficient growth in the local parturient population (see population projections) and potentially introducing community-based midwifery.

Phase 1: Strengthen current model of no local elective deliveries

Action	Recommendations
Improve support for women who must travel to give birth	- Strengthen communication structure between Tofino providers and referral hospital providers to improve continuity of care for women, particularly at discharge and upon arrival home. - Create a strategy for immediate post-partum follow-up for women discharged on weekends (i.e. weekend postpartum doula, volunteer network, improved patient chart transfer). - Create a Pregnancy Travel Coordinator position, potentially funded by VIHA and/or Nuu-chah-nulth Tribal Council, to coordinate travel for birthing families (i.e. provide referral care provider information; arrange accommodations; organize car-pooling or Tofino Bus to appointments; facilitate connections between pregnant women; provide travel expense vouchers). - Create a community-based website for women who have to travel for maternity care, including resources, information on care providers, a discussion forum, etc. - VIHA and Nuu-chah-nulth Tribal Council partner to procure accommodation in Port Alberni and Nanaimo to provide safe housing (with kitchen facilities) for birthing women and their families.
Improve delivery of local maternity services	- Maintain local prenatal and postpartum services and enhance through improved communication and referrals between Family Ties, Public Health Nurse, and Tonquin Clinic. - Create TGH-specific policy and procedures for emergency delivery, neonatal resuscitation, neonatal transport, and intrapartum emergency transport. - Provide an orientation for locums on policies for emergency delivery and intrapartum emergency transport.
Enhance maternity skills for care providers	- Immediately provide all TGH nurses and physicians in ER rota with training in emergency intrapartum care: ▪ Nurses' training should be funded by VIHA, provided in a high-volume setting such as Victoria or Nanaimo, and facilitated by providing nurse locums for TGH (potentially through a "nursing swap" between TGH nurses and those at the high-volume training centre). ▪ Physicians' refresher training could be supported by the BC Medical Association
Enhance local nursing capacity	- Consider the feasibility of hiring additional nursing staff, including LPN's. - When vacancies in the nursing complement occur, prioritize hiring nurses with perinatal or midwifery training (for integration in Phase 2)

While the community, hospital, and decision makers begin preparing for the re-instatement of local elective maternity services, the current model of care must be enhanced to meet the needs of women in the community and to support the hospital staff who provide emergency services. Although it is not currently feasible to provide local elective deliveries at Tofino Hospital, the hospital does provide an *emergency* intrapartum service and must meet that service need by training and recruiting skilled providers.

Staff at Tofino General Hospital identified an immediate need for nurses to receive intrapartum skills training in a high-volume setting, funded by VIHA, and supported through locum coverage. This recommendation also appeared in the Coastal Health Care Committee's "Planning for Sustainable Rural Health Care Delivery" report (2007). To support birthing women who must travel to access prenatal and intrapartum care, the community advocated for a range of support mechanisms, all of which would help mitigate the social and financial stress incurred by families of traveling to access birthing services.

With the reintroduction of local labour and delivery services, it is anticipated that 30 to 50% of women will deliver at Tofino General Hospital, for an average of 16 to 26 local births per year.

Phase 2: Local physician-led maternity services supported by nurse-midwives

Action	Recommendations
Re-instate local elective maternity services	- Provide local elective maternity care through a family physician 1:4 call rota. - When vacancies occur, hire hospital based nurses who are: ▪ Generalist nurses with special skills in perinatal care and/or midwifery responsible for participating in generalist nursing rotations and being available for intrapartum care. ▪ Paid as a nursing specialist - These nurses would provide the following specialized services: ▪ Education in maternity skills to hospital staff. ▪ Support physician-led low-risk maternity care, including prenatal and postpartum care (physicians remain most responsible person in labour and delivery).
Enhance criteria and guidelines for local deliveries	- Establish criteria for low-risk local deliveries. - Provide the community with a formal notification that elective maternity services have been re-instated, including a description of the scope of services available and limitations. - Update policy and procedures manual for rural low-risk obstetrical care at TGH (including BCPHP and SOGC clinical practice guidelines).

Tofino General Hospital should re-establish a physician-led primary maternity care service to meet the needs of birthing women in the greater Tofino catchment. To make this low-volume primary maternity care program sustainable, physicians and nurses must have adequate training and lifestyle support. Care providers should practice within a 1:4 maternity care on-call rota. Nurses should be supported by the hiring of an additional nurses with specialized perinatal and/or midwifery training who would practice as generalist registered nurses, as well as support intrapartum services and provide maternity skills education to fellow care providers.

Nurses with enhanced maternity skills underpin the majority of maternity services in rural British Columbia. Rural physicians have stated that good nursing support is the key issue behind their ability to continue to provide intrapartum services to rural communities.[155] While small community hospitals need generalist providers, both physicians and nurses, individuals with specialist skills are needed to provide enhanced services in areas such as maternity care. Currently in British Columbia there are no formalized nurse-midwives. Historically however, many rural communities have been served by nurses with international midwifery training fulfilling this role. These nurses were trained in countries where midwives receive both a nursing degree and an advanced graduate level specialization in midwifery. In Canada, advanced placement of nurses into midwifery BA programs could enhance rural maternity nursing.

In addition, to ensure that maternity service provision is culturally safe and community-responsive, Tofino General Hospital should develop criteria for low-risk local deliveries that takes into account the importance of birth close to home and the social risks of birth away. This may be particularly important for Aboriginal women and families.

Phase 3: Maternity care supported by GP Surgery and Community Midwifery

Action	Recommendations
Provide local surgical care	- If, as predicted, the population size of the Tofino catchment grows to indicate the need for local surgical capacity, including cesarean section, consider the integration of a local GP Surgical program - Recruit one GP Surgeon, one GP Anesthetist, and one GP with both surgical and anesthesia skills, and recruit OR nurses - As part of new TGH structure, include a functioning OR.
Integrate midwifery	- Depending on population birthing size, consider encouraging community-based midwifery.
Provide local ultrasound services	- Purchase an ultrasound and recruit/train an ultrasound technician.

Currently in BC, there are only a very few rural communities that provide primary care birthing services in the absence of local cesarean section. It is unlikely that a primary care maternity service without backup cesarean section will be able to meet the needs of birthing women in the community as the hospital will be able to provide for only low-risk deliveries, approximately 30-40% of a birthing population. However, with the introduction of a cesarean section service, a community can significantly expand its criteria for local birth, including higher risk deliveries. The population of the greater Tofino catchment is comparatively more disadvantaged than most primary care birthing services in the province, and complications surrounding pregnancy and birth are significantly more frequent. Without a local cesarean section service, the birthing needs of the majority of Tofino women will not be met locally.

One GP Surgeon, one GP Anesthetist, and one GP with both surgery and anesthetic skills will need to be recruited. The presence of a 24/7 cesarean section service at the Tofino hospital will stabilize care for the population within the greater Tofino catchment. Additionally, the introduction of a local surgical service will benefit the Tofino community at large, providing the opportunity for itinerant surgery provided by visiting specialists, and supporting acute care for patients from the high volume of tourists who visit the community in the summer months (i.e. airway management, trauma management).

Currently, the Tofino service is supporting a small number of emergency births a year. The population of the Tofino catchment and the Ahousat catchment has over 70 births per year. The local cesarean section service would provide a safety net to support sustainable local birth. Local care providers would then be able to meet the needs of approximately 50-60 women per year once the back-up surgical services are well established. This represents about 75-85% of the population, a reasonable goal for GP Surgery supported services. As population projections indicate that the Tofino catchment is growing, this number will likely increase in the near future. There were 83 births in the combined catchments in 2007 and participants' projections for 2008 and 2009 indicate consistent or higher birth numbers, with the greatest increase in the number of births to Ahousat women.

With the capacity to provide local intrapartum services for 60 births per year, the Tofino community would have the capacity to integrate local community-based midwifery. Both care providers and community members consistently indicated that there is a local demand for midwifery services, which is currently being met by women choosing care from midwives in Courtenay/Comox or Errington.

Local ultrasound capacity would be a useful addition to the Tofino service, as women currently must travel to Port Alberni for this service. However, many low-resource women are not receiving prenatal care, including ultrasound, and would be more likely to access such care if it were provided locally.

8. APPENDIX

Letter of Support

VANCOUVER ISLAND health authority

MEMORANDUM

DATE: MARCH 26, 2009

TO: Health Care Providers Involved in Maternity Services on the West Coast

FROM: Ian Knipe, Director Rural and Aboriginal Health
Lenora Marcellus, Leader, Perinatal Planning

RE: Community Consultation on Maternity Services

Tofino General Hospital (TGH) has experienced a decline in the number of local births over the past seven years. There are a number of factors that may be contributing to this decrease, including:

- Fewer nurses with perinatal clinical background and limited opportunity to maintain skills,
- Smaller numbers of local and locum physicians who provide obstetrics care, and limited opportunity to maintain skills,
- Public and provider perception of service,
- Women may be choosing to birth or need to birth in a facility with more advanced perinatal services (including epidurals, cesarean sections),
- Women are choosing to give birth in a facility closer to their extended family, particularly if they think they may need to be transferred due to risk factors, and,
- Women may have a greater number of risk factors, making them inappropriate candidates for birthing at a low risk maternity care unit.

In 2005/2006 there were 5 births at TGH. The joint position of professional perinatal organizations (such as Society of Obstetricians and Gynecologists of Canada and Society of Rural Physicians of Canada) is that maternity care should be provided as close as possible to the rural home of the expecting woman, within the limits of safe practice.

However, the literature is limited as far as the guidance provided around the scope of a “small” service, and at what point birthing numbers are too small to warrant the maintenance of an

active planned birthing service. From the community's perspective, studies of women's experiences of rural maternity care also identify that women value local birth and some women will have unassisted home births or delay presenting at the hospital until they are in advanced labour to avoid transfer to another community.

In 2007, planned intrapartum obstetrical service at TGH was suspended. Since that time, there continues to be an occasional unplanned birth at TGH. Most women are currently accessing birthing services at West Coast General Hospital, Nanaimo Regional General Hospital or St. Joseph's General Hospital. Although it is important to provide a safe clinical service, it is also important for us to continue to assess the impact of the suspension of maternity care services.

The Rural Maternity Care Research Team (through the BC Centre for Rural Health Research) has worked with many rural communities across the province to help evaluate and make recommendations regarding appropriate levels of maternity care services. Each community is very different and requires an understanding of local resources and demographics. The team's Dr. Stefan Grzybowski and Dr. Jude Kornelson have worked with many providers and families to support them in assessing the challenges and potential solutions that are present within their communities.

VIHA has invited the Rural Maternity Care Research Team to assist in assessing and evaluating intrapartum obstetrical services at TGH. We welcome their expertise and invite you and your staff to participate in this consultation process. We hope that by the end of this consultation process we will have had the opportunity to hear from a wide range of health care professionals and community members and to look at health care information and data specific to the West Coast.

This consultation process will provide us with the best possible information from a wide range of stakeholders when determining the future of maternity care services at TGH. For more information, or to participate, please contact Shelagh Levangie, Research Coordinator, 604-742-1796 or Shelagh@ruralmatresearch.net

Regards,

Ian Knipe
Director, Rural and Aboriginal Health

Lenora Marcellus
Leader, Perinatal Program Development

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