

Sioux Lookout Meno Ya Win Health Centre *Research Compilation 2007-2009*

The Sioux Lookout Meno Ya Win Health Centre has a mandate to become a centre of excellence of Aboriginal healthcare. Integral to that mission is the development of a culture of research. In collaboration with the Northern Ontario School of Medicine and other northern organizations and researchers, Meno Ya Win nurses, physicians and administrators have produced a substantial body of academic literature. These contributions include both cross-cultural works on First Nations healthcare delivery and clinical articles on the practice of rural medicine.

The journey of delivering quality healthcare to our communities is combined with a scholarly curiosity. We believe this results in up to date community-based research performed with an interest in and respect for our patients. Meno Ya Win hopes to continue to evolve as both a healthcare facility and a research centre in ways which best serve our patients. All enclosed articles have been published in peer reviewed journals or government submissions and are reproduced with permission of authors and journal editors.

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Prejudice in medicine

Our role in creating health care disparities

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How welcome is the patient in our office and waiting room who is different from ourselves? Does the patient who is less educated, poor, or from a different culture feel comfortable? How do these differences affect their care, if in fact they do?

Current emphasis on evidence-based medicine and its application in the arenas of clinical treatment and health policy development have been noteworthy. Its antithesis, prejudice-based medicine, is not as well-studied and is not considered as carefully in current medical practice. Prejudice—making assumptions and decisions based on inaccurate or faulty information and assumptions—is the stuff of history. At various times we have shown ourselves capable, through a variety of psychological maneuvers, of parlaying spurious data about the objects of prejudice into discriminatory practices. This discrimination has run the gamut, from denial of various rights and services to genocide. No one is immune from prejudice; thus, it is hardly surprising that it has an effect on how we practise medicine.

Recent work, particularly by the Institute of Medicine—an American nonprofit organization that provides evidence-based information and advice on matters of medicine and health—has suggested that prejudice and discrimination directly affect the receipt of much needed health care services in certain groups. Commissioned by the US Congress to study racial and ethnic disparities in health care, they found that health care providers' behaviour, assumptions, and attitudes can have a detrimental influence on the health of those who seek care.¹

What is prejudice?

Prejudice is both an attitude and a cognitive process, the identifiable and measurable outcome of which is the practice of discrimination. A standardized definition of discrimination does not exist. Even within the framework of the law definitions vary: some jurisdictions focus on intent and others on effect.¹ For the purposes of health care, the Institute of Medicine defines it as “differences in the quality of healthcare that are not due to access-related factors or clinical needs, preferences, and appropriateness of intervention.” It identified

discriminatory health care practices on 2 levels: the health care structure (systemic discrimination) and discrimination that results from “biases, prejudices, stereotyping, and uncertainty in clinical communication.”¹

Many American studies have demonstrated that minorities in the United States receive lower quality health services and are less likely to receive medical procedures than white Americans are.²⁻⁵ Disparities in access and quality of care exist even when income and sociodemographic factors are controlled.² African Americans, for example, are less likely than whites to receive surgery for early stage lung, colon, or breast cancer.³ A study by Laditka et al of delivery outcomes in South Carolina (N=26866) revealed substantially higher rates of “potentially avoidable delivery complications” in African Americans and Hispanic Americans compared with whites, even when health care insurance was controlled.⁴ Similarly, a study by Chung et al of deliveries in Long Beach, Fla, (N=37688) found that blacks and Hispanics were 75% and 22% more likely to undergo cesarean deliveries, respectively.⁵

Blatant acts of prejudice or racism are only a small part of the problem

In Canada

Despite Canada's universal health care system, health disparities on the basis of race and immigrant status persist. A handful of Canadian studies have found that aboriginal and foreign-born Canadians face barriers to access. There is ample discussion around these barriers, as well as the importance of effective communication strategies, but there are few studies that examine the measurable differences in health care delivery based on race or ethnicity.

In a 2004 study, Tonelli et al (N=4333) discovered that aboriginal renal dialysis patients were significantly less likely to receive renal transplantations than nonaboriginal patients, even after adjusting for potential confounders (hazard ratio 0.43, 95% confidence interval 0.35 to 0.53).⁶ A later study by Tonelli and colleagues (N=835) found that aboriginal patients were half as likely to be activated on the transplant waiting list, owing to difficulties in the process of completing the workup rather than because they were medically unsuitable ($P<.01$).⁷

Heaman and colleagues' 2005 study⁸ compared survey responses about prenatal care received by aboriginal and

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nonaboriginal women in Manitoba (N=652). Aboriginal women were 4 times more likely to receive inadequate prenatal care than nonaboriginal women were (15.7% vs 3.6%). After controlling for relevant confounders a difference still persisted. When socioeconomic status was factored into the analysis, the authors discovered that the most important predictor of inadequate care was poverty.⁸ In 2007, a province-wide study of prenatal care in Manitoba (N=149291) examined disparities among geographic districts: the highest rates of inadequate prenatal care were in the lowest income neighbourhoods.⁹ These areas also had the highest proportion of recent immigrants and aboriginal populations.¹⁰

On the other hand, some Canadian studies found no differences in care based on race or ethnicity. Reime et al, for example, found no significant association between ethnicity and treatment of patients (N=20488) in neonatal intensive care units.¹⁰ Wenman and colleagues' comparison of aboriginal women and nonaboriginal women (N=2047) revealed that aboriginal women were more likely to have low-birth-weight infants; however, after controlling for socioeconomic status, smoking, and poor nutrition, the differences were not statistically significant.^{9,11}

Poverty, culture, and access to care

These studies highlight the interconnectedness of ethnic or racial disparities and socioeconomic status as they relate to quality of health care and health care outcomes. Confounders aside, these disadvantaged groups face barriers to health care. New federal initiatives are beginning to address access-related barriers for aboriginal people in Canada. For example, the federal government is responding to First Nations and Inuit access barriers in remote and isolated areas by establishing patient wait times guarantees.¹² In 2006, the diabetes care pilot project was announced, followed by the prenatal care pilot project to increase early interventions.¹²

Janet Smylie, past chair of the Society of Obstetricians and Gynaecologist of Canada's Aboriginal Health Issues Committee, underscores the importance of examining the surrounding sociopolitical factors that affect health, rather than simply attributing explanations to the "aboriginal" variable.^{13,14} Similar barriers to access were identified for foreign-born Canadians who face language and cultural barriers to accessing care.^{11,15} One study examined the sociodemographic factors associated with low rates of cervical cancer screening (N=24584). The lowest rates of screening were seen in areas with the highest immigrant population.¹⁶ The length of time living in Canada was also an important contributing variable: Papanicolaou smear rates for recent immigrants were 36.9% compared with 60.9% for other immigrants.^{16,17}

The disparities in the health of minorities in Canada—particularly with regard to aboriginal health—are well documented.^{17,18} In 2000, the life expectancy of First

Nations men was recorded as 7 years shorter than the overall national life expectancy for men, and in 1997, the prevalence of diabetes among First Nations women 65 years of age and older was documented as being more than 3 times the national figure.¹⁹ In fact, the rate of chronic illness overall among aboriginal people is 3 times higher than the national average.²⁰

The complexity of these reduced health outcomes requires the implications of sociopolitical and historical factors be considered. Analysis of the marginalization that emerges from inequities in health care systems examines the interconnectedness of these factors.

Caregiver attitudes

Canadian studies of caregiver attitudes and measurable differences in care based on ethnicity are rare. No Canadian studies were found when using the search term *prejudice* on major research databases. Some scholars argue that by focusing on attitudinal and behavioural levels of discrimination for explanations, we are overlooking the contribution of systemic discrimination in creating persistent inequities.¹³ Nevertheless, inquiries isolating the role of prejudice on the part of the caregiver might provide us with valuable insight into ourselves and our institutions.

Scott Plous, author of *Understanding Prejudice and Discrimination*, suggests that prejudice is amenable to intervention strategies.²¹ These include education and other efforts to expose those who practise prejudice to information and role play that allow exploration of issues and the development of attitudes to prevent discrimination.²¹ The developing concept of *cultural safety* has emerged in continuing health education and institutional practices. The concept, which developed out of the nursing education context in New Zealand, is predicated on the understanding that a caregiver's own culture, and the assumptions that follow, affect how a clinical encounter plays out, subsequently affecting the patient's care. This approach acknowledges that all attitudes and behaviour—extending beyond blatant displays of prejudice and measurable discriminatory practices—can have serious implications for minority care and health.

Naming and blaming strategies toward caregivers are not constructive; rather, the development of a climate where prejudice is recognized as possible is a priority so that efforts directed toward understanding and empathy can be emphasized and reinforced. Concomitant measures within health care systems to remove barriers that can create discrimination would also be helpful.

Defining and measuring attitudes and behaviour is difficult. Understanding the complex determinants of minority health is perhaps even more challenging; blatant acts of prejudice or racism are only a small part of the problem. Studies that isolate these aspects of care (such as those seen in the American body of literature)

provide measurable outcomes, which serve as valuable reference points in the Canadian context. When confounders such as socioeconomic status and education levels are controlled, we might be left with a stark mirror image of caregiver attitudes. The determination of relevant indicators of discrimination, the measurements of those indicators, and regular reporting of progress will assist efforts to reverse the deleterious effects of discrimination. ❁

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Competing interests

None declared

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Research paper

Achieving cultural safety in Aboriginal health services: implementation of a cross-cultural safety model in a hospital setting

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What is known on this subject

- Cultural barriers to care can be the result of migration or colonialisation.
- Cultural literacy levels affect care.
- The First Nations traditional philosophy of health/healing encompasses the view of the human being as an organism with self-healing and strong recuperative powers.

What this paper adds

- Cultural safety encompasses a broader set of constructs than conventional contemporary patient safety theory and practice.
- Cross-cultural competency may be defined by a service provider, but cultural safety is defined by the recipient.
- Cultural safety requires that the perspectives and worldviews of the people represented must be integrated into all facets of service provision, from programme development to service delivery.

ABSTRACT

Genuine cross-cultural competency in health requires the effective integration of traditional and contemporary knowledge and practices. This paper presents an analytical framework that aims to enhance the ability of patients/clients, providers, administrators and policy makers to make appropriate choices, and to find pathways to true healing while ensuring that the required care is competently, safely and successfully provided.

The examples presented are primarily based on the experience of the Sioux Lookout Meno Ya Win Health Centre (SLMHC), which serves a diverse, primarily Anishnabe population living in 32 northern Ontario communities spread over an area of 385 000 km² of Canada. The SLMHC has a specific

mandate, among Ontario hospitals, to provide a broad set of services that address the health and cultural needs of a largely First Nations population.

We describe our journey to date to implement our comprehensive *minoyawin* model of care, including an evaluation of the initial outcomes. *Minoyawin* is an Anishnabe term that denotes health, wellness or well-being – a state of wholeness in the spiritual, mental, emotional and physical make-up of the person. The model focuses on cross-cultural integration in five key aspects of all of our services:

- *Odabidamageg* (governance and leadership)
- *Wiichi'iwewin* (patient and client supports)

- *Andaw'iwewin* (traditional healing practices)
- *Mashkiki* (traditional medicines)
- *Miichim* (traditional foods).

The paper outlines a continuum of programme development and implementation that has allowed core elements of our programming to be effectively

integrated into the fabric of all that we do. Outcomes to date and practices that are potentially transferable are identified.

Keywords: Aboriginal, cultural safety, health services, hospital, cross-cultural care

Introduction

Genuine cross-cultural competency in healthcare seeks to provide patients with a safe and empowering environment in which to heal. In this context, cross-cultural constructs form part of the concept of patient safety. Cross-cultural patient safety in healthcare requires organisational values that are responsive to the values of the patients and communities who are receiving care. The perspectives and worldviews of the people represented must be integrated into all facets of service provision, from programme development to service delivery. Canada's founding Aboriginal peoples comprise three distinct groups – Inuit, Metis and First Nations, previously referred to as North American Indians. The Sioux Lookout Meno Ya Win Health Centre (SLMHC) is travelling a path towards cultural safety by integrating First Nations' values, knowledge and practices into the ethos of the organisation.

The hospital is located in Northern Ontario, Canada. It serves a local population of 7000 and a predominantly First Nations population of 18 000 in distant communities accessible only by fixed-wing aircraft. The SLMHC is Ontario's designated centre of excellence for First Nations health. It is developing a comprehensive, integrated set of patient/client supports that can be adapted to other multicultural settings.

Sioux Lookout Meno Ya Win Health Centre

The SLMHC provides services to a largely First Nations service population. Around 85% of our patients are predominantly First Nations, many of whom primarily speak one of the three Anishiniimowin languages – Ojibway, Oji-Cree or Swampy-Cree. There are 19 dialects within these languages. The majority of the 28 northern First Nations communities are remote and accessed by air transportation only. Patients who travel to Sioux Lookout for services are often far from family and community supports. They face navigation of an unfamiliar healthcare system in the midst of an environment and culture that are foreign to them. The SLMHC has developed a model of care that provides optimal patient supports to navigate the healthcare system and its environment, and which ensures that

care is competently, safely and successfully provided. This article describes the SLMHC *menoyawin* model of care, its conceptual foundations, and its implementation through its Traditional Healing, Medicines, Foods and Supports Programme. This model may enhance the ability of patients/clients, providers, administrators and policy makers to find local pathways to true healing, while ensuring that the required care is competently, safely and successfully provided.

Culturally appropriate programming enables care

The international literature highlights the importance of traditional healing (O'Neil *et al*, 2005; Waldram *et al*, 2006). The National Aboriginal Health Organization (NAHO) describes the correlation between healthcare systems and the cultural esteem of Aboriginal peoples (National Aboriginal Health Organization, 2001). Integrating traditional and allopathic healing provides the client with choices that enable them to define their care (Waldram *et al*, 2006). Acknowledging and preserving culture fosters relationships of trust and support, self-efficacy and identity (National Aboriginal Health Organization, 2001).

An assessment of South and Central American best practices with regard to intercultural health found that trusting relationships and the opportunity for two-way exchange of knowledge resulted in apparent increases in cultural pride, ownership and control (O'Neil *et al*, 2005). The most demonstrable effect of these initiatives was increased access to both traditional and Western medicine, directly influencing people's health (O'Neil *et al*, 2005). The Aboriginal Nurses Association of Canada notes that patients respond better to care and have better health outcomes when their care is culturally appropriate (Aboriginal Nurses Association of Canada, 2005).

Cultural safety

There is a growing body of evidence that patients who are culturally or ethnically different from the mainstream are at higher risk of experiencing adverse health events that might have been prevented if it

had not been for the language or cultural difference (Johnstone and Kanitsaki, 2006). This view is supported by the Joint Commission on the Accreditation of Hospitals (Schyve, 1998). The concept of cultural safety first developed in nurse education in New Zealand as a means of addressing the inequalities in healthcare experienced by minority groups, particularly in relation to their interactions with professionals who, by virtue of the positions that they hold, are the representatives of corporate culture (Ramsden, 1989, 2001; Nursing Council of New Zealand, 2005; National Aboriginal Health Organization, 2006). It was based on the argument that nurses were educated into the dominant white European-based culture, and that consequently, by the time they qualified, they were ill equipped to care for Maori people. Even those who were Maori felt unprepared to care for members of their own people (Ramsden and Spoonley, 1993; Ramsden, 1995). Thus, in the context of Maori healthcare, nurses were not able to practise safely.

Unlike other cultural skills curricula, which are developed by the dominant culture, the development of cultural safety was led by members of a minority culture, in this case a Maori nurse and other Maori people (National Aboriginal Health Organization, 2006). The theoretical framework that ensued is most relevant in a bicultural environment, since the incorporation of cultural constructs into programme development is possible when two cultures are involved. It emerged alongside the developing political ideas of self-determination and de-colonisation (Crampton *et al*, 2003; National Aboriginal Health Organization, 2006). The product is an approach that extends beyond cultural competence, examining power imbalances, marginalisation and the relationships between colonisers and the colonised. Congruent with post-colonial theory, which examines cultural identity and relationships within colonised societies, the cultural safety framework uses a socio-historic lens to understand everyday interactions in healthcare settings.

Cultural safety educators teach about the connection between socio-political processes and contemporary health and social issues (Browne and Smye, 2002). Rather than focusing exclusively on increasing learners' knowledge of practices and traditions, educators raise awareness of colonial history and the continued injustices experienced by indigenous peoples (National Aboriginal Health Organization, 2006). Understanding that power imbalances continue to exist, and that they are rooted in colonial processes, helps learners to examine their own attitudes and how they may impact on the people for whom they provide care. The SLMHC approach is broadly based on both of these elements, namely expanding understanding of the colonisation processes and their impact, and expanding knowledge and awareness of culture, practices and traditions. This is the approach taken

in *Bimaa dizi win*, our two-day cultural orientation which is given to all hospital staff.

First Nations approach to health

The First Nations traditional philosophy of health/healing is to use nature, natural products and natural life processes, including culture, in a broad sense, as a primary healing approach. This encompasses the view of the human being as an organism with self-healing and strong recuperative powers. When these powers are maintained properly, a person is capable of ongoing health and longevity.

Where disease does exist, a traditional healer seeks to correct internal and external imbalances between the three aspects of personal wholeness – spirit, body, and mind – at both an emotional and mental health level. Bringing body, mind and spirit to a deeper inner level of knowing leads one towards integration and balance. The Sioux Lookout model of care is built on these and related underlying traditional First Nations' philosophies that are materially different from Euro-Canadian understanding. It is highly probable that this tradition will ultimately prove more successful in addressing some of the root causes of the profound health inequalities that face First Nations (adapted from Cultural Programme Overview, All Nations' Healing Hospital, 2005).

Beyond traditional risk factors

The SLMHC defines cross-cultural patient safety as the safe and successful delivery of healthcare services across cultural, linguistic and related barriers to the understanding and identification of patient/client needs. It includes overcoming the obstacles to implementing prescribed remedial or supportive actions. Cultural safety encompasses a broader set of constructs than conventional notions of patient safety, such as infection control, medication errors, adverse events, and other typical health service safety issues (see Box 1).

Developing a zone of cultural safety

The SLMHC has developed a conceptual model to guide us in transitioning both the organisation and individuals to a zone of cultural safety (see Figure 1). It charts the path towards cultural integration at the organisational level, and towards cultural congruence for the individual. It is primarily based on Guidelines for Cultural Safety, the Treaty of Waitangi and Maori Health (Nursing Council of New Zealand, 2005). It also draws upon the continuum of cultural competency for mental healthcare services developed by Cross *et al* (1989). This continuum sets out six stages, ranging from cultural destructiveness to cultural

Box 1 Cross-cultural patient safety risk factors

1. **Linguistic issues:** the potential for miscommunication, misunderstanding of descriptions of symptoms and therapeutic intervention; limitations in language, idiom, vernacular and non-verbal communication
2. **Cultural issues:** the potential for misunderstanding the cultural context of the presenting pathology; the challenge of implementing a prescribed course of action in the face of contradictory worldviews, values sets, norms and mores
3. **Medical literacy:** varies among different populations, particularly where:
 - native languages do not include medical or related terminology
 - cultural or ethnic variations in access to and use of medical services impact on the effectiveness and outcomes of those services in reaching diverse populations
 - patients are unable to navigate the system due to lack of familiarity
4. **Programme or practice issues:** where conventional services and practices contrast with traditional practices
5. **Contextual or structural issues:** the potential for misunderstanding or mishap due to cultural habits and associated knowledge
6. **Systemic issues:** disconnectedness between mainstream systems and specific population providers, including territoriality, overlaps, gaps due to differing approaches and jurisdictional differences, often involving access and availability issues
7. **Genetics:** the failure to take into account inherent issues in a population
8. **Racism/discrimination:** the manifestations of bigotry, prejudice or intolerance that result in the differential provision of services as a result of ethnic or racial factors

proficiency (Cross *et al*, 1989). Our developmental path identifies an institutional process of change from 'them' to 'us', in which the cultural safety zone begins with cultural awareness and ends with cultural integration at an institutional level.

In this model, marginalisation or power imbalance positions are reduced or eliminated by moving the organisation and participants to progressively higher levels of equity in health service access, service and quality. The development and deployment of sensitive remedial action and behaviour require an *awareness of cultural diversity*, inequity in service and treatment, and their underlying causes and relationships. In turn, *culturally attuned responsiveness* builds on a foundation of cultural sensitisation and sensitivity. *Cultural appropriateness* depends on the ability and willingness of

providers to respond with sensitivity, understanding and awareness. *Cultural competence* – that is, the ability to provide services in a manner that succeeds in large measure because of the acceptability to the client of the type of service and the manner in which it is provided – likewise builds on these foundations. *Cultural congruence* – that is, the individual internalisation of diversity-based values and understanding, and the consistent externalisation of equitable, value-based behaviours – is at the endpoint of the continuum with fully integrated practices and services at organisational level.

Movement beyond marginalising behaviours allows the organisation and individuals to engage in safer practice, and ultimately reduces the margin for error as progressively higher levels on the continuum are reached. Organisational structures, programmes,

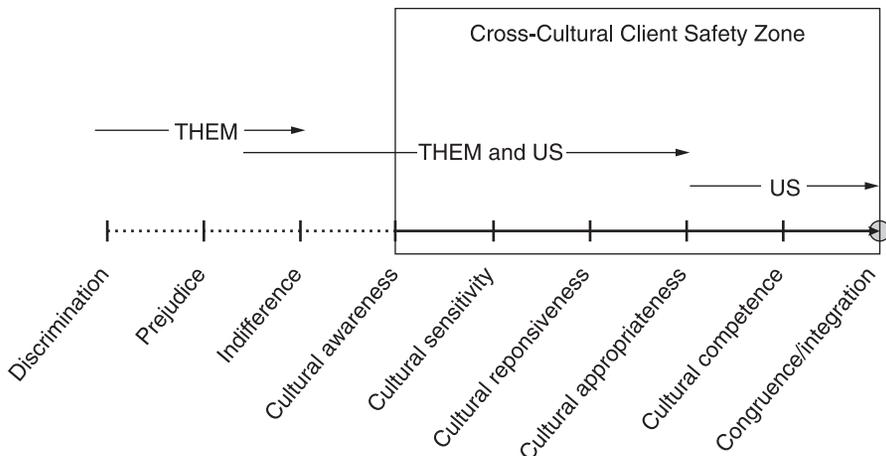


Figure 1 The continuum of cross-cultural client safety (Walker and Cromarty, 2006).

services and processes can be built and resource allocation decisions made to advance the organisation along this continuum. Staff orientation, training, development and support can be established to facilitate behaviour changes, and to enhance knowledge, skills and understanding. With the understanding that discrimination occurs at many different levels, caregivers can engage in a process of critical reflection to examine how their own behaviours may consciously or unconsciously contribute to power imbalances and failure to overcome barriers to safe, quality care for their patients/clients. For genuine culturally safe care to be provided, the minority group must not only receive care that is culturally competent, but also define it within a model of care that enriches and empowers their culture. Ultimately, the core foundation for cultural safety is rooted in patient-centred practice.

In 2003, the SLMHC proceeded to build its organisation based on these underlying values and concepts. It was recognised that a major redesign of values, structures and approaches was needed to move the SLMHC beyond the modest approaches of its predecessor organisations to address the cross-cultural needs of the service population and to establish a firm, secure position for the new organisation on the cultural safety continuum. The work began with the initiation of a planned organisational transition process.

The process of institutional change

Background and needs assessment

The SLMHC was founded in 2002 as a result of the 1997 Sioux Lookout Four Party Hospital Services Agreement between Canada, the province of Ontario, Nishnawbe Aski Nation and the Town of Sioux Lookout. The agreement is predicated on the need for culturally responsive health services programming at all levels, from foundational philosophies to definitions of service delivery (see Box 2). The *Bimaa dizi win and Meno Ya Win* study included several research methodologies that included extensive document review, review of health status and services data, development of a patient profile, an inventory of existing services and various outreach initiatives to stakeholders (focus groups with elders, community leaders and members, medical and hospital staff, patients' clergy and healers and northern community consultations). Health centre staff also visited 16 culturally defined, Aboriginal-serving programmes in other jurisdictions, and conducted an Ontario-wide hospital survey on Aboriginal services. The *Bimaa dizi win and Meno Ya Win* study was subsequently assessed by a First Nations-based programme

development team. The results were vetted through further elders' consultations prior to recommendations and programme proposals going to Board and government levels for review and approval.

Box 2 Comprehensive needs assessment for culturally responsive care at the SLMHC

This was informed by:

- *Bimaa dizi win and Meno Ya Win*. A Study of the Development of Traditional Approaches to Health Care at Sioux Lookout Meno Ya Win Health Centre (April 2005)
- SLMHC Population and Demographics Study (March 2005)
- Draft Traditional Medicine Programme Proposal (October 2004)
- A Sioux Lookout Meno Ya Win Health Centre Backgrounder: First Nations Services (July 2004)
- Cultural Requirements Report (July 2004)
- A Personal Journey to Health Care: Whitefish Bay to Sioux Lookout (Autumn 2003)
- SLMHC Functional Programme, and other working documents

A stepwise rollout of a plan based on the data from this work was outlined in a proposed Traditional Healing, Medicines, Foods and Supports Programme. In reality, the programme was intended to overlay everything else that was being done to advance the SLMHC as a new organisation, and specifically to establish the SLMHC as a benchmark healthcare organisation in the area of diversity programming.

Programme description

The Traditional Healing, Medicines, Foods and Supports Programme was designed as a model for integrated First Nations hospital-based services (see Figure 2). The programme was developed to create an environment which fosters culturally safe practices that are defined as such by the people who receive them. The programme conforms to the principles of *integrative medicine*, and is based on teachings and practices that are unique to the Anishnabe people of our area. The five components of the Traditional Healing, Medicines, Foods and Supports Programme are fully integrated into virtually all clinical pathways. The objectives for this programme are as follows:

- to provide a welcoming, supportive, familiar environment for patients, residents and clients
- to embed a culturally appropriate set of services and supports

- to reduce patient, resident and client difficulties in accessing and using SLMHC services to best advantage
- to provide healing practices, including ceremonies, that are specific to the Anishnabe context
- to promote healing and healthy practices
- to reduce required lengths and frequency of hospitalisation and ‘expatriate’ service requirements
- to provide appropriate choices with regard to healing approach, medications and foods
- to build a solid foundation for benchmark performance.

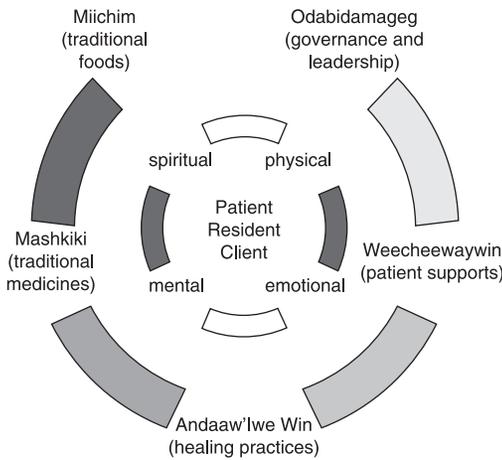


Figure 2 Sioux Lookout Meno Ya Win Health Center model of care.

Our very name reflects a holistic approach to care. *Menowayin* is an Anishnabe term that denotes health, wellness or well-being – a state of wholeness in the spiritual, mental, emotional and physical make-up of the person. The *medicine wheel* is based in part on incorporating these aspects of our being into all healing processes, and so our *menoyawin* model of care was developed to be a core aspect of all SLMHC clinical and support services. The model is put into practice through the Traditional Healing, Medicines, Foods and Supports Programme, which provides clients with an important range of *personal options* and the ability to *define* the care that they receive. The programme elements that are essential for implementing this organisation-wide change are described in Box 3.

Programme implementation

Some aspects of the Traditional Healing, Medicines, Foods and Supports Programme existed in a rudimentary form before the introduction of that programme. The former federally funded Sioux Lookout Zone Hospital laid the foundation, with basic interpreter and other limited services, such as some traditional birth and care of the dying practices, and very limited use of traditional foods. These limited services

were directed at its service population, which almost exclusively comprised First Nations people. Our programme development and implementation model is an incremental, five-step approach (see Figure 3).

The pace at which progress is being made varies from one component to the next. In general, our target is to be at or close to benchmark levels of performance within approximately 5 years. Some elements of the programme have already generated promising practices of interest to others. A prime example is the development of our interpreter programme into a Weecheewaywin worker programme. At the SLMHC this programme is currently at Stage 4, where interpreters are integrated throughout the institution.

Partnerships

The extent to which partnership relationships are required to deliver health services in the SLMHC catchment area is noteworthy. The SLMHC is at the nexus of services provided for the northern and southern communities, usually by different agencies. Southern communities are largely serviced by provincially funded Transfer Payment Organizations, whereas northern communities are primarily serviced by federal agencies or First Nations organisations operating under health transfer arrangements.

Relationships will be broadly established and serviced at the *Odabidamageg* level. High-level service planning, integration and articulation initiatives, funding, accountability, issues management, representation and advocacy, and other strategic interests of the SLMHC and the Traditional Healing, Medicines, Foods and Supports Programme require extensive interfaces (see Figure 4). A strong network of contacts, relationships and support within this environment will need to be established for this programme to be effective.

Expected outcomes

As the objectives are realised, beneficial outcomes are expected in relation to four target areas, namely patient access, organisational effectiveness and health, system integration and change, and finance (see Box 3). The extent to which the Traditional Healing, Medicines, Foods and Supports Programme succeeds in achieving the defined objectives and producing the desired outcomes will be measured in significant part by using specific indicators (see Box 4). These indicators are reported as an initial attempt to define relevant, reasonable measures to implement, but may evolve in response to feasibility issues, or to meet the changing needs of the SLMHC and/or external reporting requirements. Specific targets have not yet been determined in most

Box 3 Elements of the Traditional Healing, Medicines, Foods and Supports Programme

Odabiidamageg (governance and leadership)

Board of Directors: 15 directors appointed on a 'proportional representation' basis: two-thirds Anishnabe, one-third non-native

Elders Council: an 8-person Elders Council advises on programme development and management, strategic planning, board processes and other relevant issues

Management and leadership: the Senior Management Team includes a Special Advisor for First Nations Health, and an Advisor to the Board and Chief Executive Officer

Wiichi'iwewin (patient, resident and client supports)

Wiichi'iwewin workers are available 24 hours a day, 7 days a week to ensure complete bidirectional cultural and linguistic interpretation to optimise care planning and delivery. They provide the comfort, support, community interfaces, navigation and non-clinical assistance necessary to minimise cross-cultural, institutional and health system barriers. *Wiichi'iwewin* workers are supported by two Elders in Residence, a lexicon (under development), translated materials, *Bimaa dizi win* (cultural awareness training) and culturally focused employment balance programmes

Andaw'iwewin (traditional healing practices)

Andaw'iwewin practices will be made available over time by adapting traditional healing programmes available from community-based platforms (e.g. Sioux Lookout First Nations Health Authority) to meet hospital and long-term care-based needs. Traditional birth practices, smudging, healing circles, sweat lodge and other ceremonies, use of eagle feather, caring for medicine bundles, etc., are being introduced on site

Mashkiki (traditional medicines)

The use of traditional medicines will be introduced in conjunction with the development of appropriate mechanisms to prevent adverse reactions with other courses of treatment. A new facility now under construction, and to be completed in 2010, will house both preparation and storage areas for a wide variety of traditional medicines in addition to the regular hospital formulary

Miichim (traditional foods)

Many of our clients are disadvantaged by the need to make a wholesale change in their eating practices and dietary content while they are hospitalised. A broad range of traditional foods is being added to the menu selections that are regularly available to patients and long-term care residents. Regional variations and preferences with regard to food items, menu selection and cooking style are being accommodated wherever possible

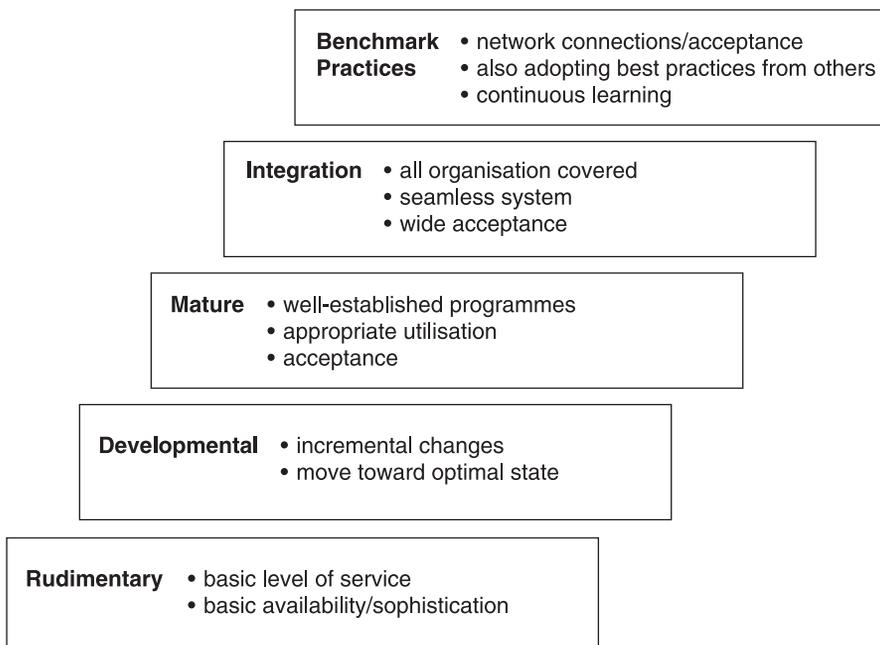


Figure 3 Implementation model for the Traditional Healing, Medicines, Foods and Supports Programme.

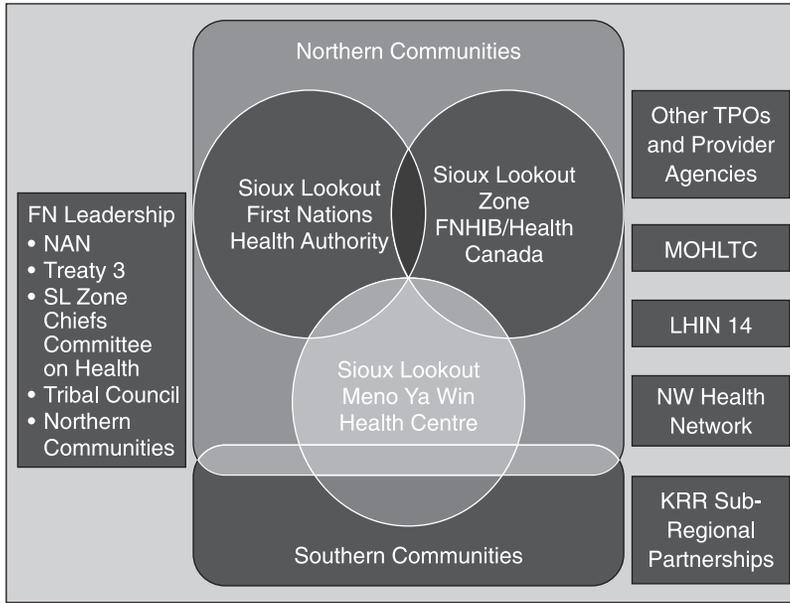


Figure 4 Network of contacts, relationships and supports for the Traditional Healing, Medicines, Foods and Supports Programme.

Box 4 Expected outcomes

Domain: Patient access and outcomes

- The patient/client experience will be characterised by the ease of knowledgeable navigation and smooth, seamless, coordinated transition through the health system to arrive at the timely provision of the right service in the right place, the first time and every time – the emergence of a *functional, integrated system*
- Elimination of health services being experienced as a ‘foreign’ experience
- Patients/clients will be provided with opportunities to make informed, supported choices about appropriate care and support options
- Elimination of adverse events/incidents/complaints due to lack of comprehension or compliance caused by cultural or linguistic misunderstanding
- Higher levels of patient/client satisfaction
- Reduced lengths of stay in hospital, and an expedited return of patients to the community setting
- Reduced frequency of admission and risk of readmission
- Increased appropriateness of the use of all programmes and services (e.g. fewer ‘social’ admissions)
- Expedited access to efficacious services that are closer to home
- Repatriation of patients from less appropriate settings, including Thunder Bay and Winnipeg

Domain: Organisational effectiveness and health

- Able to focus SLMHC activity on a specialised set of core activities
- Balanced employment opportunities regardless of cultural, ethnic or racial background

Domain: System integration and change

- Improved inter-agency coordination
- Individual and collective responses to reduce the illness burden and improve the health status of the catchment area population
- Promulgation of information, policies, practices, processes, standards and guidelines of benefit to other providers in the provision of culturally sensitive, culturally appropriate and culturally responsive care
- Able to facilitate policy making, service planning and integration activities of Ministry of Health and Long Term Care (MOHLTC), Local Health Integration Network (LHIN), Transfer Payment Organizations (TPOs) and other stakeholders

Domain: Financial health

- Efficiency/effectiveness generates ability to invest, reassign or reallocate resources to meet pressing needs

cases. However, these indicators are intended to align with current national hospital accreditation (Accreditation Canada) requirements, defined Ontario Hospital Report standards, and the balanced scorecard evaluation domains of the Ministry of Health and Long-Term Care Hospital Annual Planning Submission/Hospital Accountability Agreement Framework, introduced in 2005.

Risk management

The SLMHC risk management programme will ensure that the Traditional Healing, Medicines, Foods and Supports Programme leadership develops the systems, skills and other resources necessary to successfully respond to areas of risk. Mitigation strategies have been and continue to be developed to respond to potential areas of risk.

The identified areas of risk with regard to programme development and implementation include conflict between traditional and mainstream approaches, failure to engage partners, heightened expectations that may lead to loss of confidence in and support for the SLMHC, limited use of the Traditional Healing, Medicines, Foods and Supports Programme by First Nations clients, high rates of utilisation of the SLMHC by First Nations non-residents of the catchment area, inability to meet specialised staffing requirements, and a perceived emphasis on meeting the needs of First Nations patients/clients/staff/prospective employees that may lead to a sense of reverse discrimination. Mitigating strategies to respond to these areas of risk include the development of effective communication, consultation during programme development and implementation, and planned, collaborative, incremental implementation.

Strategies to ensure the availability and use of interpreters that respond to all area languages/dialects are in place to reduce the risk with regard to communication and linguistic misinterpretation. Other risk management strategies have been developed to respond to areas of risk with regard to food, medicine and traditional practices (food contamination, adverse reactions to drugs and/or medicines, the nutritional value of traditional foods, the health impact of mainstream foods, infection/contamination issues as a result of non-sterile materials brought to support the Traditional Healing, Medicines, Foods and Supports Programme, and interference due to congestion, noise, smoke and fire that may occur with ceremonial practices. In addition to monitoring these and other risk factors that may be identified in the future, it will also be necessary to review liability issues with the Healthcare Insurance Reciprocal of Canada to ensure that appropriate levels of financial protection are in place.

Obstacles to implementation

Barriers to implementation fall into five broad categories, namely political (at the national or international level), healthcare system, cultural, organisational and individual barriers. The deteriorating economics of care and society mean that the financial imperative often overrides the social good. In this context, health services are commonly seen as a social utility that is weighed against all other social goods and services, rather than a basic human right, particularly when a minority is involved. There is also the possibility that affirmative action fatigue may prevail.

Politically, cultural issues are seen to be in the interest of a minority, whereas political and economic power is allocated to the majority. Health services in Ontario and other Canadian provinces are increasingly focused on accountability. There is growing pressure to demonstrate the direct benefits that arise from investment decisions. In addition, there is a major focus on infection control and targeted services such as cardiac/stroke and chronic disease management. Consequently, little interest develops in inequalities due to diversity.

Cultural barriers include linguistics, low levels of patient medical literacy, power, history, the politicisation of health and racial discrimination. Organisations first need to understand the nature of the issues and potential responses, and then try to act with appropriate resourcing within a context of competing demands. Individuals may not be prepared or willing to invest the necessary effort to move forward to effect requisite changes in personal values, mindset or behaviour. Moving beyond cultural competency to cross-cultural integration at the individual, organisational or systematic level requires understanding and specific strategies to address and overcome these barriers.

Results to date

Incremental implementation of the Traditional Healing, Medicines, Foods and Supports Programme began in 2004–2005. It will require time for full evaluation based on empirical evidence, but early results show considerable change (see Table 1). In addition, the SLMHC has developed the following best practices:

- an integrated governance model
- *Wecheewaywin* workers (versus interpreters)
- community engagement and communication processes
- culturally appropriate care and handling of fetal remains

- the definition of eight highly effective policy and procedure design and implementation focuses in a cross-cultural setting (see Box 1)
- cross-cultural patient safety paradigms
- immediate identification of process breakdown and development of protocol with regard to care and handling of fetal remains after miscarriage or stillbirth (370 live births and multiple miscarriages annually)
- video-visitation programming to support long-term care for residents at a distance from home communities.

In 2007, Accreditation Canada cited the SLMHC for nationwide leading practices related to the governance

model, communication and community engagement, and the *Weecheewaywin* programme.

The SLMHC has developed the following cultural safety frameworks and models:

- cross-cultural patient/client safety analysis
- cultural awareness training
- interpreter competencies and certification
- the initial stages of development of a comprehensive medical lexicon
- the initial stages of development of a regional interpreter service to support all area health services.

Table 1a Traditional Healing, Medicines, Foods and Supports (THMFS) Programme: evaluation measures/indicators

Domain	Suggested indicator	Target
Governance/leadership	Relative performance on Canadian Institute for Health Information (CIHI)-Hospital Report Board Governance Survey	85th percentile
Patient access and outcomes	Patient satisfaction	TBD
	Average length of stay	TBD (may need to vary from Hospital Annual Planning Submission/Hospital Accountability Agreement (HAPS/HAA) standards)
	Relative risk of readmission	TBD (may need to vary from HAPS/HAA standards)
	Targeted use of selected programme components	TBD (e.g. 90% or more of First Nations clients do access at least one component/element of the THMFS Programme per admission/contact)
Organisational health	Selected volume/activity measures	TBD
	Balanced employment Staff satisfaction	Percentage of First Nations staff Percentage experiencing discrimination
	Performance as a Centre of Excellence	Extent of external adoption of published SLMHC programmes, policies, procedures, practices, standards or guidelines
System integration	Relative performance on CIHI-Hospital Report System Integration and Change Survey	85th percentile
Financial health	Percentage of budget allocated to cross-cultural supports	> 5%

Table 1b Early results

- A decrease in patient complaints of at least 50%.
- Interpreter availability increased from 50 hours per month to \geq 250 hours per month.
- Our 2007 Patient Satisfaction Survey showed that only 3% of our patients were dissatisfied with the services that they received from interpreters. We have no benchmark with which to compare this at this time.
- Average use of interpreters has increased by 235% since the introduction of dedicated function interpreters.
- 100% of the user department staff who were surveyed indicated that interpreter services had improved since the introduction of dedicated function interpreters.
- Approximately 95% of our First Nations clients access some elements of the Traditional Healing, Medicines, Foods and Supports Programme. The original target was 90%.
- The availability of ceremonial practices has increased from virtually none to several opportunities per month (sweats, smudging, healing circles, women's moon-time ceremonies, water ceremonies, etc.).
- The availability of traditional foods has increased from the use of tea and bannock (a type of bread) three to four times per year at celebrations, to monthly feasts with a wide range of traditional foods, and regular traditional food choices three times per week on all menus.
- Elders in Residence visit almost every patient to determine whether there is a need for support of any kind from the Traditional Healing, Medicines, Foods and Supports Programme.
- Programme leaders also visit almost every patient to determine whether there is a need for support of any kind from the Traditional Healing, Medicines, Foods and Supports Programme.
- Our 2007 Employee Satisfaction Survey (conducted a few months after more than 70% of our staff had participated in cultural awareness training) showed that perceptions of discrimination had increased from 51% in the 2005 survey, to 56% of our staff in 2007. This result was the opposite of the anticipated outcome. A thorough third-party review and analysis of the underlying reasons for this change in perception is under way. The initial results suggest that sampling errors and heightened awareness of diversity may have been responsible for the results.
- Just over 5% of the annual operating budget is devoted to cross-cultural programming.

Discussion

The SLMHC model of care may enhance the ability of patients/clients, providers, administrators and policy makers to make appropriate choices and to find pathways to true healing, while ensuring that the required care is competently, safely and successfully provided. The illness burden cannot be remedied solely by fixing the underlying causes rooted in the notion of health deficits. The persistent demoralising effect of the combined legacies of colonisation, residential schools, contemporary socio-economic deficiencies and multiple barriers to access to care can be significantly addressed by traditional approaches.

International initiatives such as the US Office of Minority Health's *National Standards for Culturally and Linguistically Appropriate Services* (CLAS) (www.omhrc.gov/templates/browse.aspx?lvl=2&lvlID=15) and the EU's *Amsterdam Declaration Towards Migrant-*

Friendly Hospitals (www.mfh-eu.net/public/european_recommendations.htm) demonstrate frameworks that have been developed in ethno-culturally diverse settings. Specifically, the American CLAS standards provide a valuable model for building an organisational approach to cultural competency. Their suggested key areas for diversity initiatives could benefit Canada's increasingly diverse population, both Aboriginal and migrant. Similarly, the same forces that generated the Amsterdam Declaration are at play in Canada, namely significant permeability of borders and large-scale immigration, vulnerability of migrant and minority populations, and differential access to and quality of health services. The recommendations of the Amsterdam Declaration directed at specific target groups are readily adaptable to the Canadian context, although specific adaptation to Aboriginal issues would be required. A developing global

dialogue will contribute to a better understanding of the underlying barriers to successful cross-cultural delivery of health services.

Conclusion

Cultural safety encompasses a broader set of constructs than conventional contemporary patient safety theory and practice. In its essence it is rooted in difference and diversity, and hence based on awareness, understanding, acceptance, respect and empowerment of individuals within their personal, family or community cultural context. The SLMHC is moving rapidly towards becoming an organisation in which mainstream Euro-Canadian and Aboriginal stakeholders are equally comfortable and fluent in any SLMHC context. There is a growing sense of identity and ownership. By following the path that has been charted, the SLMHC hopes to reach a point where cultural diversity and fluency become embedded in the psyche of the organisation and reflected in the behaviour of the staff. The net result will be safer, more accessible, more effective, high-quality care.

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CONFLICTS OF INTEREST

None.

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**ACHIEVING CULTURAL INTEGRATION IN HEALTH SERVICES:
Design of Comprehensive Hospital Model for Traditional Healing, Medicines, Foods and Supports**

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ABSTRACT:

Genuine cross-cultural competency in health requires the effective integration of traditional and contemporary knowledge and practices.

This paper outlines an analytical framework that assists patients/clients, providers, administrators, and policy-makers with an enhanced ability to make appropriate choices, and to find pathways to true healing while ensuring that the required care is competently, safely and successfully provided.

Examples presented are primarily based on experience of the Sioux Lookout Meno Ya Win Health Centre (SLMHC), which serves a diverse, primarily Anishnabe population living in 32 northern Ontario communities spread over 385,000 sq. km. SLMHC has a specific mandate, among Ontario hospitals, to provide a broad set of services that address the health and cultural needs of a largely Aboriginal population.

We will outline our journey to date towards the design and early stages of implementation of our comprehensive *minoyawin*¹ model of care. This includes an evaluation of the initial outcomes. This model focuses on cross-cultural integration in five key aspects of all of our services:

- Odabidamageg (governance and leadership)
- Wiichi'iwewin (patient and client supports)
- Andaw'iwewin (traditional healing practices)
- Mashkiki (traditional medicines)
- Miichim (traditional foods)

The paper outlines a continuum of program development and implementation that has allowed core elements of our programming to be effectively integrated into the fabric of all that we do. Outcomes to date are identified. Potentially transferable practices are identified.

¹ "Minoyawin" is an Anishnabe term that connotes health, wellness, well-being – a state of wholeness in the spiritual, mental, emotional and physical makeup of the person.

INTRODUCTION:

The Sioux Lookout Meno-Ya-Win Health Centre (SLMHC) has a specific mandate, among Ontario hospitals. It is to provide a broad set of services to a largely First Nations service population in a manner which addresses both health status and cultural needs. As SLMHC develops programs and services that respond to this mandate, it is expected that it will emerge as an Ontario center of excellence in the provision of culturally sensitive care.

Eighty-five percent of our patients are predominantly Anishnabe people. Many of our patients use English primarily as a second language. These same patients live in a cultural context that results in Sioux Lookout, let alone Thunder Bay, Winnipeg or Toronto being experienced as “foreign” environments with major linguistic and cultural barriers encountered. The operations and settings of the health care system are complex, and equally ‘foreign’. This requires sensitive support and assistance for the system to be beneficially navigated, and for services provided to be fully effective.

Access to services is often a logistical nightmare for both patient and provider- e.g. the majority of northern patients access SLMHC by fixed wing air transportation. There is a need for special support mechanisms, some of which are the direct responsibility of the hospital. Non-Insured Health Benefit (NIHB) supports, including escorts, may be available to the point of entering the hospital for services. SLMHC is responsible beyond that point until the patient is returned to the NIHB-funded setting. This often includes patients and family who are traumatized by the logistics of getting to the service point, in addition to having to deal with the presenting health issue(s) and the “foreign” context in which they are met.

This article outlines a *Traditional Healing, Medicines, Foods and Supports* (THMFS) program developed by SLMHC to ensure that these services are provided in response to this mandate, and on a basis that supports cross-cultural competency and safety requirements of the organization. The program development process and underlying research are also outlined. The program is in early stages of implementation, with complete adoption planned for 2010-11, when our new facility is complete. The model of care arose from Bi maa dizi win, a 2005 multi faceted research project involving consultations with elders, community focus groups and visits to other successful Aboriginal programs.

win, a 2005 multi faceted research project involving consultations with elders, community focus groups and visits to other successful Aboriginal programs.

The THMFS program is a new model for integrated First Nations hospital-based services, and will serve as a substantive prescription for progress in addressing the illness burden of Ontario’s most *at risk* population: the people living in our northern First Nations communities.

The program responds to all key aspects of a multi-dimensional cross-cultural patient safety analytical framework developed by SLMHC in 2005. It is congruent with the increased emphasis by the Canadian Council on Health Services Accreditation (CCHSA) and the Canadian Patient Safety Institute on formalizing patient safety programs.

Cultural Safety

Developing out of Leininger's (1975) model of 'trans-cultural nursing', the concept of 'cultural safety' was introduced by Ramsden (1993) in the nursing education context of New Zealand. (Smye, 2002) Cultural safety is used as an analytical tool to understand the everyday social interaction between caregiver and client. (Anderson, 2003) The concept which was originally used in the context of interactions between different racial or ethnic groups has been expanded by some to be applicable in any clinical interaction between individuals with different worldviews. (NAHO, 2008) The concept of cultural safety is predicated on the understanding that a caregiver's own culture, and assumptions that follow, impact the manner in which a clinical encounter is played out and therefore impacts the patient's care. The burden of cultural adaptation that results when intercultural interactions occur, should be relieved from the patient whenever possible. (Paasche-Orlow, 2004)

Cultural safety is integral to clinical safety: it is about minimizing risk and providing a safe healing environment. (Bunker, 2001) Cultural safety educators aim to impart the understanding that past and present socio-political processes are intrinsically connected to contemporary health and social issues. (Smye, 2002; Browne, 2002)

Knowledge of cultural differences is the first step. Caregivers need to also understand the ongoing impact of intergenerational trauma and continued injustices. (NAHO, 2008) Skills gained from this understanding are transferable to many cultures. It helps to prevent oversimplification and stereotyping that may occur with earlier trends in cultural competency education that focused on the differences between cultures. (Bischoff, 2003; NAHO, 2008) Cultural safety educators instead focus on the differences between how various cultures are treated. (Paasche-Orlow, 2004) At the level of the individual, cultural competence focuses on patient-centered care which improves care regardless of nationality, culture, age, gender or religious beliefs. (Anderson 2002; NAHO 2008)

A true understanding of the imbalances in a caregiver-patient dynamic requires that the caregiver engage in a process of self-reflection in which one's own culture and assumptions are recognized. (NAHO, 2008; Papps, 1996) This attitude of 'cultural humility' entails an enduring commitment to self-evaluation and self-critique. (Bischoff, 2003) A culturally safe environment develops from an individual and institutional philosophy of empowerment, are recognized. (NAHO, 2008; Papps, 1996) This attitude of 'cultural humility' entails an enduring commitment to self-evaluation and self-critique. (Bischoff, 2003) A culturally safe environment develops from an individual and institutional philosophy of empowerment, individuality and choice. (Bunker, 2001) Patient empowerment arises from practices that increase access to information and increase individuals' decision making power. (NAHO, 2008) The term 'health literacy' refers to an individual's ability to use the health care system appropriately and maintain a healthy lifestyle; which is connected to health outcomes. (Bischoff, 2003)

Assessing Cultural Safety and Cultural Competency

Migrant Friendly Hospitals, a initiative which aims to improve healthcare delivered to migrants and minorities in Europe, suggests approaching cultural safety as a measure of quality by including cultural issues in all quality monitoring. (Bischoff, 2003) Bunker recommends that caregivers be assessed on both practical technical skills and on aspects of attitude and behaviour. (Bunker, 2001) Buetow, in his discussion integrating Maori healing

with Western medicine, stresses the need to use both frameworks to define quality improvement. Since quality improvement develops out of the moral values embedded within an institution it should reflect the moral values of the people it represents. The result is a distinct, hybrid system of quality improvement specific to that institution.(Buetow, 2004). The literature on interpreter/translator competencies has expanded to include defined competencies, articulation of standards of practice, and accepted codes of ethics. (Diversity Rx, 2003; American Medical Interpreters Translators Association, 2003; American Translators Association, 2004; International medical Interpreters Association, 2007) In the USA, since 2001 federal funding to healthcare providers is premised on conformity to National Standards for Culturally and Linguistically Appropriate Services in Health Care. (U.S. Department of Health and Human Services, Office of Minority Health, 2001) Assessing competency relative to these standards has generated many proponents and approaches. (Salimbene, 2002; US Department of Health Human Services, Health resources and Services Administration, 2002, Agency for Health Care Quality and Research, 2003).

Traditional Healing Practices - Canadian Context

Canadian policy makers are increasingly recognizing traditional healing practices as valuable and appropriate. Despite landmark policy developments such as the 2007 introduction of Eating Well with Canada's Food Guide - First Nations, Inuit and Métis (Health Canada, 2007) or the exemption of Ontario's Aboriginal healers and midwives from Regulated Health Professions Act (Regulated Health Professionals Act, 1991), there still exist legal and policy challenges that remain undefined.(Waldram,2005)

The Ontario Aboriginal Healing and Wellness Strategy (AHWS) published guidelines (2002) for implementing traditional healing programs. (AHWS, 2002) It recommends that each organization develop their own program guidelines that respect local healing practices. Through open and honest dialogue the following should be established:

- Appropriate and respectful ways of accessing a traditional healer (this is often from a process of community validation based on reputation of the healer).
- The appropriate offerings and/or payment for the healer (contacting the healer's home community may be helpful).
- Storage and Handling of Medicine
- Protocols for dealing with inappropriate behaviour and practices
- The roles and responsibilities of all people involved in the patients care.

(AHWS, 2002)

Patient and Client Supports - Interpreter Services

One of the more urgent and immediate interventions to enhance cultural safety is with improved communication through interpreter services. Andrulis's study of patients needing interpreter services (n=4 161) found that 75% of those who needed and received an interpreter described their the facility as 'open' compared to 45% of those who needed but did not use an interpreter.(Andrulis, 2002) Kaufert and Smylie describe the disadvantage of using family member interpreters as conflicting values may lead family members to alter the doctor's message in order to tell the patient what they believe the patient should hear. (Kaufert, 1999; O'Neil, 1988; Smylie, 2001).

The literature on interpreter/translator competencies has expanded to include defined competencies, articulation of standards of practice, and accepted codes of ethics. (Diversity Rx, 2003; American Medical Interpreters Translators Association, 2003; American Translators Association, 2004; International medical Interpreters Association, 2007)

Patient and Client Supports - Cultural Translation

The role of the interpreter in many qualitative studies has been documented as a cultural broker or cultural translator. (Kaufert, 1999; Smylie 2001; O'Neil, 1988) An examination of the role of the medical interpreters in two Winnipeg hospitals revealed that interpreters mediated potential conflicts as well as connected patients with traditional healers, in this function they were acting as medical educators and medical advocates: unofficially, bridging the divide between Western medicine and traditional healing systems. (Kaufert, 1999; Smylie, 2001) The Whitehorse General Hospital builds on the concept of patient empowerment and advocacy by employing liaison workers. (Aboriginal Nurse Association, 2005)

PROGRAM DEVELOPMENT

1. Program Design at Meno Ya Win

SLMHC was founded as a result of the Sioux Lookout Four Party Hospital Services Agreement which was signed in 1997 by Canada, Ontario, Nishnawbe-Aski Nation, and the Town of Sioux Lookout. The agreement underlines the need for culturally responsive programming in almost every section from the preamble through foundational philosophies and principles to operational and capital funding and planning, service definitions, and special requirements and exemptions.

SLMHC further documented the need for this program in several other documents including:

- *Bi maa dizi win and Meno Ya Win: A Study of Development of Traditional Approaches to Health Care at Sioux Lookout Meno-Ya-Win Health Centre* – April, 2005
- *SLMHC Population and Demographics Study* – March, 2005
- *Draft Traditional Medicine Program Proposal* – October 2004
- *A Sioux Lookout Meno-Ya-Win Health Centre Backgrounder: First Nations Services* – July, 2004
- *Cultural Requirements Report* – July, 2004
- *A Personal Journey to Health Care: Whitefish Bay to Sioux Lookout* – Fall 2003
- *SLMHC Functional Program*, and other working documents

The *Bi maa dizi win and Meno Ya Win* study on the proposed integration of traditional healing and medicine was conducted in 2004/2005. The project team of the SLMHC consisted of 8 members, most of whom were Aboriginal and fluent in one of the native languages. The study emerged in the context of amalgamation between a provincial and federal hospital in Sioux Lookout; and a subsequent interest and commitment to utilizing traditional means in health care for First Nations people. The research

questions of how integration should be carried out and who should be involved. A variety of methods were used.

The views of First Nations community members were explored through: patient surveys; 4 separate community consultations with 50 elders from different communities in the service area; and consultations with First Nations chiefs and political and spiritual leaders. The practices of other organizations that provide culturally appropriate care were explored by site visits to 16 organizations in other jurisdictions across Canada. The site visits included interviews with key informants and documentation of demographics, funding, protocols, governance, successes and challenges.

Results were member-checked with further elders' consultations prior to recommendations and program proposals going to the SLMHC Board and government levels for review and approval.

The four main areas of importance that emerged from the consultations with elders were: language, comfort, escorts and spirituality.

Language: Discussions around language identified that: interpreters in all 3 Aboriginal languages should be available 24 hours, transportation personnel should be fluent in one of the languages; and the pursuit of health careers should be promoted to Aboriginal youth.

Comfort: Access to traditional foods; the serving of foods without spices; and the introduction of cultural activities into the hospital are factors relating to comfort.

Escorts: Respondents recommended that escorting should be a paid job involving training and certification in CPR and First Aid, and that escort policies be developed.

Spirituality: Respondents identified the need for spiritual healing to be respected and for traditional healers to be given the same recognition as a pastor. The ability to choose between diverse practices and the availability of both traditional healing and Christian materials should exist in the hospital.

Respondents also recommended the formation of an Elders Council made up of elders from the communities who are fluent in English and the native language. The Elders Council would inform the development of the traditional medicine and healing program.

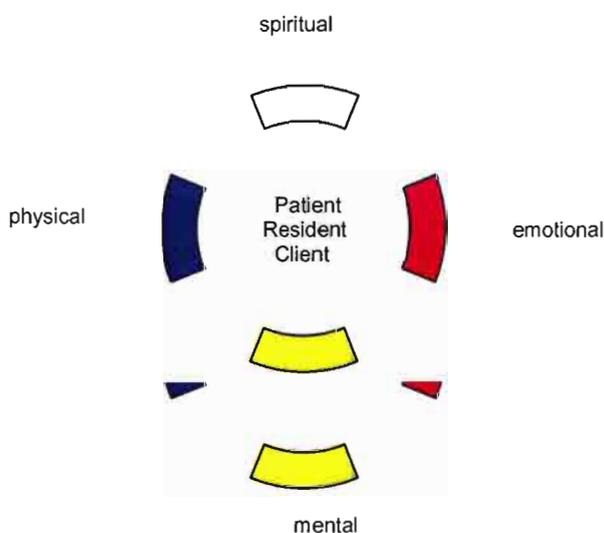
The study further documented that 90% of our Anishnabe patients would use one or more components of the traditional healing, medicines, foods and services (THMFS) program once available.

The above results from the Bii maa di zi win study have informed program development and implementation which is described below, including the now functioning Elders Council.

2. Program Context:

The THMFS program was developed to be a core aspect of all SLMHC clinical services. This means that the program is being fully integrated as an element of virtually all clinical programs, not as a separate, stand-alone program. It conforms to the principles of *integrative medicine* and is based on teachings and practices unique to the Anishnabe people of our area. As it develops and matures, the THMFS program will provide a real set of choices: patients, residents, and clients and their caregivers will be able to choose to access the services available through the THMFS program as an adjunct or alternative to other conventional clinical services and supports. The program will become an equal partner to modern (or contemporary) approaches to healing.

Our very name, *Meno-Ya-Win*, is the Oji-Cree word that represents the English terms health, wellness and well-being. It denotes a wholeness of our physical, emotional, mental and spiritual aspects. The *medicine wheel* is based in part on incorporating these aspects of our being into all healing processes. The THMFS program adds key programming that brings into play *Andaw' Iwe Win* (healing approaches and practices based on this wholeness) and not just *Kee ge win* (the healing of a wound or injury, or care-giving in this physical sense of healing).



The program is informed by and incorporates principles, approaches and practices based on these and other traditional *teachings*. The program is particularly respectful of the sense of *community* and *family* that underpin Anishnabe society.

The THMFS program is developing and operates in the political and social context of aboriginal and northern health services:

- the importance of treaty rights to health and health services,
- the growing responsibility of First Nations through transfer agreements to provide their own health services,

- the developed continuum of services painstakingly built by the First Nations and the First Nations and Inuit Health Branch of Health Canada,
- the partnerships developed with stakeholder and provider organizations to ensure fewer gaps in service and better local responses to health needs and health status issues,
- the shift to bring services closer to home,
- and provincial policy initiatives determining program priorities and the health transformation agenda.

3. Program Objectives:

The THMFS program is intended to

- Provide a welcoming, supportive, familiar environment for patients, residents, and clients
- Embed a culturally appropriate set of services and supports
- Reduce patient, resident, and client difficulties in accessing and using SLMHC services to best advantage
- Provide healing practices, including ceremonies, specific to the Anishnabe context
- Promote healing and healthy practices
- Reduce required lengths and frequency of hospitalization and “expatriate” service requirements
- Provide appropriate choices in healing approach, medications, and foods
- Build a solid foundation for benchmark performance
- Ensure enhanced levels of organizational, work unit and individual cultural competency
- Enhance cultural congruency² of the organization
- Integrate cross-cultural patient safety issues and understanding into the organizational culture of safety and associated practices

4. Cross-Cultural Patient Safety

The totality of the THMFS program is intended to respond to cross cultural patient safety issues. Our search for a standard of practice in this area took us well beyond the apparent focuses of the Canadian Patient Safety Institute and Canadian Council on Health Services Accreditation in raising patient safety into the limelight. The result of our efforts is the definition of a set of cultural factors which expand the analytical framework for all safety-related programming.

Cross cultural patient safety (CCPS) occurs through “culturally competent” practice and effective delivery of health care services across barriers to understanding; and by overcoming cultural obstacles to implementing prescribed remedial or supportive actions.

The primary frame of reference for CCPS has been the area of *linguistic diversity* but there are several other important cross-cultural risk factors.

² Culturally congruent care is care that is beneficial and meaningful to the person being cared for, and fits within their needs and realities (Leininger, 1988)

- 4.1. **linguistic barriers:** the potential for misunderstanding descriptions of presenting symptoms and history of the client and/or the prescribed course of diagnostic or therapeutic intervention, e.g. a traditional language may have no contemporary vocabulary hence no word or phrase that can be used to communicate an essential idea.
- 4.2. **cultural barriers:** the potential for misunderstanding the cultural context of the presenting pathology and/or the ability to successfully implement a prescribed course of action in the face of contradictory world views, perspectives, value sets, norms and mores e.g. even if the words are understood, compliance may not occur because of differences in custom with the mainstream, or provider population.
- 4.3. **practice barriers:** conventional services or practices contrasted with traditional practices specific to the culture(s) in question e.g. contraindications in the use of manufactured pharmaceuticals concurrent with traditional medicines.
- 4.4. **context or structural barriers:** the potential for misunderstanding or mishap due to cultural habitats and (lack of) knowledge associated with them e.g. the differences in community infrastructure and differences in accessing services and support in urban, rural or remote settings.
- 4.5. **systemic barriers:** disconnects between mainstream systems and specific population providers including territoriality, overlaps, gaps, policy differences, differing approaches, health status, etc. Examples often relate to access and availability.
- 4.6. **genetics:** failure to know of or take into account inherent issues in a population e.g. genetic predisposition to diabetes.
- 4.7. **racism/discrimination:** manifestations of bigotry, prejudice or intolerance that result in the differential provision of services or care.
- 4.8. **power, history and politicization of health :** spotlights individual issues which risk disrupting energy and resources from other priorities, often associated with ties to treaty rights to health, or racial discrimination as an underlying issue – relates to historical issues and grievances, failure to consult, and/or power/control issues.

Failure to identify and respond to patient safety needs beyond medical errors, infection control, and adverse events leaves our organizations and patients at very serious risk of harmful outcomes.

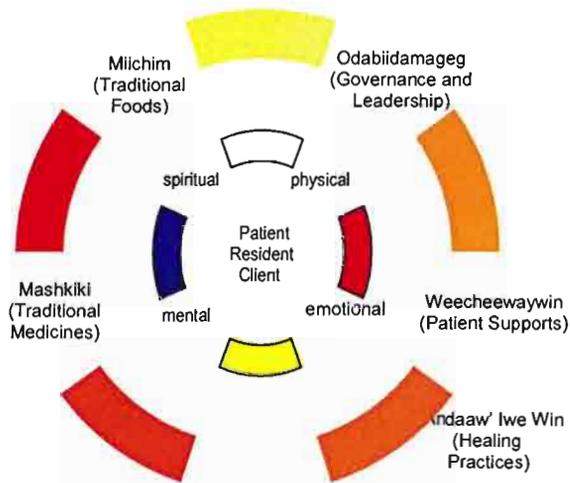
These issues must be addressed in order to meet the CCHSA ROPs related to creating a culture of safety, and, particularly, to undertake any well-designed failure modes and effects analysis (FMEA) to prevent risks from actualizing in a multi-ethnic or cross-cultural setting. This entails most Canadian health services, whether Aboriginal serving or not, because of the growing diversity of our population.

Ultimately, CCPS is at the desirable end of a continuum that moves from *cultural awareness* to *cultural sensitivity*, from sensitivity to *responsiveness*, *responsiveness* to *appropriateness*, and then *cultural competence* and finally *cultural safety*.

In conclusion, CCPS encompasses a broader set of constructs than conventional *patient safety* theory and practice. It is rooted in difference and diversity, and is based on awareness, understanding, acceptance, respect, and empowerment of individuals, communities and populations within their own cultural context.

5. THMFS Program Components

The SLMHC *Traditional Healing, Medicines, Foods and Supports* (THMFS) program includes five core components that echo the foundational philosophy of the program.



Once developed to a point of maturity and fully integrated into our organization, these core components and their foundational philosophy will overlay all other SLMHC patient, resident and client programs and services.

They will provide SLMHC patients, residents and clients with an important range of *personal options* and the ability to exercise *choices* in the care that they receive. As each of the

They will provide SLMHC patients, residents and clients with an important range of *personal options* and the ability to exercise *choices* in the care that they receive. As each of the elements of these program components is normalized, they will potentially serve as benchmark practices for other First Nation serving hospitals and health centers in Ontario and elsewhere.

The program elements as developed to date are given below.

1. Odabiidamageg (governance and leadership):

1.1 Board of Directors:

SLMHC is governed by a board of 15 directors appointed on a “proportional representation” basis: 2/3 Anishnabe, 1/3 non-native. The board also includes two physician representatives and an elder/healer.

Significant board characteristics are identified below:

- Board appointments are representational, and are not specifically “skill-based”. Appointments are made by the Board after consultation with First Nations or sponsoring organizations.
- The Board operates on a “blended model” versus a “governance model” or “management model” borrowing characteristics typical of both “chief and council” and conventional “hospital board” constructs.
- The board operates successfully as an “integrated” board versus the nominal representation, liaison, consultative, advisory, constituency, caucus, or similar approaches tried by other organizations across Canada which have a mix of aboriginal and non-native members (Semple, 2005).

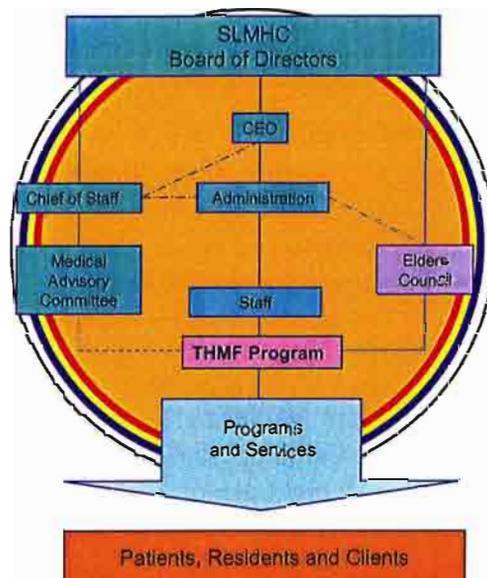
1.2 Elders Council:

SLMHC held 4 major Elders’ gatherings to support Board and Management leadership efforts between Fall 2003 and Summer 2007. Many visits were made to elders in other contexts. An eight person Elders Council was formally established in October 2007.

- Respect for elders, their teachings and their counsel is a fundamental value in our First Nations communities.
- Numerous traditional healing programs were visited during the planning of the THMFS program. Virtually all of them underscored the importance of elders’ support and involvement to the successful development, implementation, management, and continuity of the programs. The means by which this is accomplished varies, but frequently was based on establishment of an elders’ council connected to the organization or program.
- Community elders have been extensively consulted in the development of this program and other key aspects of SLMHC planning, operations and issues management. Advice provided has proven fundamentally valuable. The board, administration, program managers, staff and providers benefit from the normalization of a continuing elders’ role and presence.
- The elders’ council is similar in many respects to a typical Medical Advisory Committee including regular involvement/representation at board meetings.
- The elders’ council will continue to advise on program development and management, communications and issues management, strategic planning, board processes, and other relevant issues.
- The elders’ council will be based on broad representation from our communities.
- Both Christian and traditional beliefs will be represented to reflect the needs and desires of our communities and our people.

- Current unscheduled elders' visits to SLMHC patients and residents are notably beneficial to the patients and residents.

The following organization chart shows the Elders Council relationship to the SLMHC board, administration and staff, and medical staff, etc.



1.3 Management and Leadership

The Senior Management Team includes a Special Advisor for First Nations Health, and an Advisor to the Board and CEO. Both of these positions function at the Vice President level and are integral to the management and leadership of the organization. The Communications and Community Development division of SLMHC also has strong First Nations leadership. This unit was given responsibility to oversee planning and development of the THMFS program. THMFS program implementation and on-going leadership and management will be the responsibility of the Health Services Division of SLMHC. This will facilitate integration of the THMFS program into all aspects of SLMHC.

- Awareness, understanding, sensitivity, acceptance and responsiveness to the cultural diversity and legacies of our patients, residents and clients is imperative for everyone with management and leadership roles, and must be embedded in the psyche and psychology of the organization as a whole.
- Identification of and support for board, administrative, program, and medical *champions* is essential.
- Increased opportunities for First Nations professional development, career and employment opportunities as part of the SLMHC management and leadership team are being mandated and aggressively pursued.

2. Weecheewaywin (patient, resident and client supports):

Basic patient supports for Anishnabe patients were developed by the predecessor organizations to SLMHC including a part-time, non-dedicated interpreter service and some translation of materials and common phrases. The interpreters were staff who had been hired into other roles and, based on their personal language skills, asked to assist with interpreting when required. Many issues had prevented this service from fully meeting identified needs: lack of timely availability, lack of medical terminology, lack of training as an interpreter, mismatches of interpreter and patient language base, role limited to basic linguistic interpretation, etc.

The new *Weecheewaywin* component is based on the following core elements:

- 2.1 Elders in Residence working in association with other providers, and who provide patient contact, support, education, and counseling as an integral element of the care plan. Two elders are now fulfilling this role.
- 2.2 Weecheewaywin workers who will build on an enhanced interpreter service, elements of the discharge planning function, and patient navigator role. Available 24/7, the Weecheewaywin workers will assume a defined caseload and provide support to both patients, residents and clients, and to other members of the care team. They will ensure the required comfort,

support, community interfaces, navigation and non-clinical assistance are in place to minimize cross-cultural, institutional, and health system barriers. They will specifically assure complete bi-directional cultural and linguistic interpretation to optimize care planning and delivery.

- 2.3 Translation of all core signage, client informational materials, and notices (simultaneous with their English release) and other public materials will support the work of caregivers. Development and instruction in the use of a common lexicon will facilitate the work of interpreters/Weecheewaywin workers.
- 2.4 SLMHC will move beyond providing cultural awareness and training support for staff to a point where cultural diversity and fluency are embedded in the psyche of the organization and reflected in the behavior of the staff.
- 2.5 Specific employment, education and staff supports will result in a balance in SLMHC staff that mirrors the First Nations/non-native makeup of the SLMHC service population with no discernible discrimination/reverse discrimination.
- 2.6 We acknowledge the need for broad-based supports to ensure diagnostic and therapeutic understanding on the part of both provider and client and to ensure other significant needs of the client are identified.

3. Andaw' Iwe Win (healing practices):

Many of our patients, residents and other clients have indicated a desire for traditional healing practices to be available to support conventional SLMHC programs and services, or as an alternative to them. Many of these practices have been lost from common use in our communities. Our patients and many community leaders have expressed a desire for these services to be available for those who wish to access them. Experience in other settings demonstrates the value of providing the option of traditional healing approaches.

Andaw' Iwe Win practices will be made available over time by adapting traditional healing programs available from community-based platforms (eg. Sioux Lookout First Nations Health Authority) to meet hospital- and long term care-based needs. In addition to birth and palliative practices; smudging, healing circles, and possibly other ceremonial practices will be introduced on-site prior to the construction of the new hospital (2010) with its additional ceremonial and support spaces. Sweat lodge ceremonies will be available for capable clients. Ultimately additional ceremonies will be available.³

³ SLMHC will ensure that birth, naming and dying practices, vigils, healing circles, smudging, singing and drumming, and other healing lodge ceremonies will be available as facilities permit. Sweat lodge ceremonies will be conducted from temporary facilities pending construction of a permanent sweat lodge facility close to

Many ceremonies have an underlying spiritual character in addition to any physical, emotional, or mental focus. We accept that the fundamental premise that individuals need to be whole (or healthy) in all aspects to be able to develop and maintain health in any one dimension. Consequently ceremonies supported by SLMHC will be an integral part of the care of individuals who seek that course of treatment/support.

A process of “certifying”⁴ healers will ensure that healers will be reviewed and “credentialed” to ensure appropriate qualifications and standards are in place.

4. Mashkiki (traditional medicines):

Traditional medicines have great curative properties and will be available to those who choose to use them. The use of traditional medicines will be introduced in conjunction with the development of appropriate mechanisms to prevent adverse reactions with other courses of treatment. The new facility (2010) will house both preparation and storage areas for a broad variety of medicines⁵. The site of the new facility was selected in part because of the prevalence of many of the medicines that will be used. Other medicines will be raised on site or acquired by healers as may be necessary. Specific policies governing the use of traditional medicines will be developed. Consultation with Pharmacy and Therapeutics Committee of Medical staff, the Pharmacy Department, the Aboriginal Pharmacy Association of Canada, and others will be required before major enhancements are added.

5. Miichim (traditional foods):

Traditional foods⁶ have only been used on a very limited basis to date. Many of our clients are disadvantaged by the need to make a wholesale change in their eating practices and dietary content. A broad range of traditional foods is being added to the menu selections regularly available to patients and LTC residents. Preparation of these foods will require special handling in some instances. Regional variations and preferences in menu item, cooking style (fried, boiled, baked, roasted, dried, smoked, stewed, etc.) will be provided to the extent possible. Menu development and cooking instruction is being supported by elders from several communities.

the hospital. Some ceremonies need to be delivered over prolonged periods of time and in a specified location and may not be amenable to SLMHC-based support.

⁴ The Draft Guidelines for Traditional Healing Programs promulgated February 2002 by the Aboriginal Healing and Wellness Strategy will be followed.

⁵ In addition to herbal teas, wikenj, sage, tobacco, cedar, sweetgrass, etc. many other traditional medicines will be added to those available on site.

⁶ Common foods will include herbal teas; bannock; a variety of fish; rabbit, moose, caribou and other wild game; goose, duck and other water fowl; nogaiganny; wild rice; and other common foodstuffs will be available.

Special occasions will require additional traditional food items to be available.

5. Administrative Supports:

Secretarial and research support will be available to the program governance and leadership as required.

6. Program Supports:

The program is supported by a full-time THMFS Program Coordinator who oversees detailed program development, implementation, operations and evaluation.

CONCLUSION

Achieving cultural integration institutionally is a challenge. Throughout the previous few years the Sioux Lookout Meno Ya Win Health Centre has proceeded broadly, yet with a focus, honouring both the journey and the destination.

The approach has arisen from research and broad community and elder consultation. This model of care is intended to permeate throughout institutional programming. Patients will have choices to access traditional medicines and services. It is expected that this approach will address multiple access to care barriers, which are intertwined with the twin legacies of “colonization” and “residential school”, and negatively impact the health of First Nations people. We continuously monitor health outcomes. In coming years, we may need to develop novel evaluation tools, which combine qualitative and quantitative methods, and provide more holistic outcome measures.

The THMFS Program at the Sioux Lookout Meno Ya Win Health Centre relies heavily on an understanding and philosophical foundation which is materially different than Euro-Canadian. This tradition may ultimately prove successful at addressing some of the root causes of the profound health status issues facing First Nations.

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Healing the community to heal the individual

Literature review of aboriginal community-based alcohol and substance abuse programs

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ABSTRACT

OBJECTIVE To understand the development of culturally based and community-based alcohol and substance abuse treatment programs for aboriginal patients in an international context.

SOURCES OF INFORMATION MEDLINE, HealthSTAR, and PsycINFO databases and government documents were searched from 1975 to 2007. MeSH headings included the following: *Indians, North American, Pacific ancestry group, aboriginal, substance-related disorders, alcoholism, addictive behaviour, community health service, and indigenous health*. The search produced 150 articles, 34 of which were relevant; most of the literature comprised opinion pieces and program descriptions (level III evidence).

MAIN MESSAGE Substance abuse in some aboriginal communities is a complex problem requiring culturally appropriate, multidimensional approaches. One promising perspective supports community-based programs or community mobile treatment. These programs ideally cover prevention, harm reduction, treatment, and aftercare. They often eliminate the need for people to leave their remote communities. They become focuses of community development, as the communities become the treatment facilities. Success requires solutions developed within communities, strong community interest and engagement, leadership, and sustainable funding.

CONCLUSION Community-based addictions programs are appropriate alternatives to treatment at distant residential addictions facilities. The key components of success appear to be strong leadership in this area; strong community-member engagement; funding for programming and organizing; and the ability to develop infrastructure for long-term program sustainability. Programs require increased documentation of their inroads in this developing field.

RÉSUMÉ

OBJECTIF Comprendre l'élaboration des programmes de traitement de l'alcoolisme et de la toxicomanie adaptés à la culture et aux collectivités autochtone, dans un contexte international.

SOURCES DE L'INFORMATION On a consulté les bases de données HealthSTAR et PsycINFO et des documents gouvernementaux entre 1975 et 2007, utilisant les rubriques MeSH *Indians, North American, Pacific ancestry group, aboriginal, substance-related disorders, alcoholism, addictive behaviour, community health service, et indigenous health*. Sur 150 articles repérés, 34 étaient pertinents; la plupart rapportaient des opinions fragmentaires et des descriptions de programme (preuves de niveau III).

PRINCIPAL MESSAGE Dans certaines collectivités autochtones, l'alcoolisme et la toxicomanie sont des problèmes complexes requérant une approche multidisciplinaire adaptée à la culture. Les programmes en milieu communautaire ou par des unités de traitement mobiles semblent une avenue prometteuse. Idéalement, ces programmes incluent prévention, réduction des dommages, traitement et suivi. Souvent, les sujets n'ont pas à quitter leur collectivité. Le programme devient un facteur de développement puisque la collectivité en devient responsable. Sa réussite exige des solutions élaborées dans la collectivité, beaucoup d'engagement et d'intérêt de la part de la collectivité, du leadership et un financement soutenu.

CONCLUSION Les programmes communautaires contre la dépendance sont des solutions de rechange appropriées aux traitements dans les établissements éloignés de soins aux toxicomanes. Les facteurs clés du succès semblent être un leadership local fort; un engagement solide des membres de la collectivité; un financement pour la programmation et l'organisation; et l'établissement d'une infrastructure permettant la survie à long terme du programme. Les programmes auront besoin de plus de documentation sur cette incursion dans un nouveau domaine.

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Aboriginal communities have identified alcohol and substance abuse as serious concerns.¹ A total of 74% of on-reserve participants in a 2003 First Nations survey (N=1606) thought that alcohol and illegal drugs were dangerous to health and rated them as their biggest health concerns.¹

In 1991, the Aboriginal Peoples Survey (N=25 122) noted 86% of communities rated alcohol abuse as a serious problem.² These concerns about the pervasiveness of addictions are unchanging: the 2003 First Nations Regional Longitudinal Health Survey of 279 aboriginal communities in Canada implicated alcohol in 80% of suicide attempts and 60% of violent episodes.³

While most aboriginal people do not exhibit alcohol-related problems⁴ and the rate of abstainers in First Nations communities is twice the Canadian rate,³ some communities are disabled by problems with alcohol.

Currently the model of alcohol and substance abuse care in many remote aboriginal communities consists of referral to residential treatment centres for 3- to 6-week programs. These centres usually exist far from individuals' home communities. Individuals return from treatment to the same situations and stressors with little or no aftercare⁵⁻⁸; relapse rates are 35% to 85%, most within 90 days.⁷

A community-based approach to prevention, treatment, and aftercare programs attempts to address these environmental factors by extending healing to the community level. Cultural relevance in addictions treatment can vary from adding an aboriginal component to the disease model of Alcoholics Anonymous to developing community-based participatory programs with a sociocultural-spiritual model.⁹⁻¹² Community-based treatment emphasizes prevention, treatment, and aftercare taking place in one's home community.

The principal author (A.J.) is a family physician and addictions worker for a First Nations community in northwestern Ontario and is collaborating with the Chief and community leaders to help facilitate the successful creation of community-driven programming.

Data sources

A search was undertaken to identify literature on community-based substance abuse services for aboriginal communities in an international context. MEDLINE, HealthSTAR, and PsycINFO databases were searched with the following MeSH terms and key words: *American*

Native continental ancestry group; Indians, North American; Oceanic Ancestry Group; Inuit; Native; Native American; Native Canadian; American Indian; aboriginal; First Nations; behaviour, addictive; addiction; substance abuse; substance; alcohol; opioid; narcotic; illicit drugs; substance-related disorders; alcohol-related disorders; alcohol-induced disorders; alcoholic intoxication; alcoholism; amphetamine-related disorders; cocaine-related disorders; marijuana abuse; opioid-related disorders; heroine dependence; morphine dependence; phencyclidine abuse; psychoses, substance abuse; substance abuse, intravenous; community; community health services; community mental health services; counseling; indigenous, health services; counsel; therapy; and treatment. The results were manually limited to English papers published between January 1975 and June 2007. Government documents were also reviewed.

Study selection

We reviewed the full texts and abstracts of 150 articles to isolate those 34 articles relating to alcohol and drug addictions programs for aboriginal communities (Table 1^{1-3,5-35}). We excluded articles on nonaddiction mental health services, tobacco, gambling, prevalence studies, and health sequelae of drug use (HIV, hepatitis C) in order to maintain a focus on alcohol and substance abuse.

Four aboriginal population surveys were included, as well as 19 opinion, review, and program description articles. Six quantitative, 3 qualitative, and 2 mixed-methods studies were identified. The largest number of articles was from the United States, followed by Canada, Australia, and New Zealand.

Synthesis

The literature on community-based addictions programs emphasizes the importance of viewing drug and alcohol addictions through a sociocultural lens. The models attempt to address the problem at the community level through grassroots efforts to enhance community empowerment and mobilization. Community and individual well-being is associated with positive prevention, treatment, and aftercare outcomes. Some authors see community engagement and development, rather than changes to drug and alcohol consumption rates exclusively, as the objectives of their models.¹⁹

Levels of evidence

Level I: At least one properly conducted randomized controlled trial, systematic review, or meta-analysis

Level II: Other comparison trials, non-randomized, cohort, case-control, or epidemiologic studies, and preferably more than one study

Level III: Expert opinion or consensus statements

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Aboriginal concepts of health and healing

Concepts of health—based on the aboriginal medicine wheel—view physical, emotional, mental, and spiritual aspects as interrelated.^{9,21} Several programs incorporate traditional practices and activities into prevention and treatment.^{13,14,22,36} The Selkirk Healing Centre, located

in Manitoba, addresses the spiritual and cultural component of health by employing elders as cultural leaders. This has led to a reduction in substance abuse and increased self-reliance.³⁶

Boyd-Ball studied the Shadow Project (N = 63), an 8-week residential program offering culturally

Table 1. Review of studies and articles on culturally based and community-based aboriginal alcohol and substance abuse treatment programs

STUDY OR ARTICLE	LEVEL OF EVIDENCE	N	TYPE OF STUDY OR ARTICLE	FINDINGS OR COMMENTS
Fisher et al, ¹³ 1996	II	791	Quantitative: measured retention rates	Inclusion of traditional Native activities increased retention rates in Native and non-Native clients
Boyd-Ball, ¹⁴ 2003	II	63	Quantitative: interviews and observation	Family-enhanced intervention decreased alcohol consumption
Scott and Myers, ¹⁵ 1988	II	76	Quantitative: assessment of fitness, self-evaluation, and substance use	Increased self-efficacy after fitness training; relationship noted between low self-enhancement and substance use
Kahn and Fua, ¹⁶ 1992	II	145	Quantitative: program completion and postprogram employment	Increased rate of employment after program; number of aboriginals treated increased with aboriginal treatment providers
Ellis, ¹⁷ 2003	II	50 000	Quantitative	Mentoring effort between 2 communities to develop policies and initiatives led to a 150% decrease in motor vehicle collisions in the mentored community
Franks, ¹⁸ 1989	II	54	Quantitative	Patrols by community members and community involvement in intervention and setting norms for acceptable behaviour decreased no. of solvent sniffers from 54 to 1
Mohatt et al, ¹² 2004	II	152	Qualitative: interviews	Deeper level of inquiry when community members involved in the development of research process
Robinson et al, ⁹ 2006	II	31	Qualitative: interviews	Treatment staff found holistic family and community approaches to be more effective than individual approaches
Noe et al, ¹⁹ 2003	II	8 communities	Qualitative: program description and assessment	Community programs improved community interest, engagement, capacity, and organizations' policies for addressing substance abuse and infrastructure
Chong and Herman-Stahl, ⁵ 2003	II	30	Mixed methods: interviews	Substantial reduction in frequency of drinking following 6 mo of telephone aftercare
Parker et al, ²⁰ 1991	II	34	Mixed methods: interviews and self-report	Correlation between cultural activities and decreased substance use rates
Flores, ¹⁰ 1985	II	73	Survey	Difference in values between non-Natives and Natives
Ekos Research Associates, ¹ 2004	II	1606	Survey	84% of on-reserve youth perceived alcohol to be dangerous
Aboriginal Peoples Survey, ² 1993	II	25 122	Survey	86% of communities rated alcohol abuse as a serious problem
First Nations Regional Health Survey, ³ 2003	II	270 communities	Survey	Alcohol abstinence and heavy drinking higher in the First Nations population than the general Canadian population

Table 1 continued on page 1000.e3

Table 1 continued from page 1000.e2

STUDY OR ARTICLE	LEVEL OF EVIDENCE	N	TYPE OF STUDY OR ARTICLE	FINDINGS OR COMMENTS
Wiebe and Huebert, ⁶ 1996	III	NA	Description of treatment model	Community involvement and mobilization develops intervention appropriate to community
Chamberlin, ⁸ 1991	III	NA	Program description	Rates of sobriety in CMT higher than traditional off-reserve treatment
Smye and Mussell, ²¹ 2001	III	NA	Discussion of programs	Community-based and culturally based programs use holistic approaches: spiritual, community components
Mills, ²² 2003	III	NA	Program description	Including traditional activities in treatment increases cultural identity and validates Native culture
Hitchen, ²³ 2001	III	NA	Program description	Employment correlated with sobriety; 800% increased employment with vocational rehabilitation aftercare program
Edwards et al, ²⁴ 2000	III	NA	Discussion of model	Community readiness model is used to assess and respond to community needs
Alberta Alcohol and Drug Abuse Commission, ²⁵ 1989	III	NA	Handbook for CMT model	CMT model is community based and community driven; it should be flexible to respond to each community
Coates, ²⁶ 1991	III	NA	Program description	Community-based day programs are cost effective and accessible
Saskatchewan Alcohol and Drug Abuse Commission, ²⁷ 1989	III	NA	Handbook for CMT model	CMT is a cost-effective alternative to residential treatment; community involvement and support in treatment and aftercare creates a supportive substance-free environment
Abbott, ²⁸ 1998	III	NA	Literature and program review	No RCTs; differences between worker and client belief systems; community healing involves entire community
Gray et al, ²⁹ 1995	III	NA	Literature and program review	Evaluation requires community involvement, flexible techniques, cultural appropriateness, and inclusion of descriptive qualitative methods
Health Canada, ⁷ 1998	III	NA	Literature review	Contemporary programs emphasize community involvement to achieve community well-being
May, ³⁰ 1986	III	NA	Literature review	Creative solutions are required to reduce harm, increase knowledge, and improve rehabilitation
Gray et al, ³¹ 2000	III	NA	Literature review	Culturally appropriate models should use an array of techniques for comprehensive program evaluation
Novins et al, ³² 2000	III	NA	Review	Addictions services need improved rates of service utilization and locally relevant programming; increased research efforts are essential for improving services
Beauvais, ¹¹ 1992	III	NA	Opinion piece	Substance abuse requires local solutions and grassroots community involvement
May, ³³ 1992	III	NA	Opinion piece	Broad-based community action and comprehensive policies based on local, community-specific data are required to change norms of values of communities
Thurman et al, ³⁴ 2003	III	NA	Opinion piece	Community readiness model assesses stages of readiness to develop community-driven models; requires community partnerships and draws on strengths of the community
Mail, ³⁵ 1992	III	NA	Opinion piece	Solutions should be community driven; increased cross-cultural training and sensitivity is required for nonaboriginal treatment staff

CMT—community mobile treatment, NA—not applicable, RCT—randomized controlled trials.

relevant, enhanced family interventions through individual and group therapy. The project saw a reduction in alcohol use in the group that received family-enhanced therapy compared with the control

group, but no substantial differences in drug use. To sustain the treatment results, the author recommends culturally appropriate care that recognizes historical trauma.¹⁴

Prevention education

Cultural relevance is important in educational programs. Early approaches to prevention often included educational models predicated on the belief that people informed of the risks of their behaviour would choose not to participate in activities with known risks.³¹ Parker and colleagues' interviews of American Native* youth (N=34) found that many of the participants who had experienced school drug-education programs unfortunately described them as an imposition of someone else's perspective and decisions.²⁰

Scott and Myers discuss the correlation between negative self-concept and increased substance abuse. In their 1988 quantitative study (N=76) they found an increase in self-enhancement following completion of a fitness training program for First Nations teenagers from the River Desert Community in Quebec. Drug and alcohol use increased in the control group, but remained constant in the treatment group.¹⁵ Studies have examined the role of vocational training as a means of decreasing substance abuse rates.^{16,19,23} One program created internships for the community's youth in various professions and industries. Unfortunately, no evaluation was reported.¹⁹

Parker and colleagues, in their quantitative study of a self-identity-enhancing approach to preventing substance abuse, stressed the importance of self-concept through cultural affiliation. Through surveys and self-reported data (N=34), they found that engaging off-reserve aboriginal youth (aged 14 to 19) in cultural activities yielded lower rates of drug and alcohol use compared with the control group, who had not participated in cultural activities.²⁰ The program also included a peer-mentoring component, in which older children acted as peer assistants. Results of the study showed a negative correlation between cultural affiliation and substance abuse.

Prevention policy and harm reduction

Substance abuse can lead to adverse events in all cultures. The consequences of substance abuse in American aboriginal communities have been documented for motor vehicle collisions (odds ratio [OR] 2.5-5.5), cirrhosis (OR 2.6-3.5), suicide (OR 1-2), and homicide (OR 1.7-2.3).³⁰ Various harm-reduction strategies have been suggested and implemented in a variety of communities. In his 1986 review of addiction prevention programs, May discussed strategies to reduce vehicle collisions, such as new legislation and enforcement, road engineering, and public education, as means of reducing harm.³⁰ Other strategies suggested include the following: sobering-up shelters, which provide a

dignified alternative to placing intoxicated people in police custody, and night patrols and personal injury prevention initiatives.³⁰ The successful outcome following harm-reduction initiatives in Fremont County in Wyoming highlights the potential for policies such as local alcohol excise taxes, alcohol server training, Sunday alcohol sales bans, and closing troublesome bars.¹⁷ These types of policies in the county led to a reduction in motor vehicle collisions and a reduction in mortalities from both suicide and homicide.¹⁷

While supply reduction saw positive results in Fremont County, other studies argue for increasing accessibility to alcohol vendors in order to prevent other types of solvent abuse.³³ In his 1992 review of alcohol policies in Native communities in the United States, May emphasized the importance of community involvement in choosing policies that would best fit the community and address each kind of alcohol-related harm.³³

Community healing

Community mobile treatment. Treating the whole community honours the holistic approach of the inter-relatedness of individuals and their communities. The community mobile treatment (CMT) model, developed in 1984, views substance abuse as "a local problem that requires community-based solutions."⁶ Wiebe and Huebert documented the development of a mobile team of addictions workers in Prince George, BC, who were invited to several regional aboriginal communities with dire rates of alcoholism as high as 90%.⁶ The goal of CMT is to mobilize the community in order to heal the group as a whole.^{6,24,25} Changes in values and social structures require a cohesive understanding of what is deemed acceptable behaviour in the sociocultural belief system of the community.^{6,8,28} The program requires that a community first identify a need for intervention as well as a belief that change is possible. Historically this process takes 1 to 2 years, in which time much community mobilization work is done to promote a culture of sobriety and support for recovering individuals. This time period is then followed by 21 to 28 days of CMT and aftercare programming.⁶

In the communities that underwent CMT, as many as 75% of the community members received substance abuse treatment. A survey conducted 6 months after treatment in the community of Anahim Lake, BC, reported a 75% abstinence rate.⁶ Similar interventions in Saskatchewan and Alberta have had promising results.^{8,25-27} These programs depend on community volunteerism and engagement using various initiatives and require strong local leadership.

Community readiness. The community readiness strategy, which also takes a community empowerment approach, is predicated on the belief that communities

*Native is used throughout this article to refer to the indigenous and aboriginal inhabitants of North American and their descendants.

are at different stages of readiness for intervention.^{24,34} By measuring these stages, different types of intervention can be identified to best suit communities' needs.^{24,34} Thurman and colleagues described the strengths of the model, referring to Alaskan villages that used the model to address the problem of suicide.³⁴

Other community interventions. The Round Lake Treatment Centre in British Columbia combines community-based treatment with inpatient services. The program emphasizes cultural awareness through healing circles and family involvement. Evaluation of results from 1991 to 1995 indicated that most participants were "clean and sober" 2 years after completing the program. Objectives of the study also considered outcomes such as improved family relations, improved quality of life, and improved self-image.⁷

Franks' study on petrol-sniffing interventions in an Australian aboriginal community illustrated the effectiveness of engaging community members in setting community norms based on acceptable behaviour, as well as involving community members in enforcing the norms. Patrols for petrol-sniffing youth were performed by community members, and the youth were assigned to families who cared for and supported them. From 1982 to 1984 the number of petrol sniffers was substantially reduced. The remaining resistant sniffers and their families received intensive counseling and respite stays in another community or outstation.¹⁸

The emphasis on partnerships and the integration of prevention and treatment into existing community programs is common in the literature.^{24,35} Authors suggest involving schools, community organizations, band councils, social services, and churches in the process.³⁵ Involvement of the entire community allows for a broader view of the problem, effective needs assessment, and a plan that fits within the paradigm of the community culture.^{24,28}

Aftercare

Connectedness to one's cultural group helps in health and recovery. Posttreatment success is highly dependent on the individual's environment after addictions treatment.^{5,31} Many authors acknowledge the importance of continued support and aftercare, yet

there is little written on the subject. Of the 3 articles we reviewed that focused on aftercare, only 1 was community-based, and all 3 had unreliable evaluation methods. The 1 study, which details a drug and alcohol addictions aftercare program for Natives in their community, looks at aftercare provided over the telephone to individuals (N=30) who returned to the American reserve after treatment. After 6 months of regular aftercare through telephone contact, there was a reduction in drug- and alcohol-related symptoms.⁵

Successful aftercare in communities requires a long-term focus. In order to design a sustainable program, capacity building and community ownership are crucial. These are encouraged by implementing mechanisms for sustainable networks, resources, and support systems.⁶

Discussion

The concept of community healing is a developing area. Current western paradigms identifying determinants of health have much congruence with the holistic interactive components of the medicine wheel. While different communities have various versions of the model, the one used by the Sioux Lookout First Nations Health Authority (Figure 1³⁷) respects "traditional ways of knowing, being and healing in community," which accept that "we must always view and address the 'whole,' the 'spirit,' to attain health."³⁷

The relationship between community engagement and community health has developed out of theories such as *social capital* and *cultural continuity*.^{38,39} Another aboriginal organization, the Assembly of Manitoba

Figure 1. Primary health care model adopted by Nisnawbe Aski Nation and the Sioux Lookout First Nations Health Authority



Reprinted with permission from the Sioux Lookout First Nations Health Authority.³⁷

Chiefs, chose the concept of *social capital* to identify and draw on the strengths of successful and healthy aboriginal communities.³⁸ Similarly, the concept of *cultural continuity* was used to examine the inverse relationship between suicide rates and community efforts toward cultural preservation and community governance in British Columbia First Nations communities.³⁹

The immediate benefit of community-based programs is that they might overcome many of the barriers to off-reserve residential programs. These barriers include fears of unknown larger centres and being away from work or family. Community-based programs allow individuals to be treated in familiar environments where they are surrounded by family and friends,⁶ thus promoting understanding of their illnesses within the communities they will rely on for posttreatment support.

Through political, economic, and administrative initiatives, community-based programs provide opportunities for capacity building and offer a viable alternative to costly residential programs, although sustainable funding is required for success. The long-term benefits of these programs are consistent with the holistic practices of aboriginal healing and community development, which allow for widespread community issues to be addressed at the root by the whole community. More than 1000 aboriginal healing programs have occurred in reserves and cities across Canada.⁴⁰ Through these innovative and varied approaches, communities are addressing complex issues surrounding historical trauma, including addictions, sexual abuse, family violence, and suicide.

Limitations

The limitation of this literature is that community-based programs suffer from insufficient evaluation and outcome data. The paucity of evaluations can be attributed to the community-specific nature of the programs. Additionally, the objectives of community development, such as increased self-esteem, community spirit, and leadership, are inherently difficult to measure.^{19,40} Such changes in community culture can take many years, while evaluation needed for funding requires more immediate results.³² A creative mix of qualitative and quantitative baseline and postintervention longitudinal evaluation is required.²⁹

Conclusion

Each aboriginal community is unique, and patterns and prevalence of drug and alcohol use differ widely. The complexity of the problem identified requires individual and flexible plans specific to the communities' needs and objectives. While promoting community involvement and participatory processes in these programs, there is also a need for well-designed studies and increased research in the field, so that communities can draw on

EDITOR'S KEY POINTS

- In many remote aboriginal communities, treatment for alcohol or drug abuse involves referral to distant residential treatment programs. Those who complete these programs might return to the same situations and stressors with little or no aftercare. Relapse is common.
- Community-based treatment programs incorporate preventive treatment and aftercare services within individuals' home communities, and facilitate inclusion of cultural relevance.
- The literature on aboriginal community-based treatment programs emphasizes the importance of viewing addiction through a sociocultural lens and enhancing community empowerment in the development of programs. However, there is a paucity of evaluation and outcome data for these programs.

POINTS DE REPÈRE DU RÉDACTEUR

- Dans plusieurs collectivités autochtones éloignées, le traitement de l'alcoolisme et de la toxicomanie exige un séjour dans un établissement éloigné. À son retour, le patient risque de retrouver les mêmes situations et facteurs de stress, avec un suivi insuffisant ou absent. Les rechutes sont fréquentes.
- Les programmes de traitement communautaires combinent des traitements préventifs et des services locaux de suivi adaptés à la culture.
- La littérature sur les programmes communautaires de traitement en milieu autochtone insiste sur l'importance d'envisager la dépendance d'un point de vue socioculturel et d'amener la collectivité à élaborer elle-même les programmes. Il existe toutefois peu de données sur l'évaluation et les résultats de ces programmes.

one another's successes as they engage in community development and addictions treatment.

Community-based prevention and treatment modalities offer appropriate alternatives to traditional treatment approaches. The health and well-being of communities and their participation in such initiatives have positive effects on prevention, treatment, and aftercare. The key components of success appear to be strong leadership in this area, strong community-member engagement, paid positions for programming and organizing, and the ability to develop infrastructure for long-term program sustainability. ✨

Competing interests

None declared

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Blending in

Is integrative medicine the future of family medicine?

Larry Willms MD CCFP FCFP ABHM Natalie St Pierre-Hansen

The face of health care is changing. A variety of trends in recent decades, both within the world of conventional medicine and beyond, are altering the nature of health care and the context in which physicians practise. Total spending on drugs is increasing at an alarming rate. So is our appreciation of the scope of the problems of drug side effects and drug-related deaths.¹ Meanwhile a consumer-led movement, fueled by access to health information over the Internet, has led to a substantial rise in interest in complementary and alternative medicine (CAM). The public is spending enormous sums of out-of-pocket money on CAM.²

The rise in obesity and its complications in the last 15 years is another alarming trend, adding further evidence to the conclusion that the biggest threats to health today cannot be adequately addressed with medications and surgery alone. Many problems physicians encounter in primary care involve lifestyle, social, or spiritual factors.³ On the provider side, physician stress and job dissatisfaction are increasingly recognized as key problems within our profession that need to be addressed if we are to deliver optimal care.

Physicians are responding to these changes in their work context in a variety of ways. Many are reappraising their priorities and making changes to promote greater balance in their personal lives. Others are seeking training in alternative modalities and are providing these services to their patients in turn. Some are acquiring advanced skills in lifestyle and wellness counseling and health promotion. At present, however, these changes are optional, inconsistently implemented, and medical education has not systematically embraced them.

A new movement in health care has gathered these disparate trends together and attempted to formally articulate a new vision for medicine—a vision that both grows out of and seeks to address the problems we currently face. This movement is most commonly referred to as *integrative medicine* (IM). The first textbooks have been written. A consortium of medical schools has been established to transform undergraduate curricula so they reflect the vision of IM⁴; some 20% of US and Canadian medical schools currently belong.

What exactly is IM? A meeting of practitioners in the field at the pioneering Program in Integrative Medicine at the University of Arizona in Tucson came up with

the following defining statement: “Integrative medicine [is] healing oriented medicine that takes account of the whole person (body, mind, and spirit), including all aspects of lifestyle. It emphasizes the therapeutic relationship and makes use of all appropriate therapies, both conventional and alternative.”⁵

A blended approach

Integrative medicine seeks to combine the best insights of both conventional and alternative medicine, while providing a unifying perspective to guide physicians in intelligently combining these heterogeneous systems of thought.

First, IM is healing oriented. A variety of alternative and traditional medical systems are premised on the “healing power of nature.” Conventional medicine is often criticized for “suppressing symptoms” and not getting at “root causes.” Integrative medicine embraces the notion that the body is innately self-healing and attempts where possible to either remove barriers to healing or assist the healing process, using suppressive therapies only when necessary.

Second, IM is relationship oriented. Family medicine has appropriately articulated a patient-centred model of care, replacing the traditional, more physician-centred approach. The relationship aspect of IM retains this patient-centred focus while more explicitly acknowledging the contribution of physicians to quality of care. Integrative medicine promotes physician well-being and self-reflection, and seeks to attract physicians who are on a healing path themselves. A growing literature suggests that physician credibility surrounding wellness promotion is enhanced when the physician is perceived to be personally “on the healing path.” In other words, IM proposes a transformational component, in addition to knowledge and skills acquisition, within medical education.

Third, IM takes into account all aspects of lifestyle, including nutrition, physical activity, stress, sleep, spirituality, and occupational functioning. There is much overlap here with how family medicine is already taught and practised. However, IM seeks to reinforce these aspects with enhanced teaching and detailed skill development in areas such as counseling on clinical nutrition, prescribing physical activity, assessing motivation, and creating behavioural change. Integrative medicine takes a decidedly “prevention and wellness” approach.

Cet article se trouve aussi en français à la page 1093.

Fourth, IM makes appropriate use of all available therapies, both conventional and alternative. Often in conventional or alternative literature, the advantages of one approach are embellished while the problems with the other are emphasized. Integrative medicine seeks to acknowledge the critical contributions of both conventional medicine and CAM philosophies and treatments, while addressing the problems in each—the overreliance on medication and technology in conventional medicine and the frequent lack of scientific rigour in alternative medicine, for example. Fortunately there is growing evidence to guide physicians through issues such as nutritional recommendations, efficacy of herbal medicines, and use of mind-body therapies in specific conditions. Much of this knowledge lies in literature not read by conventional physicians and needs to be more prominently featured in mainstream medical literature and curricula.

Strategy

Landmark studies by Eisenberg et al⁶ and Astin⁷ in the 1990s documented the substantial rise in the use of CAM and expounded some of the reasons people seek and pay for these modalities of care. Users of CAM are frequently more educated and often have had “transformative” experiences. They want to be more involved in their care, seeking not so much to reject conventional medicine as to supplement it with a wellness and “holistic” orientation, and possibly less toxic therapies. Integrative medicine asserts that overall costs can be reduced by relying less on technology and drugs and investing more time with our patients by providing education in self-care of minor or chronic health problems and cultivating optimal health.

What would an IM-influenced curriculum look like? Medical education would include solid foundations in clinical nutrition, physical activity prescribing, behavioural change, working with spirituality, stress physiology, mind-body therapies, and herbs and supplements. Students would also learn about compelling and commonly sought alternative medical systems, such as traditional Chinese medicine, homeopathy, osteopathy, chiropractics, massage therapy, Ayurveda, naturopathy, and energy medicine. Students would explore the underlying philosophies, treatment approaches, and the strengths and weaknesses of each system, along with how to make appropriate referrals, how to choose reputable providers, and how to place such modalities into an overall plan of care. Finally, students would be encouraged, as a core component of their education, to undertake personal experiments in personal wellness, behavioural change, being a “patient” of alternative practitioners, and spiritual exploration.

Medicine is currently at a crossroads. The prevailing paradigm of scientific reductionism is being questioned and its limitations increasingly recognized. While reductionism has generated much useful knowledge about the mechanisms and treatments of diseases, it falls short of elucidating aspects of healing that a complex interplay of many factors involve.

A new generation of researchers is developing new methods for studying those dimensions of health and healing that cannot be explored with current research methods. As an example, the studies of cardiologist Dean Ornish in the 1980s, which looked at a combination of diet, group support, and yoga in reversing heart disease, demonstrated the powerful synergy at work in a multidimensional treatment program.⁸

Most physicians are aware of the dangers involved when patients pick and choose between conventional and alternative modalities without a trusted advisor to help weigh the options and decide on a combination treatment plan. Integrative medicine provides a supportive setting where patients can have substantial input into how their health is managed, exploring alternative and complementary therapies as desired, while at the same time ensuring that important and proven conventional treatments are not excluded. Family medicine is well placed to lead the way in integrative care. Weighing competing opinions while keeping patients’ interests in clear view has always been a defining dynamic of our work.

From theory to practice

Many difficulties remain to be worked out. Among them is the thorny issue of evidence. It is often implied—wrongly—that everything in conventional medicine is evidence-based and everything in CAM is not. It is becoming increasingly appreciated that the situation is much more complex. Furthermore, standard research methods are not adequate for generating evidence for many alternative treatments. Often individuals who have the same conventional diagnosis are treated differently within an alternative treatment system. Individualized care is difficult to study using conventional science. Many modalities, such as meditation, are difficult to standardize or to compare with a placebo arm. New methods of scientific evaluation, therefore, are being pioneered to study nondrug therapies in ways that are tailored to the operating characteristics of the therapies themselves.⁹ At the same time, it needs to be frankly acknowledged that many CAM therapies lack any firm basis and are not to be recommended. Family physicians trained in IM will be well placed to

The prevailing paradigm of scientific reductionism is being questioned

make such judgments in a manner that patients will find acceptable.

Practical aspects of IM, such as office management, must also be worked out. Organization of time, staff, and funds requires consideration. Likewise, changes in health care policy and health insurance will be required to reflect the evolving face of health care.

The changes proposed by IM, as it enters the medical mainstream, will do much to heal the unnecessary sense of conflict between conventional and comprehensive medicine, both in society, and in the minds of patients and clinicians. Integrative medicine holds the promise of restoring to medicine a more complete sense of its mission, and to its practitioners an enhanced sense of personal well-being and job satisfaction. ❁

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Competing interests

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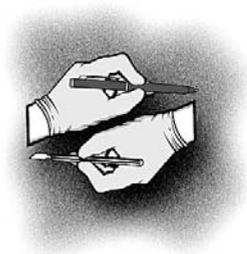
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DESCRIPTIVE ARTICLE ARTICLE DESCRIPTIF

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

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

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

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

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

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

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

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

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

INTRODUCTION

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

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

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

BARRIERS

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

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

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

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

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

SOLUTIONS

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

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

SIoux LOOKOUT MENO YA WIN HEALTH CENTRE PROGRAM

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



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

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

Prenatal care

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

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

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

Evaluation of referrals and case management

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

Program coordination

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

Labour and delivery staff

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

Availability of cesarean delivery

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

Cultural supports

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

Tele-health evaluations

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

Evaluation

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

Outcomes

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

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

Complications

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

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

DISCUSSION

Key strengths

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

Patient volume

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

Remote location

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

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

Organizational culture

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

Needs and challenges

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

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

In addition, rural and remote obstetric services need

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

CONCLUSION

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

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

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**Models of maternal care delivery for Aboriginal
and remote communities:**
a review of the international literature- 2008



Models of maternal care delivery for Aboriginal and remote communities: a review of the international literature- 2008

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Models of maternal child care delivery for Aboriginal and remote communities: A review of the international literature- 2008

Objective

This literature review is designed to review and collate international information and evidence relevant to the development of maternity care models for Aboriginal and remote communities. Part 1 sets the topic in an international context and outlines relevant evidence published on models. The second part is a compendium of the various models found in the literature, which address providing care to remote and Aboriginal communities.

Data Sources

A search was undertaken to identify literature on labour and delivery support for women from Aboriginal and remote communities. Medline, Healthstar, Phychinfo, Cinahl, Embase, Ahmed and the Native Health Database were accessed with the following MeSH terms and keywords: 'American Native continental ancestry group,' 'Indians,' 'North American,' 'Oceanic Ancestry Group,' 'Aboriginal,' 'First Nation,' 'American Indian,' 'Obstetrics,' 'labor,' 'delivery,' 'birth,' 'rural,' 'labor support,' 'doula,' 'midwifery'. The results were manually limited to English papers published between 1975-June 2008. Government documents and conference papers were also accessed. Once a model of care was identified in the literature, further internet searches on the specific maternity care program were done using Google and Google Scholar.

Literature Selection

Abstract review was done on approximately 900 articles, followed by a full text review of 200 articles and documents. Articles were limited to studies, models of care, and reports. The 91 chosen articles and documents were considered relevant to the discussion if they contributed to the body of evidence, described guidelines and best practices, contextualized the topic or outlined a model of care. The majority of opinion pieces and personal accounts were excluded from the review, as they did not contribute new information to the discussion. The literature search produced many articles with focused clinical questions, in which the study sample was taken from a rural population; for example, the prevalence of certain conditions (cervical HPV, smoking habits, thyroid disorders, etc). These did not contribute to the body of information on model description or provision of care and were excluded.

The following references are included in the literature and model review: 22 program descriptions and outcomes, 14 randomized trials, 15 non-randomized trials (cohort, retrospective, etc), 6 survey/questionnaires, 12 qualitative studies, 7 reports, 2 reviews and 2 meta-analyses.

Synthesis

Models of care are complex and context specific. It is not always clear what nearby supports are available and what infrastructure context makes programs viable. The literature is challenged by a lack of descriptive detail. Organization, funding and infrastructure information is particularly lacking. Additionally, the literature is limited by a lack of reporting on unsuccessful models. This poses a challenge in determining the context and transferability of a model and in identifying which aspects contribute to the success of the program. The literature review in Part 1 is meant to highlight common aspects in the international literature. The purpose of the model compendium in Part 2 is to outline various programs which may inform the development of other models for Aboriginal and remote communities.

A review of the evidence, practice guidelines, and program descriptions highlights the following key aspects of maternity care:

- Access to local care
- Relationships built on trust
- Continuity of care
- Culturally appropriate care
- Birth location choice
- Community-based and community controlled programs
- Continuous emotional labour support
- Appropriate risk management, including psychosocial and cultural risk factors
- Collaborative care
- Education/outreach and information
- Scope of services

PART 1: A REVIEW OF THE LITERATURE

1. Hospital-Based Intrapartum Care

1.1 Safety of rural and remote obstetrics

The safety of small obstetrics services with limited technology is a longstanding and recurring question which appears throughout the international literature. Most studies determining the safety of an obstetric practice use perinatal mortality rates (PMR) as outcome measurements. Robinson describes the flaw in this approach, since the PMR is affected by many variables other than health care.¹

Most studies pertaining to the quality of maternity care by family physicians in rural hospitals indicate that outcomes of low-risk births in small remote and rural hospitals are comparable to larger urban centres.²⁻⁸ A 1984 study of a rural obstetrics programs in northern Ontario found that rural hospitals, who perform c-sections regularly, found better low risk birth outcomes than those of urban centres.³ A 2007 study which analyzed 5792 Canadian c-sections compared the outcomes of those performed by general practitioner/surgeons to those of performed by specialists and found similar outcomes.⁹

In 1995 there were 126 hospitals in Canada providing maternity care without c-section capability.¹⁰ We identified 2 studies examining the safety of these types of hospitals.^{11,12} A 2005 study (n=1668) compares two isolated, rural communities in BC with small hospital maternity services; one with c-section capability and one without. A higher rate of local deliveries and a lower rate of preterm deliveries was documented at the hospital with c-section capabilities. There were no statistically significant differences in all other outcome measures (perinatal death, Apgar scores, adverse perinatal outcomes, instrumental vaginal delivery and population-based rates of c-section).¹¹ The second study, a 2002 historical cohort study of a maternity care unit without surgical facilities, had similar results. The outcomes of the 1132 pregnant women from the predominantly Native American region in New Mexico documented: a lower PMR compared to the national rate (11.4 vs. 12.8); a cesarean delivery rate of 7.3%; and better Apgar scores. The authors of this study conclude that this maternity care unit, which was part of an integrated perinatal system, allows women to deliver closer to their community with a low level of perinatal risk.¹²

1.2 Access to hospital-based intrapartum care

Despite the evidence supporting the safety of small, rural hospitals, many rural obstetrical programs in Canada have faced closures and centralization of services due to shortage of health care personnel.^{13,14} This trend affects rural and remote women and is considered part of the emerging maternity care crisis.¹³

Kornelson suggests that analysis of the safety of small obstetrics practices be reframed to consider the safety of *not* having these services available locally.¹⁴ Her 2006 qualitative study contributes to this enquiry. Her study (n=44) of women from four rural, high outflow communities explored their birthing experiences. Kornelson found that when the participants' needs were not met locally, they exhibited "strategies of resistance" which included, elective induction of labour, timing of pregnancies around seasonal travel conditions, and presenting in advanced stages of labour or having unattended home births to avoid transfer to referral centres.¹⁴ Based on a later study, Kornelson estimated that 4% of inductions in rural BC are "geographic inductions" to plan location of birth.¹⁵

Along a similar line of investigation, a BC conference in 2000 engaged perinatal care providers and key stakeholders in a consensus building dialogue regarding the level of obstetrical service considered acceptable. The position that emerged from this conference was that a "local rural obstetrics service, even if limited in scope, offers better outcomes for mothers and newborns than no service."¹⁶ Evidence from a Florida study supports this conclusion. The study found that the infant mortality rate increased with the reduction of local services. The loss of one rural family physician led to a small but measurable increase in the PMR.¹⁷

Health human resource strategies are necessary in increasing maternity care access for rural women. Efforts to retain and retrain healthcare professionals, such as the provincial initiative, Maternity Care 4 British Columbia, have allocated funds to offer incentives to train GPs, locums and new graduates for obstetrical care provision.¹⁸

1.3 Travel

As access to care continues to challenge rural and remote communities, rural women are increasingly required to travel for birthing support and obstetrical services.^{19,20} This travel is associated with higher delivery complications and higher rates of pre-maturity,²² as well as increased financial, emotional, psychological stress.^{16,21} An American study (n=5 554), which analyzed 1986 data from 33 rural hospitals in Washington State, demonstrates the association between travel and delivery complications. The researchers compared the delivery outcomes of high outflow communities to communities with greater access to care. Women from the high outflow group had a greater proportion of complicated deliveries, pre-maturity and higher cost of neonatal care compared to the later group. Although the evidence did not determine a causal relationship, an association between travel and adverse outcomes was found.²¹

Aboriginal women from remote communities experience the adverse effects of travel in addition to cultural barriers to care. The literature describes a common situation to both Australian and Canadian, remote, Aboriginal communities where evacuation for delivery is practiced. Women are typically away from their families, communities and culture for a period of 2-6 weeks.^{13,23} These challenges are further exacerbated by a birthing process that may differ from cultural concepts of birth and the community's involvement in the process.

Chamberlain's 2000 qualitative study (n=28) of Inuit women, partners and community members documents the psychosocial effect of transferring women out of their communities for birth. The findings underscore the emotional stressors incurred due to travel: lack of labor support, separation from family, culture and community. Both emotional and economic stresses were placed on families where the father who normally worked or hunted was required to be absent from work to run the household in the mother's absence.²² Similar themes were found in an Australian study which used the Delphi method to interview Indigenous women about their

birthing experience. Fears for their baby, hospital procedures and of being alone were identified. Separation from culture and being away from family in an unknown place and lack of empathetic communication caused much anxiety for women and families.²⁴

2. Personal Choice in Birthing Process

Conventional risk equations exclude social, emotional and cultural risks. Kildea posits that perceptions of risk and safety must be reconsidered in order to properly assess both the safety and success of a program.²⁵ Conversely, holistic evaluations of obstetrics programs would consider women's experiences of birth as an important element of outcome measurements. Patient satisfaction is one such outcome measure which has been explored. Does a woman's satisfaction impact her health and her relationship with her infant? A US survey of low-risk postpartum women (n=60) found personal control to be an important predictor of total childbirth satisfaction (p=0.0045).²⁶ A 1999 study analyzing the questionnaire responses of 412 women, aimed to determine the factors which contribute to a positive birthing experience. Support, control, decision-making and information were the main themes.²⁷ Similarly, qualitative analysis of 28 interviews with women from remote communities in Australia indicated that choice about location of birth was the most significant factor in their birth experience. Factors influencing their decision-making included their cultural, social and spiritual needs.²⁸

Women may choose limited local services rather than deliver far away from home. A survey of 64 women from Marathon, Ontario revealed that participants were relatively well informed of birthing risks, and 77% said they would choose to deliver in Marathon, despite no c-section capability.²⁹ These findings are consistent with those of a study of women from a small, remote Australian town with limited obstetrical services. 70% of these women also chose to deliver locally.³⁰ Their decisions were predominantly informed by safety considerations; as well as the availability of family supports; familiarity with the environment and services; and financial considerations.³⁰

3. Community-Based Maternity Care

Concepts of community-based maternity care vary across the literature. In some cases, it refers to all maternity care, including birth, taking place in the community. In other cases, community-based care refers to prenatal care and education that is population/culture specific; continuity of care in pre and post natal care that coordinates and integrates various services. Birth takes place in-hospital. These models occur in both urban and rural settings.

3.1 *Bringing birth back to Aboriginal communities*

The practice of evacuation from remote Aboriginal communities for delivery has been in place for the past 30 years in Ontario.¹³ This practice has been described as both the medicalization of birth and, by some, an extension of colonial practices and relationships.^{25,31,32} One author poignantly associates perinatal medical evacuation with the trauma and social dislocation of the residential school policy.^{31,33} O'Neil, a Canadian medical anthropologist, discusses the implications that evacuation policies have on Inuit culture, community and society. Traditional midwifery and childbearing are central to Inuit women's culture and identity, and the loss of this traditional role is described as a threat to the security of the communities.³² The resulting situation is a loss of traditional knowledge and skills, and an involuntary dependence on the medicalized model of birth.³²

Bringing birth back to communities is seen as a way of restoring pride, skills and capacity building.^{31,34,35} Hancock describes the benefits of allowing a woman to experience the full continuum of birth with the support of family and community. Through this natural and positive experience, the women's self-esteem, mental health and well-being may be nurtured and impacting the child's well-being.³⁴ This view is consistent with a 1993 report on traditional midwifery practices that existed in the Nishnabe Aski Nation (NAN) of Northwestern Ontario.³⁶

The report describes the conviction that the evacuation model removes the joy of the birthing experience from the community and therefore disrupts the cycle of life. This report was based on a study which explored the roles and responsibilities of traditional Aboriginal midwives through qualitative interviews with 19 women who had practiced as midwives prior to the transition from community births to hospital births. The women, from 7 First Nations NAN communities, described the holistic care provided by the midwife prior the evacuation model. The midwife's roles were describes as those of teacher, herbalist/healer, caregiver, nurturer, dietician and "Do-dis-seem" (a life-long relationship connecting the midwife to child and family, where the midwife is involved in child's development and maturity).³⁶

An internationally recognized model of midwifery care in the region of Nunavik, Quebec (described below) was developed to bring birth back to the communities and address the psychosocial, linguistic, cultural and economic barriers faced by the Inuit women of the area who were routinely transferred out for labour and delivery.^{31,38} The communities have included these psychosocial and cultural elements into the risk equation and have carefully weighed the risks and benefits of community birthing.³¹ Collaboration, strong community support, community-based education and careful risk screening are described as critical to the model.^{31,38}

In Australia, where geographic circumstances and the historical context are similar to Canada's, similar views on birth and the community are identified. Fitzpatrick describes Australian Aboriginals' connection with the land and how this connection shapes their identity. Caring for the land is seen as a "custodial role" which is passed on to Aboriginals at birth.³⁷ The 94 women in a qualitative survey, voiced a strong objection to the evacuation model, where there is a lack of continuity of care, social support and culturally appropriate care.³⁷

Hancock's 2007 discussion paper comments on the prevalence of low birth weight babies among Australian Aboriginals, where the rate of prematurity is 2 times higher than that of the non-Aboriginal population.³⁴ The author postulates the removal of birth from the community undermines the integrity of community and culture, interferes with decision making and personal control, and may negatively affect birth weights.³⁴

3.2 Aboriginal community-based maternity care

There is a common recognition in the literature that community-based maternity care is a desirable model for Aboriginal communities.^{25,31,37-39} This model reduces social and cultural barriers to care, increases access and blends both traditional and modern techniques.¹³ Care in hospitals has been described as lacking information, lacking culturally appropriate care and having high rates of intervention.³¹

The Strong Women Strong Babies Strong Culture pilot program (see Part 2), in Australia, consisted of an intervention of a community-based program for Aboriginal women.⁴⁰ It combined traditional and Western practices and encouraged use of antenatal health care. The main outcome measure was birth weight. Birth weight increased by 171 grams in the pilot group compared to 92 g in other communities (n=1239).⁴⁰ Another Australian example is the Alukura Birth Centre (see Part 2). The program recognizes Aboriginal culture and identity as they relate to maternity care.⁴¹ Client visits increased by more than 40% over a period of 2 years. Mobile Bush Clinics and links with Bush communities were seen as an essential role. Increased antenatal care and increased birth weight were documented.⁴¹

An urban, community-based program in the UK provides midwifery care to a diverse population. Evaluation of this program revealed a lower induction rate and a lower c-section rate.³⁹ The reduction in interventions suggests this model is cost effective. Their government recognized this approach as an example of an effective public health strategy.³⁹ Similarly, a holistic economic evaluation of an Aboriginal community-controlled midwifery service in Australia found cost savings to the service and to the patient due to reduced travel costs. The broad analysis employed by these researchers also captured other value-added benefits such as increased prenatal clinic visits. Qualitative analysis revealed increased trust, accessibility, flexibility and

empowerment. These results suggest that long-term outcomes can be captured through broader, holistic evaluation of community-based programs.⁴¹

A study of remote Inuit communities in the Kivalliq region of Nunavut identified barriers to returning childbirth to Northern communities. Participatory methods of interviews and community consultation took place from 2002-2004.^{35,42} A lack of mobilization of providers and communities, concerns about safety, relationships between communities, providers and decision-makers were key findings. A lack of dialogue between communities and governing institutions was identified. Many participants felt that their communities were no longer safe for birthing.⁴² Based on these results the researchers call for multidisciplinary collaboration, involving the community and building on traditional knowledge, history and capacity.³⁵ The authors of the study compare the Rankin Inlet model to the Nunavik and Six Nations. They suggest that the comparable success of the latter models can be attributed to greater commitment and ownership at the community level.⁴²

3.3 Community midwifery care

Community midwifery models provide women with one-to-one midwifery care throughout the childbearing continuum, from all phases of pregnancy to the postnatal period, and across all institutional and home settings. Birth can occur in a woman's home, hospital or birth centre setting. The main tenet of community midwifery is that it is woman centred and community managed (as opposed to separate, acute health services).³⁹ In addition to the Nunavik program described above, an example of such a model is the Community Midwifery Program (CMP) in Western Australia which provides one-to-one continuity of midwifery care and support women's psychosocial and cultural needs. One reviewer suggests that it is the model of care rather than the birth location that is the essential element to achieving optimum outcomes.³⁹

4. Continuity of Maternity Care

A Canadian discussion piece attempts to clarify the ambiguous term, 'continuity of care'.⁴³ The term varies across disciplines, but a common understanding, describes continuity of care as "the degree to which a series of discrete healthcare events is experienced as coherent and connected and consistent with the patient's medical needs and personal context." The two core elements are care over time and a focus on individual patients. The three types of continuity are: informational, management, and relational.⁴³

Three randomized control trials compare different levels of continuity of care within midwifery and nursing care. A 2003 Australian study (n=1000) compared team midwives to individual midwives. Increased satisfaction, shorter hospital stays (7 hours shorter), fewer pain medications given and less episiotomies were documented when the midwives operated as a team.^{44,45} An earlier 1997 trial compared one-to-one nursing support to usual intrapartum nursing care. The experiment group documented 17% less oxytocin use than the control. No differences in c-section rates and labour durations were found.⁴⁶ The third trial, an Australian randomized control trial of pregnant women (n=1089) from an urban, culturally diverse community compared a community-based model of continuity of care to a hospital-based model. Both groups delivered in-hospital and received care from midwives, obstetricians and doctors. The community-based group received continuity of care through a consistent team approach across antenatal, intrapartum and postnatal periods; whereas, the control group received standard hospital-based care. The comparison of outcomes found the c-section rate of the community-based model to be significantly lower (13.3 vs 17.8). Perinatal mortality rates were identical, 7.3/1000 in both groups.⁴⁷

4.1 Nursing

There was surprisingly little in the literature on obstetrical nursing care, considering the pivotal role nurses play in maternity care. Canadian standards call for one to one nursing during active labour.⁴⁸ They provide this care irrespective of who the recognized birth attendant may be.

In Canada's remote Aboriginal communities extended class nurses (RN-EC) are the primary healthcare providers of pre natal and maternal and child care. In these communities, nurses are the providers of continuity of care.⁴²

4.2 Midwifery

A 1999 World Health Organization report, *Care in Normal Birth*, declares midwives to be "the most appropriate and most cost effective care provider for low-risk births."⁴⁹

A 2002 statistic documents 2% of births in Canada are attended by midwives,⁵⁰ while the rate in the Netherlands and in New Zealand is 80%.³⁹

Our literature search produced 2 randomized control trials contributing to this body of evidence. These studies document that midwife managed care decreases induction rates^{51,52} and episiotomies,^{51,52} increases rates of intact perineums⁵¹ and decreases hospital stays.⁵² A Finnish, 1996 mixed methods study (n=200), found a significant association between emotional support provided by midwives and positive, less painful birthing experiences. Women reported the main factor being the reception and treatment they were given.⁵³

Evidence surrounding the safety of home births has also been identified. A 2005 prospective cohort study examined the safety of low-risk home births in Canada and the US (n=5418).⁵⁴ Lower medical interventions were documented and intrapartum and neonatal mortality rates were similar. These findings are consistent with an earlier 1997 meta-analysis of the safety of home birth. The analysis, which looked at 6 controlled studies (n=24 092), calculated a decrease in medical interventions and no differences in perinatal mortality rates. Based on these studies, the authors conclude that home births are as safe as hospital births.⁵⁵

The maternity care model in the Netherlands, where 30% of births take place in the home, provides an example of the safety of home births. A 1996 study compared planned home birth to planned hospital birth (n=1836) and found better outcomes in the group that delivered at home.⁵⁶ The element of choice between home and hospital birth is described as an integral feature of the Dutch system.

4.3 Doula Care

Women have historically provided support for other women during labour, until the last century when the location of births shifted from the home to hospital settings.

Doula is a Greek word traditionally describing a woman who provides care for another woman during childbirth. In modern healthcare, doulas provide continuous one-on-one physical, emotional, and informational support for the woman and her partner from the start of labour until after delivery.⁵⁷ The key to doulas' success is attributed to their continuous one-on-one support, rather than the intermittent presence of other healthcare providers.⁵⁸

Doula support has been demonstrated to: increase breastfeeding intent and initiation⁵⁹⁻⁶¹ and exclusive breastfeeding at 6 weeks,⁶² cause greater cervical dilation at time of hospital admittance showing the ability to labour at home longer,⁶³ increase rates of intact perineum,⁶³ improve maternal behaviours including touching, smiling and stroking,⁶⁴ improve overall experience scores;⁵⁸⁻⁶⁰ and increase self-esteem and security scores.⁶⁵ The studies further document reduced: diastolic blood pressures,⁶³ perinatal complications,⁶⁶ state anxiety scores,⁶² caesarean section births,^{60,61,66,67} epidural use,^{49,60,67,68} oxytocin use;^{66,67} duration of labour,^{67,69}

and mood disturbances post-birth.⁶⁵ The possible physiologic mechanism of doula care may be the ability to decrease symptoms of stress, anxiety and pain; resulting in reduced circulating catecholamines. These hormones reduce blood flow to the uterus and therefore uterine contractions, resulting in longer labours.^{64,66,67,69}

The presence of doulas has resulted in several approaches to delivering care. The advantages and disadvantages of three models of doula care in the US have been outlined by Ballen.⁷⁰ Hospital-based doulas have the advantage of being familiar with the hospital settings, procedures, policies and other healthcare staff. However, these programs face issues finding adequate funding for paid doulas and hiring sufficient volunteers for full time coverage. Community-based programs use doulas from the local community and have the advantage of offering culturally sensitive care, due to shared background and language. These doulas, however, may be less familiar with the hospitals and possibly still encounter difficulty with funding. The third model of care, based on private practice doulas, provides support that can be hired prior to labour in order to develop a stronger relationship between the mother, her partner and the doula. Unfortunately, this service is only available to those who can afford it and the doulas may be unfamiliar with hospital settings.⁷⁰ A 2004 study (n=626) by Lantz et al, showed that only 3.6% of US doulas are in hospital- or clinic- based practices.⁷¹

An assessment of a US hospital-based doula program outlined the cost of providing doula care over a seven year period.⁶⁰ The cost per delivery was estimated to be \$190, for an annual total of \$150,000 to run the program. The study (n=221) found positive labour outcomes increased when only one or two paid doulas were used for a single birth versus more than two doulas on a volunteer basis.⁶⁰ Another hospital-based doula program at Boston Medical Center (BMC) involving 11 471 women over 7 years showed a significant increase in breastfeeding rates and decreased caesarean sections in women who received doula support. The doula service provided to 25% of births in 2005 included prenatal contact, continuous one-to-one emotional and physical support during labour and birth, breastfeeding assistance and optional 8 hour post-partum support.⁶¹

Only one Canadian study was found, involving 103 women that took place at a teaching hospital in Toronto.⁶³ Mothers who received continuous support had greater cervical dilation, increased rates of intact perineum, higher physical comfort measures and reported better emotional support and advocacy from care providers.⁶³

A 1996 meta-analysis of continuous labour support notes that population-specific trials, including cultural and socio-economic status, would provide useful information to the body of literature.⁷²

4.4 Partner Support

Social support networks play a critical role in stressful life situations, and can help the mother cope with many challenges faced during childbirth.

A 1998 Hungarian study (n=216) revealed that 80% of men and women have fears relating to childbirth.⁵³ More specifically, 16.6% of women reported "they were very scared of being lonely in a strange environment".⁵³ In a study investigating the psychosocial effect of giving birth away from home on Indigenous women, the major themes that evolved were emotional and physical stressors, choices and support.²² Both emotional stressors and support concerns were a result of being transferred from their community and having to experience the difficulties of childbirth without partner and family support.²²

80% of 200 Hungarian women volunteers felt that having their partner present at the time of delivery would have no negative effects on their relationship.⁷³ Similarly, a 2005 Iranian study examining the attitudes of 150 couples revealed that the highest attitude score was found for the belief that "childbirth is one of the most important moments in life," followed by the feeling that partner support is crucial so the mother has someone familiar to whom she can discuss her

concerns with.⁷⁴ A UK study by Copstick et al. regarding coping techniques during labour revealed that fewer women received anaesthesia epidurals if their partner encouraged them to use specific pain control techniques.⁷⁵

Tarkka (n=200) revealed that a woman's source of social support is necessary for a positive birthing experience and consists of partners, family members and close friends.⁵³ A survey of 412 English women on the factors contributing to a positive birthing experience found it was essential to have the support of both a partner or friend and a midwife in order to experience a rewarding delivery.²⁷ The survey also reported that 82% of women felt it was important to have their partners partake in decision making regarding their care.

A longitudinal study investigating the psychological effects after childbirth of 374 women revealed that partner support is a moderator in the development of adverse emotional symptoms. Women with more emotionally supportive partners were less likely to develop avoidance, intrusion and depressive symptoms at four months.⁷⁶

PART 2: A COMPENDIUM OF RELEVANT MODELS OF MATERNITY CARE

1. Selection and Collation Process

In this section the authors summarize models of maternity care for remote and Aboriginal communities found in the international literature. There was limited literature on formal program or model descriptions. This presents challenges to comprehensive model description. Many of the models outlined below were described in the literature as approaches to care and lack any formal evaluation. Others were extracted from interventions or pilots within studies and are lacking descriptive detail. It should be noted that those programs and pilots that were one-time implementations for research purposes may not have lasting outcomes or may lack the necessary mechanisms for program sustainability. Secondly, funding and infrastructure information is lacking in almost all cases, making assessments of transportability of programs difficult.

Missing information about these models presents further challenges for classification. Information is particularly lacking around clarification of organizational structure, and roles and relationships between caregivers. This therefore creates challenges in defining and classifying models as collaborative, multidisciplinary, multi-professional, providing continuity of care, or community-based. Due to these challenges the authors simply organize the models into three sections: national, international, and selected urban models of care.

This collation of models is provided as a resource, outlining various options which may inform the development of a model for Aboriginal and remote communities. Selected urban models have also been included based on their ability to address common challenges such as caregiver retention and the provision of culturally appropriate care.

1.1 Limitations

The authors acknowledge that many other un-published models may exist, including those which have been described for purposes other than research. Secondly, no standard program descriptions are used by these disparate sources, making comparison problematic.

2. Maternity Care Models in Aboriginal and/or Remote Communities

Only Canadian and Australian models of care were found in the search for international models of maternity care for remote and Aboriginal communities.

2.1 Canadian Models

Bella Coola General Hospital (Bella Coola, British Columbia)

Objective: Provide local care to a rural population.

Setting: An isolated rural community in BC with a predominantly First Nations population.

Services: Hospital based deliveries

Care Givers: Family physicians and nurses.

Outcomes: Reported c-section and episiotomy rates are 15% and 4% respectively. (2005)⁶

Manitoulin Island (Ontario)

Objective: Address physician exhaustion and improve working conditions by organizing physician coverage of clinic and delivery by rotation.

Setting: A prenatal clinic, located on the Island (12 000 people, 35% of which are First Nations). Deliveries were hospital based.

Care Givers: GP's and nurse midwife.

Outcomes: Improved job satisfaction. (1997)⁷⁷

Nunavik (Quebec)

Objective: A sustainable, culturally appropriate program to bring birthing to community through the use of evidence-based guidelines and the education of Inuit midwives.

Setting: 3 birthing centres serving 7 Inuit communities in Nunavik, Quebec.

Services: Antenatal care, intrapartum and postpartum midwifery care. Midwifery education.

Caregivers: A multidisciplinary team of midwives, family physician and nurses. A multidisciplinary committee reviews each case and decides whether or not the woman should deliver in the community.⁷⁸

Outcomes: A 5 year retrospective survey (n=182) of Inukjuak (one of the Inuit communities included in the project) saw an increase of women giving birth in-community from 44% in 1998 to 74% in 1999.⁸⁰ Approximately 3000 women have been cared for in the Nunavik region since the 1986 opening of the birth centres. The perinatal mortality rate of all 7 communities is 0.9 %, which compares well with other Inuit populations with similar health risks (Northwest Territories = 1.9; Nunavut Territory = 1.1). C-Section rate of 2.4%, including the women who have been transferred.⁸⁰ Midwives have safely managed antepartum hemorrhages, cord prolapse, twins and breech all with good outcomes.²⁵ (2006)

Queen Charlotte City (Queen Charlotte City, British Columbia)

Objective: Provide safe local maternity care.

Setting: A 21-bed hospital and medical clinic on the Queen Charlotte Islands, BC.

Service Providers: 5 family practitioners provide care without local obstetric, pediatric, anesthetic or surgical support.

Outcomes: A study comparing QCC to a similar centre in BC with c-section capabilities found the rate of preterm deliveries in QCC to be higher (8.8 vs 6.2). Otherwise, all other measures (perinatal death, newborn transfer, adverse perinatal outcomes) compared favourably. (1991)⁸¹

Rankin Inlet Birthing Centre (Rankin Inlet, Nunuvit)

Objective: Bring birthing closer to home and encouraging the survival of Inuit concepts and beliefs around birthing.

Setting: A successful pilot program (1993-1996) developed into a program with the Rankin Inlet Health Centre.

Background: The program struggled with recruitment and retention until a committed team of staff and advisors developed a thriving Nunavut specific midwifery education program.

Caregivers: Certified midwives. 3 Registered Midwives also travel to nearby communities to provide prenatal care.

Links: Consult with Obstetricians in Winnipeg and transfer women there when necessary. (2008)⁸²

Sioux Lookout Meno Ya Win Health Centre (Sioux Lookout, Ontario)

Objective: Deliver a full range of safe obstetric care to 28 distant Aboriginal communities and the local community.

Setting: A northern, rural hospital.

Services: Prenatal clinic, c-section and anesthesia services, tele-health evaluations, outreach and cultural supports. A traveling ultrasound service allows women to undergo ultrasound examination in their remote communities.

Care Givers: Physicians, nurses, GP surgeons, GP anesthetists, ultrasound technician, and cultural support workers.

Outcomes: C-section rate of 24%. 627 babies were delivered in a 2 year period (2006-2008), with no intra-partum fetal or maternal demise. (2008)⁸³

Tsi Non:we Ionnakeratshtha Ona:grahsta (Six Nations First Nation, Ontario)

Objective: Bring birth back to the community through a community owned program that offers traditional and contemporary services.

Setting: A birthing centre in an Ontario First Nations community.

Services: Since 1996 the program has been offering intrapartum care, prenatal classes, traditional medicines and foods sessions, Aboriginal midwifery training, traditional parenting workshops, spiritual and cultural direction, etc.

Caregivers: Midwives. Grandparent Group (Elders) provides spiritual/cultural direction to the Maternal and Child Centre.

Links: Medical back-up from local obstetricians and hospitals.

Outcomes: Between 1996 and 2002 the centre provided care to 252 women. (2006)¹³

Weeneebayko (Moose Factory)

Objective: A human resource and training strategy to re-open their obstetrics program.

Background: The obstetrics program faced closure due to physician shortage.

Setting: A hospital, servicing 6 remote fly-in communities, in a predominately Cree region with a population of 12 000.

Services: Prenatal, and intrapartum and postnatal care for low risk pregnancies in a rural hospital.

Caregivers: Family physicians, nurses and periodic visits from retired obstetricians.

Links: 2 weeks clinical traineeship for family physicians supervised by an obstetrician in Timmins. Week long consultant visits by retired obstetricians from Queen's University. Teleconferences prenatal rounds.

Outcomes: The re-opening of the obstetric program with 4 physicians providing obstetric care. (2005)⁸⁴

2.2 International Models

Most models of maternity care which fit the selection criteria are Australian with the exception of one American model.

Aboriginal and Maternal Infant Health Strategy (AMIHS) (Australia)

Objective: Reduce Aboriginal perinatal mortality and improve care for Aboriginal women.

Provide outreach and culturally sensitive care and develop trust relationships with clients.

Setting: A community based midwifery-care program for 7 rural Australian communities.

Caregivers: Midwives, a designated training and support unit to ensure that the maternity care needs of Aboriginal women are met.

(2007)⁸⁵

Atherton Hospital (Australia)

Objective: Safe, local maternity care provided by non-specialists.

Setting: Hospital in a rural community in Australia of 21 000 people.

Service Providers: General practitioners and registered nurses.

External Support: The Far Northern Region Obstetrics and Gynecology Service (FROGS) provides a visiting specialist obstetrician-gynecologist 4-6 times/year. A helicopter evacuation service is available.

Outcomes: A 10 year audit of the program found a perinatal mortality rate of 5.3/1000, a c-section rate of 17.4% and no maternal deaths.

(2001)⁸⁶

Congress Alukura Woman's Health Program (Australia)

Objective: Guided by a women's council and based on community consultations, traditional laws and birthing practices, and the knowledge of the Traditional Grandmothers.

Setting: A women's health and birthing centre.

Services: antenatal care, postnatal home visits, shared maternity care, gynecological services, counseling, health education, transportation and a bush mobile clinic.

Care Givers: Care is provided by a medical officer, midwives, a women's health nurse, educators and traditional grandmothers.

Outcomes: Efforts for community births were less successful: only 16 births occurred between 1994-1997.

(2004)⁴¹

Daruk Aboriginal Community-Controlled Midwifery Service (Australia)

Objective: Provide culturally appropriate midwifery care and increase maternity care given to Aboriginal women.

Setting: An urban clinic providing care to women from the local Indigenous population (approximately 12 000).

Services: Antenatal check-ups, transport, labour support and delivery, hospital visits, home visits, infant feeding assistance and cultural awareness training for hospital staff,

Caregivers: An Aboriginal health worker, a non-Aboriginal midwife and two female general practitioners.

Outcomes: A study documented a mean number of antenatal visits in Daruk as two times higher than in a nearby community (10.5 vs 5.5).

(2004)⁸⁷

Indian Ocean Territories Health Service (IOTHS) (Australia)

Background: Facilities on the Islands have faced closures due to a lack of qualified staff. Women are now flown to the mainland.

Setting: Australian territories which comprise 2 remote islands with diverse populations.

Services: Women are flown to the mainland for ultrasound and scanning and then again for confinement at 36 weeks gestation. Families are provided with two adult return airfares to Perth and some financial assistance with accommodation. (2007)²⁸

Queensland Flying Obstetric and Gynecology (FOG) Service (Australia)

Objective: Established in 1988, the service provides local care to remote communities by bringing specialists to communities.

Setting: 27 geographically dispersed, remote Australian communities.

Services: Routine specialist visits, emergency care and birthing services.

Care Givers: Family physicians and obstetrician and gynecology specialists.

Future Directions: The program is challenged by specialist shortage and it has therefore been suggested that they integrate teaching into the service to recruit new specialists and GPs. (1991)⁸⁸

Strong Women Strong Babies Strong Culture (Australia)

Objective: The pilot program aimed to increase Aboriginal birth weight through earlier attendance of antenatal care. Provide culturally appropriate care and combine traditional and Western practices.

Setting: A community-based program in rural Australia.

Services: Support and advice on nutrition and safe practices provided by local women.

Caregivers: A respected Aboriginal women coordinated the program. The Strong Women Workers were women who were selected by the communities.

Outcomes: The prevalence of low birth weight in pilot communities decreased from 8.4% to 1.5%. (1999)⁸⁹ (2000)⁴⁰

Women's Business Service (Australia)

Objective: Increase care received by Aboriginal women by Providing personalized, holistic, culturally appropriate midwifery care.

Setting: An urban community-controlled primary health care service.

Services: Antenatal and postnatal care, support, education and information.

Care Givers: A registered midwife and an Aboriginal maternal health worker.

Links: Operates alongside a general medical clinic. (2004)⁹⁰

Zuni-Ramah Hospital (New Mexico)

Setting: A hospital maternity care unit without c-section capabilities in a rural, predominantly Native American region of New Mexico.

Services: Prenatal care and intrapartum care for low to moderate risk pregnancies.

Caregivers: Family physicians and a part-time nurse-midwife.

Links: The maternity care unit is part of an integrated perinatal system with access to OBG consultants 33 miles away. Perinatology and neonatology care are available 147 miles from the community.

Outcomes: A c-section rate of 7.3%, induction rate of 13.8%, augmentation rate of 7.7%, and a hospital based PMR of 11.4/1000. (2002)¹²

3. Selected Urban Models

Hamilton Maternity Centre (Hamilton, Ontario)

Objective: A pilot project involving a collaborative interdisciplinary model with shared call. Address family physician shortage in order to provide full obstetric care to local population.

Setting: Urban centre with 27% of women considered to be in a high social risk category.

Services: Prenatal visits, referrals to specialists, intrapartum and postpartum hospital care, and postpartum maternal and newborn follow-up.

Care Givers: Family physicians, a nurse practitioner, social worker and public health nurse. Obstetricians available for emergency consultations.

Outcomes: The pilot was successful in recruiting new physicians and in increasing patient satisfaction and physician job satisfaction. In 2003 over 500 deliveries occurred at the Maternity Centre. The c-section and episiotomy rate are documented as 16% and 6% respectively. (2005)⁹¹

South Vancouver (Vancouver, BC)

Objective: Provide care to culturally diverse women and families.

Setting: A culturally diverse neighbourhood in Vancouver.

Services: Prenatal care, education, intrapartum care and postpartum care.

Caregivers: Prenatal care and education sessions are led by public health nurses and a midwife or family physician. Each woman is assigned a doula who represents their cultural and language group. Births take place in a tertiary care centre where a family physician or midwife attends birth. Postpartum care is provided by the prenatal caregivers. (2006)¹³

St George Outreach Maternity Project (STOMP) (Australia)

Objective: Provide continuity of care by midwives and obstetricians. Provide outreach and culturally appropriate care to a diverse population.

Setting: A culturally diverse urban community in Australia.

Services: STOMP clinics are set up throughout the community. Provides women with the option of being cared for by the same team of midwives during antenatal clinic care, hospital intrapartum care, and hospital and home-based postnatal care. Intrapartum care is hospital based.

Caregivers: Two teams each with 6 full-time midwives. An obstetrician is involved in as required.

Outcomes: 600 births per year.

CS capability.
(2002)³⁹

Conclusion

We described the international literature on Aboriginal and remote obstetrical services. Culturally appropriate and safe care takes on a variety of faces. There is no perfect model, rather approaches to addressing local and regional issues. Continuous, appropriate care involves outreach, risk assessment and follow up. Intra partum care is described in community birthing centres, small rural hospitals and tertiary care centres. The nuances of who attends the delivery and where it takes place are multi-factorial. The breadth of referenced models of care allow for judicious creativity. Wisdom presumes all components need to be in place for safe obstetrical care of the well informed and supported patient. The literature reminds us that for Aboriginal patients, birthing may also be a cultural and community experience.

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Single-dose intrathecal analgesia to control labour pain

Is it a useful alternative to epidural analgesia?

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ABSTRACT

OBJECTIVE To examine the safety and efficacy of single-dose spinal analgesia (intrathecal narcotics [ITN]) during labour.

QUALITY OF EVIDENCE MEDLINE was searched and the references of 2 systematic reviews and a meta-analysis were reviewed to find articles on obstetric analgesia and pain measurement. The 33 articles selected included 14 studies, 1 meta-analysis, and 2 systematic reviews, all providing level I evidence.

MAIN MESSAGE The literature supports use of ITN as a safe and effective alternative to epidural anesthesia. The recent decrease in rates of episiotomies and use of forceps during deliveries means patients require less dense perineal anesthesia. The advantage of single-dose ITN is that fewer physicians and nurses are needed to administer it even though its safety and effectiveness are comparable with other analgesics. Use of ITN is associated with a shorter first stage of labour and more rapid cervical dilation. A combination of 2.5 mg of bupivacaine, 25 µg of fentanyl, and 250 µg of morphine intrathecally usually provides a 4-hour window of acceptable analgesia for patients without complications not anticipating protracted labour. The evolution in dosing of ITN warrants a re-examination of its usefulness in modern obstetric practice.

CONCLUSION Physicians practising modern obstetrics in rural and small urban centres might find single-dose ITN a useful alternative to parenteral or epidural analgesia for appropriately selected patients.

RÉSUMÉ

OBJECTIF Examiner l'innocuité et l'efficacité d'une dose unique d'analgésie rachidienne (injection intrathécale de narcotiques [ITN]) durant le travail.

QUALITÉ DES PREUVES On a consulté MEDLINE et les bibliographies de 2 revues systématiques et d'une méta-analyse, à la recherche d'articles sur l'analgésie obstétricale et sur la mesure de la douleur. Les 33 articles retenus comprenaient 14 études, une méta-analyse et 2 revues systématiques, toutes basées sur des preuves de niveau I.

PRINCIPAL MESSAGE La littérature montre que l'ITN représente une alternative sécuritaire et efficace à l'anesthésie épidurale. La récente diminution du recours à l'épisiotomie et aux forceps durant l'accouchement signifie que les patientes requièrent moins d'anesthésie périméale. L'avantage de l'ITN en dose unique est que son administration requiert moins de médecins et d'infirmières, tout en étant aussi sécuritaire et efficace que les autres analgésiques. Avec l'ITN, le premier stade du travail est plus court et la dilatation cervicale plus rapide. Une combinaison de 2,5 mg de bupivacaine, de 25 µg de fentanyl et de 250 µg de morphine intrathécaux procure habituellement une analgésie suffisante pendant 4 heures chez les patientes sans complications pour lesquelles on ne prévoit pas de travail prolongé. Il faudra réévaluer l'utilité des doses d'ITN utilisées dans le cadre de la pratique obstétricale moderne.

CONCLUSION Les médecins qui pratiquent une obstétrique moderne dans les petits centres urbains ou en milieu rural pourraient trouver que l'ITN en dose unique est une alternative intéressante à l'analgésie parentérale ou épidurale pour certaines patientes.

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Providing high-quality analgesia for Canadian women in labour in small community hospitals is a challenge. In rural areas and smaller urban centres, epidural services are often unavailable.^{1,2} Parenteral narcotics, nitrous oxide, regional anaesthesia, and other analgesics are commonly used.

The literature indicates that intrathecal narcotics (ITN) can be used effectively and economically for intrapartum care when pain control is required. Intrathecal narcotics have the potential to play a much larger role in managing obstetric anaesthesia. Our rural obstetric and anaesthesia programs (300 deliveries annually) have integrated it successfully into practice during the past 3 years. Any discussion of medication during labour should recall the comments of Lurie and Priscu in their 1993 review of the topic: "...effective pain relief does not ensure a satisfactory birth experience ... attention, sympathy, reassurance and support are superior. ..."³

Quality of evidence

MEDLINE was searched using the MeSH terms spinal anaesthesia, spinal injections, labour, obstetrical anaesthesia, obstetrical delivery, obstetrical analgesia, opioid analgesia, epidural analgesia, pain measurement, pregnancy, fentanyl, morphine. The references of 2 systematic reviews were considered. Thirty-three articles were selected as relevant for content focused on ITN and for appropriate rigorous methodology. Level I studies included 2 systematic reviews, 1 meta-analysis, and 14 randomized blinded studies. Four observational studies without control groups provided level II evidence. Other articles were opinion pieces or government or organizational reports providing level III evidence.

Levels of evidence

Level I: At least one properly conducted randomized controlled trial, systematic review, or meta-analysis

Level II: Other comparison trials, non-randomized, cohort, case-control, or epidemiologic studies, and preferably more than one study

Level III: Expert opinion or consensus statements

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Main message

Changing obstetric practice. Opioids have been used intermittently for centuries to alleviate pain during labour. By 1915, the Ottawa Maternity Hospital was using chloroform in 75% of deliveries,⁴ but by the end of the century, epidurals were chosen for 45% of women in labour.⁴ No statistics on use of ITN, patient-controlled analgesia using narcotics, nitrous oxide, or pudendal blocks exist in Canada.

The last 20 years have seen a dramatic change in obstetric practice. Assisted outlet deliveries are now routinely done with the less traumatic vacuum extraction.⁴ In the 1990s, forceps use fell from 11% to 6% and episiotomies fell from 49% to 24%.⁵ This resulted in a substantial reduction in somatic discomfort during the second stage of labour for many women. Studies of ITN in the 1980s, which concluded that ITN delivered inadequate anaesthesia, often had 100% rates of routine use of both episiotomies and forceps.⁶ Since our delivery methods have become more "perineal friendly," simple spinal anaesthesia can be effective for many deliveries.⁷

Physiology. Pain associated with the first stage of labour is considered visceral in origin. Narcotics delivered by spinal or epidural methods function at the same site in the spinal cord. Interestingly, the analgesic properties of ITN are not affected by narcotic antagonists given by other routes.^{8,9} Pain during the second stage of labour is a combination of visceral and somatic pain from distention and tearing of the perineal tissues. Intrathecal narcotics are not particularly effective for this pain, but local anaesthetic agents, such as bupivacaine, are beneficial and can be added to spinal "cocktails."

Effectiveness. Results of studies on ITN are shown in **Table 1**¹⁻²⁹. Intrathecal sufentanil (10 µg) appears to have a faster onset and longer duration of action than bupivacaine (30 mg), but otherwise the 2 drugs provide comparable levels of analgesia (level I evidence).¹⁰ In a study of 133 patients, Bucklin et al concluded that, 15 to 20 minutes after the injection, there was no significant difference in the pain experiences of patients who received ITN and those who received epidural local anaesthesia (level I evidence).²⁴

When Leighton et al used intrathecal fentanyl and morphine, all the participating nulliparous women said they were "satisfied with their analgesia and would like to receive intrathecal analgesia during future labour."⁸ Some multiparous patients said they preferred ITN analgesia to the epidural anaesthesia they had received during previous labours. This finding is similar to those of several other studies that also reported a high level of patient satisfaction with ITN (level I evidence).⁷⁻⁹ The American Society of Anesthesiologists' guidelines suggest that analgesia provided by ITN is equivalent to epidural local anaesthesia.³⁰

Table 1. Studies on analgesia for managing labour pain

AUTHORS	LEVEL OF EVIDENCE	N	STUDY OBJECTIVE	FINDINGS
Leighton and Halpern ¹² (2002)	I	4324	Epidural analgesia vs parenteral opioids (systematic review)	Epidural analgesia was associated with hypotension, maternal fever, longer second-stage labour, more use of oxytocin, and more satisfied mothers
Mardirosoff et al ²⁷ (2002)	I	3513	Intrathecal opioids (fetal bradycardia) (systematic review)	Increase in risk of fetal bradycardia, but no increase in rate of cesarean sections
Howell ²³ (2005)	I	3157	Epidural vs nonepidural analgesia (Cochrane systematic review)	Epidural relieves pain better, but labour lasts longer, and there is more fetal malpositioning, oxytocin use, and instrument deliveries
Wong et al ²¹ (2005)	I	728	Intrathecal fentanyl vs intravenous hydromorphone	Time from analgesia initiation to complete dilation was 90 min shorter with ITN. There was less pain and better Apgar scores
Bucklin et al ²⁴ (2002)	I	333	Intrathecal opioids vs epidural local anesthetics (meta-analysis)	ITN increased pruritus. No difference in nausea or method of delivery
Wong et al (2000)	I	170	Intrathecal bupivacaine plus sufentanil (various doses)	Similar analgesia with all doses; fewer side effects with less sufentanil. Bupivacaine prolongs analgesia
Pace et al ¹⁹ (2004)	I	111	Intrathecal bupivacaine plus fentanyl vs pudendal block (mepivacaine)	ITN patients much more satisfied with pain relief
Yeh et al ²⁹ (2001)	I	95	Intrathecal fentanyl plus bupivacaine with or without morphine	Morphine increases duration of analgesia
Hess et al ¹³ (2003)	I	60	Intrathecal fentanyl (12.5 µg) plus bupivacaine (2 mg) with or without morphine (125 µg)	Morphine did not prolong analgesia, but after delivery, morphine patients had less pain
Harsten et al ²⁰ (1997)	I	58	Intrathecal sufentanil vs epidural bupivacaine	ITN gave more rapid onset and good analgesia and was often advantageous
D'Angelo et al ¹⁰ (1994)	I	50	Intrathecal sufentanil vs epidural bupivacaine	Rapid onset and lack of motor block with ITN; side effects should be monitored
Campbell et al ¹⁵ (1995)	I	43	Intrathecal bupivacaine vs intrathecal sufentanil vs combination	Adding bupivacaine to sufentanil prolonged analgesia. Fast onset
Grieco et al ¹⁷ (1993)	I	41	Sufentanil with or without epinephrine or morphine	Morphine prolongs analgesia better than epinephrine
Viscomi et al ¹¹ (1997)	I	41	Early vs advanced labour at time of intrathecal sufentanil plus bupivacaine	Longer duration of action when given early in labour
Abboud et al ²⁶ (1984)	I	30	Intrathecal morphine (various doses)	More side effects with higher dose. Delayed onset, but long duration of action
Cascio et al ¹⁴ (1997)	I	24	Intrathecal fentanyl vs epidural lidocaine	Both give similar pain relief
Baraka et al ⁶ (1981)	I	20	Intrathecal morphine (various doses) plus lidocaine	Slow onset, long duration of action, no motor block, little effect on fetus
Lieberman and O'Donoghue ²² (2002)	I	NA	Epidural (unintended effects) (systematic review)	Fewer spontaneous and more instrumental vaginal deliveries, longer labours, higher rates of intrapartum fever and septic infants
Herpolsheimer and Schretenthaler ⁷ (1994)	II	150	Intrathecal fentanyl plus morphine	ITN gives good pain relief with rapid onset lasting 4-5 hours without disrupting labour
Zapp and Thorne ⁹ (1995)	II	150	Intrathecal morphine plus fentanyl plus naltrexone	ITN well accepted, cost-saving, and very effective for labour analgesia

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Table 1 continued from page 439

AUTHORS	LEVEL OF EVIDENCE	N	STUDY OBJECTIVE	FINDINGS
Fontaine et al ²⁵ (2002)	II	82	Intrathecal morphine plus fentanyl vs epidural bupivacaine plus fentanyl	ITN patients had higher pain and lower satisfaction scores, but ITN was good for women who delivered within 2-3 hours
Carton et al ¹⁶ (1987)	II	24	Intrathecal morphine	ITN provides effective analgesia during labour
Leighton et al ⁸ (1989)	II	15	Intrathecal fentanyl plus morphine	Simple ITN technique was often advantageous
CIHI ⁵ (2004)	III	NA	Giving Birth in Canada: Providers of Maternity and Infant Care	Demographics
CIHI ⁴ (2004)	III	NA	Giving Birth in Canada: A Regional Profile	Demographics
Leslie ² (2000)	III	NA	ITN (review)	ITN improves pain control in rural maternity centres with no full-time epidural services
Lurie and Priscu ³ (1993)	III	NA	Epidurals (review)	Supplementing with opioids (fentanyl) and patient-controlled epidural anesthesia are recommended
SRPC, CFPC, CAS ¹ (2001)	III	NA	Joint Position Paper on Training for Rural Family Physicians in Anesthesia	Anesthesia close to home. Family physician anesthesiologists require support
Vasdev and Keegan ²⁸ (1998)	III	NA	Sufentanil (review)	Good analgesia, no motor block

CAS—Canadian anesthesiologists' Society, CIHI—Canadian Institute for Health Information, CFPC—College of Family Physicians of Canada, ITN—intrathecal narcotics, NA—not applicable, SRPC—Society of Rural Physicians of Canada.

Onset and duration of action. Lipid-soluble ITN (fentanyl, sufentanil) take effect in only 5 minutes.¹³⁻¹⁵ Morphine, a water-soluble agent, takes effect in 20 to 30 minutes when administered intrathecally.^{6,16}

Duration of action is a considerable limiting factor of ITN. A 25-µg dose of fentanyl lasts 60 to 90 minutes.¹⁷ A 10-µg dose of sufentanil lasts about 2 hours.¹⁰ Synergy has been noted between 10 µg of intrathecal sufentanil¹⁸ or 25 µg of fentanyl¹⁹ and 2.5 mg of bupivacaine, with analgesia lasting about 3 hours (level I evidence).¹⁸

Due to its water solubility, morphine has a much longer duration of action when administered intrathecally. Early studies with high doses (2 mg) showed good analgesia that lasted 8 hours, but there were many side effects.⁸ Current doses around 0.2 mg give good analgesia that lasts more than 4 hours, especially when combined with 25 µg of fentanyl.⁷ There are fewer side effects at this much lower dose,⁸ which can also relieve lesser postpartum pain for more than 8 hours (level I evidence).¹³

Unfortunately, patients develop substantial tachyphylaxis to ITN. Repeat doses of narcotics result in little ongoing benefit.²⁰ For cesarean sections, repeat intrathecal injection of the local anesthetic without the narcotic component is still effective.⁹ A 1995 cohort study of 150 patients given ITN (morphine and fentanyl) noted that none of the 13 patients who successfully went on to have cesarean sections with repeat spinal injections got spinal headaches (level II evidence).⁸

Effects on labour. An exciting development in obstetric analgesia in the last year has been the observation that fentanyl injected into the intrathecal space seems to cause more rapid cervical dilation and to shorten the first stage of labour by as much as 100 minutes (level I evidence).²¹ In contrast, epidurals have long been associated with increased oxytocin use, increased fetal malposition, lower rates of spontaneous vaginal delivery, higher rates of instrumental delivery, longer labours, more intrapartum maternal fever, and more neonatal treatment for sepsis (level I evidence).^{22,23}

Intrathecal narcotics do not affect ambulation (level I evidence).⁶ When compared with intravenous analgesia, they seem to cause less nausea and to be associated with high Apgar scores and good neonatal outcomes (level I evidence).²¹

Side effects. Intrathecal narcotics commonly cause pruritus that can be treated with oral, intramuscular, or intravenous narcotic antagonists that do not affect analgesia levels (level I evidence).^{10,11,17} Nausea has often been attributed to ITN, but the meta-analysis by Bucklin et al²⁴ and the systematic review of epidural and intrathecal analgesia by Leighton and Halpern¹² found no difference in the incidence of nausea (level I evidence). Nausea associated with intrathecal morphine has been effectively prevented with a single dose of oral naltrexone (12.5 to 25 mg), a long-acting narcotic antagonist (level

I evidence).^{8,9,25} Studies of urinary retention have conflicting results, but do not cause concern.^{12,26} Respiratory depression has been reported occasionally, usually in the context of concurrent parenteral narcotic administration or use of water-soluble intrathecal morphine, or in otherwise compromised patients (level II evidence).^{9,16} Respiratory depression can be managed with routine narcotic antagonists.^{7,16} These side effects were described when narcotic doses were approximately 10 times higher than those we currently use. Lowering the dose of morphine from 2.0 mg to 0.2 mg has reduced or eliminated many of these side effects and has not lessened the effect of the analgesia (level I evidence).^{6,26}

A systematic review in 2002 by Mardirosoff et al confirmed an association between ITN and fetal bradycardia with a number-needed-to-harm of 28.²⁷ This did not lead to any changes in instrumental deliveries, number of cesarean sections, or neonatal Apgar abnormalities (level I evidence).²⁷

Substantial risk of postprocedure puncture headaches was described when larger needles were used.^{17,30,31} Current use of 25-gauge cone-tipped needles has reduced the incidence of headaches to about 1%.³²

How to use intrathecal analgesia. An excellent approach has been described by Leslie.² Intrathecal analgesia should be characterized as a single treatment that attempts to achieve a 4-hour window of ambulatory pain control for labouring women. Patients can be either primiparous or multiparous. Repeat ITN injections are ineffective due to narcotic tachyphylaxis.

If later in labour patients require subsequent spinal or epidural anesthesia for cesarean sections, there are no contraindications. We use the classic lumbar puncture technique, generally with patients seated and bent forward, using a 25-gauge cone-tipped needle. Once the dura has been punctured and backflow is evident, the injection syringe should be attached to the needle, the mixture injected, and the needle withdrawn.

Fentanyl is chosen because of its rapid onset of action of 5 minutes (level I evidence).¹³⁻¹⁵ Bupivacaine is added to help with the somatic pain of second-stage labour (level I evidence).¹⁹ Morphine prolongs the analgesia²⁹ more effectively than epinephrine (level I evidence).¹⁷ We have found that this low-dose combination (fentanyl 25 µg, bupivacaine 2.5 mg, and morphine 250 µg) in one injection provides up to 4 hours of ambulatory pain control. Pruritus and nausea can be treated with oral, intramuscular, or intravenous naltrexone (or naloxone); nausea can also be treated with metoclopramide.

Conclusion

Since obstetric delivery has become less invasive, the challenge is to develop appropriate corresponding changes in analgesia practices. Single-dose ITN have been shown to relieve pain safely in most labouring

EDITOR'S KEY POINTS

- In many small rural communities, epidural anesthesia is unavailable to labouring women. An alternative, intrathecal narcotics (ITN) using traditional lumbar puncture technique, has been shown to provide good anesthesia with few side effects for about 4 hours.
- A cocktail of several drugs permits rapid and prolonged action: fentanyl works within 5 minutes; a local anesthetic, such as bupivacaine, lasts for up to 3 hours; and morphine, even in low doses, lasts up to 4 hours.
- Use of ITN has the benefits of not interfering with ambulation and of bringing on a more rapid first stage of labour. Common side effects are pruritus and nausea that can be managed with narcotic antagonists (eg, naltrexone). About 1% of patients have postprocedure headaches when 25-g cone-tipped needles are used.
- A repeat dose of ITN (narcotics are not effective after the first dose) can be given later if patients subsequently require cesarean section or an instrumental delivery.

POINTS DE REPÈRE DU RÉDACTEUR

- Dans plusieurs petites collectivités rurales, les femmes n'ont pas accès à l'anesthésie épidurale au cours du travail. L'injection intrathécale de narcotiques (ITN) par ponction lombaire traditionnelle est une alternative qui s'est révélée efficace pour procurer une anesthésie d'environ 4 heures avec peu d'effets indésirables.
- Un cocktail de plusieurs médicaments permet une action rapide et prolongée: le fentanyl agit en moins de 5 minutes; l'effet de la bupivacaine dure jusqu'à 3 heures; et celui de la morphine, jusqu'à 4 heures, même en dose faible.
- L'utilisation de l'ITN a l'avantage de ne pas interférer avec la mobilité et de raccourcir le premier stade du travail. Les effets indésirables fréquents sont le prurit et les nausées, qu'on peut traiter avec des antagonistes des narcotiques (par ex. le naltréxone). Environ 1% des patientes présentent des céphalées post-ponction lorsqu'on utilise des aiguilles 25 à bout conique.
- Lorsqu'une césarienne ou le recours à des instruments devient nécessaire, on peut administrer une nouvelle dose d'ITN (une deuxième dose de narcotique n'est toutefois pas efficace).

women, who report they are highly satisfied with this method of pain control. Intrathecal narcotics are limited by their duration of action, so are unsuitable for patients with complications who anticipate protracted labours.

In resource-challenged settings, single-dose ITN might make the best use of limited physician and nursing

resources. The spinal anesthetic technique is identical to a lumbar puncture; both lie within the scope of experienced general practitioners. We are developing a program to encourage family physicians to provide this service. ✱

Competing interests

None declared

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Maternal outcomes of cesarean sections

Do generalists' patients have different outcomes than specialists' patients?

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ABSTRACT

OBJECTIVE To compare maternal outcomes of cesarean sections performed by GPs with the outcomes of those performed by specialists.

DESIGN Retrospective, comorbidity-adjusted study.

SETTING Mostly small isolated rural hospitals in Ontario, British Columbia, Alberta, and Saskatchewan compared with all levels of specialist obstetric programs offered in Canada.

PARTICIPANTS Fifteen GPs with less than 1 year of surgical training who performed cesarean sections.

METHOD Using data from the Canadian Institute for Health Information's Discharge Abstracts Database for the years 1990 to 2001, we matched each of 1448 cesarean section cases managed by these GPs to 3 cases managed by specialists and looked for comorbidity. In total, we analyzed the outcomes of 5792 cesarean sections.

MAIN OUTCOME MEASURES Composites of major morbidity possibly attributable to surgery: death, sepsis, cardiac arrest, shock, hypotension, ileus or bowel obstruction, major puerperal infection, septic or fat embolism, postpartum hemorrhage requiring hysterectomy, need for cardiopulmonary resuscitation, or another operation; and all major morbidity: major surgical morbidity, acute coronary syndrome, endocarditis, pulmonary edema, cerebrovascular disorder, pneumothorax, respiratory failure, amniotic fluid embolism, complications of anesthesia, deep vein thrombosis, pulmonary embolism, acute renal failure, and need for mechanical ventilation.

RESULTS The rate of all major morbidity was higher among GPs' patients than among specialists' patients (3.1% vs 1.9%, odds ratio [OR] 1.6, 95% confidence interval [CI] 1.1 to 2.3, $P=.009$) as was the rate of major surgical morbidity (2.5% vs 1.6%, OR 1.6, 95% CI 1.1 to 2.4, $P=.024$). Differences in major morbidity variables were not significant if major postpartum infection was excluded (all major morbidity 1.5% vs 1.1%, major surgical morbidity 1.0% vs 0.8%). Secondary outcomes included rate of transfer to acute care institutions (6.0% vs 1.5%, OR 4.6, 95% CI 3.6 to 6.5, $P<.001$), mean length of hospital stay (5.2 vs 4.9 days, $P=.006$), need for blood transfusion (5.9% vs 7.0%, OR 0.76, 95% CI 0.5 to 1.1, $P=.11$) and frequency of surgical error (0.8% vs 0.7%, OR 1.1, 95% CI 0.6 to 2.3, $P=.72$).

CONCLUSION Although major morbidity was higher among GPs' patients, differences were entirely attributable to the rate of postpartum infection. Infection rates in both groups were far below expected rates. The observation that blood transfusion and surgical error rates were similar suggests that surgical technique was not the cause of differences between groups. We conclude that these GPs with a mean of 4 months' training subsequently performed cesarean sections with an acceptable degree of safety compared with specialists.

EDITOR'S KEY POINTS

- While studies of rural obstetric care suggest that neonatal outcomes of cesarean sections managed by general practitioners are equivalent to those managed by specialists, there is little documentation of maternal outcomes.
- The most striking finding is the low rate of all major morbidity and major surgical morbidity observed in both groups. When major puerperal infection was removed from the 2 composite major morbidity variables, differences in outcomes were non-significant.
- General practitioners with a mean of 4 months' training can perform cesarean sections with an acceptable degree of safety.

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Issues maternelles des césariennes

Les patientes des omnipraticiens et celles des spécialistes ont-elles des issues différentes?

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RÉSUMÉ

OBJECTIF Comparer les issues maternelles des césariennes pratiquées par des omnipraticiens à celles pratiquées par des spécialistes.

TYPE D'ÉTUDE Étude rétrospective ajustée pour la comorbidité.

CONTEXTE Hôpitaux, pour la plupart petits et isolés, des provinces de l'Ontario, de la Colombie-Britannique, de l'Alberta et de la Saskatchewan comparés à des programmes d'obstétrique spécialisés de tous niveaux offerts au Canada.

PARTICIPANTS Quinze omnipraticiens effectuant des césariennes et ayant moins d'un an de formation chirurgicale.

MÉTHODE À l'aide de la Base de données sur les congés des patients de l'Institut canadien d'information sur la santé pour les années 1990 à 2001, nous avons apparié chacune des 1448 césariennes effectuées par les omnipraticiens à trois cas effectuées par des spécialistes en recherchant la comorbidité. Au total, nous avons analysé les issues de 5792 césariennes.

PRINCIPALES ISSUES ÉTUDIÉES Éléments de morbidité importante possiblement attribuables à la chirurgie: décès, infection, arrêt cardiaque, choc, hypotension, ileus ou obstruction intestinale, infection puerpérale majeure, embolie septique ou graisseuse, hémorragie post-partum nécessitant une hystérectomie, besoin de réanimation cardio-respiratoire, ou intervention chirurgicale additionnelle; et toute morbidité importante: morbidité chirurgicale importante, syndrome coronarien aigu, endocardite, œdème pulmonaire, problème cardiovasculaire, pneumothorax, insuffisance respiratoire, embolie de liquide amniotique, complications de l'anesthésie, thrombose veineuse profonde, embolie pulmonaire, insuffisance rénale aiguë, et besoin de ventilation mécanique.

RÉSULTATS Le taux pour toute morbidité majeure était plus élevé chez les patientes des omnipraticiens que chez celles des spécialistes (3,1% vs 1,9%, rapport de cotes [RC] 1,6, intervalle de confiance [IC] à 95% 1,1 à 2,3, $P=,009$); il en est de même pour le taux de morbidité chirurgicale importante (2,5% vs 1,6%, RC 1,6, IC à 95% 1,1 à 2,4, $P=,024$). Dans le cas des variables de la morbidité importante, les différences n'étaient pas significatives si on excluait les infections post-partum importantes (toute morbidité majeure 1,5% vs 1,1%; morbidité chirurgicale majeure 1,0% vs 0,8%). Les issues secondaires incluaient, le taux de transfert à un établissement de soins actifs (6,0% vs 1,5%, RC 4,6, IC à 95% 3,6 à 6,5, $P<,001$), la durée moyenne du séjour hospitalier (5,2 vs 4,9 jours, $P=,006$), le besoin de transfusion (5,9% vs 7,0%, RC 0,76, IC à 95% 0,5 à 1,1, $P=,11$) et la fréquence des erreurs chirurgicales (0,8% vs 0,7%, RC 1,1, IC à 95% 0,6 à 2,3, $P=,72$).

CONCLUSION Même si le taux de morbidité importante était plus élevé chez les patientes des omnipraticiens, les différences étaient entièrement attribuables au taux d'infection post-partum. Dans les deux groupes, le taux d'infection était de beaucoup inférieur au taux attendu. L'observation que les taux de transfusions sanguines et d'erreurs chirurgicales étaient semblables donne à penser que la technique chirurgicale n'était pas responsable des différences entre les groupes. Nous concluons que ces omnipraticiens qui avaient eu un entraînement préalable moyen de 4 mois pratiquaient des césariennes avec un degré de sécurité acceptable par rapport aux spécialistes.

POINTS DE REPÈRE DU RÉDACTEUR

- Alors que certaines études sur l'obstétrique rurale donnent à croire que les issues néonatales sont équivalentes pour les césariennes pratiquées par des omnipraticiens et par des spécialistes, il y a peu de données sur les issues maternelles.
- L'observation la plus frappante est le faible taux de morbidité majeure et de morbidité chirurgicale majeure trouvé dans les deux groupes. Si on enlève l'infection puerpérale majeure des deux variables composites de morbidité majeure, il n'y a plus de différence significative entre les issues.
- Avec une formation de 4 mois en moyenne, les omnipraticiens sont en mesure de pratiquer des césariennes avec un degré de sécurité acceptable.

Cet article a fait l'objet d'une révision par des pairs.
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The discipline of family medicine struggles to meet the needs of women in labour in Canada. Many programs have instituted extra training of varied length for specialized obstetric skills. In many small community hospitals, family physicians and GPs with additional training already offer advanced maternity care, such as cesarean sections.¹ While studies of rural obstetric care suggest that neonatal outcomes of GP-managed cesarean sections are similar to those of specialist-managed cesarean sections,² there is little evidence in the literature on maternal outcomes. There is evidence that suggests that GP-managed patients have outcomes comparable to accepted standards; however, the studies from which this evidence comes are limited by methodologic problems.^{3,4}

We sought to determine the safety of GP-managed cesarean sections by doing a retrospective study using specialists' patients as the reference group. To adjust for differences in patient populations, we matched GPs' cases to those of specialists' for comorbid diagnoses that might have influenced surgical outcomes. Neonatal outcomes were not available in the data set we accessed.

METHOD

Data on all cesarean sections performed during the fiscal years 1990 to 2000 were accessed in the Canadian Institute for Health Information's Discharge Abstracts Database (DAD) for provinces where most GPs performing cesarean sections in Canada practise: Alberta, British Columbia, Ontario, and Saskatchewan.

A questionnaire asking about surgical training was distributed to GPs performing cesarean sections. Physicians were enrolled in the study if they had 1 year or less of surgical training beyond their family or general practice training in order to exclude highly trained GPs who had had surgical training approaching that of specialists. Informed consent was obtained from each of these GP surgeons and their hospitals. Consent from specialists was not necessary because all identifying information in the DAD was encrypted, and the database included all cesarean sections done by specialists during the 10-year

period. Approval for the study was received from the Lakehead University Research Ethics Board.

Case matching

Each case managed by a consenting GP was extracted and matched for noniatrogenic comorbid diagnoses to 3 cases managed by specialists. Matching was 1 to 3 in order to increase statistical power. Cases were grouped into 5-year categories by patient age and 3-year categories by date of cesarean section, then matched within these categories. Diagnoses were included if they were likely the indication for proceeding to cesarean section or if they were thought to adversely affect maternal outcomes⁵ (Table 1^{6,7}).^{*} Maternal obstetric history (with the exception of whether or not mothers had had previous cesarean sections), body mass index, and socioeconomic status were not available in the DAD.

Outcome measures

There were 2 primary outcome measures: the composite of death and major morbidity possibly attributable to surgery (major surgical morbidity), and the composite of all major morbidity (Table 2^{6,7}).^{*} Ileus and bowel obstruction diagnoses typically had a length of hospital stay similar to the mean, suggesting minimal morbidity. They were included, however, when they contributed to a prolonged length of stay (mean length of stay plus 2 standard deviations).

Secondary outcomes included length of hospital stay, postpartum transfer to another acute care institution, surgical error (Table 3⁶), and the need for blood transfusion. For patients of GPs transferred postpartum directly from the treating facility to another acute care hospital, we accessed the database record at the receiving institution, where possible, and adjusted data as appropriate. When length of stay at the receiving institution was unavailable, data on these transferred patients were excluded from the final analysis.

Statistics

Given the relatively small number of GPs and the possibility of clustering of outcomes by GP, a GP surgeon variable was incorporated into the regression model. As this adjustment did not affect any results, we present only unadjusted data in the Results section. For conditional logistic regression data, we give the Wald *P* value. Differences were considered significant if *P* < .05. Data are presented as means with standard deviations or odds ratios with 95% confidence intervals where appropriate. Conditional logistic regression analyses were done using Stata version 8.2. Length of hospital stay for

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 *Tables 1 and 2 are available at www.cfp.ca. Go to the full text of this article on-line, then click on CFPlus in the menu at the top right-hand side of the page.

the 3 specialist cases within each match were averaged, and these data were then compared using paired *t* tests in SPSS version 11.5.0.

Table 3. International Classification of Diseases, 9th Revision,⁶ (ICD 9) and Canadian Classification of Diagnostic, Therapeutic, and Surgical Procedure⁷ (CCP) codes for outcomes of surgical error

OUTCOME	ICD 9 CODE	CCP CODE
Other injury to pelvic organs	665.5	
Accidental puncture or laceration during a procedure	998.2	
Suture of bladder		697.1
Other repair of bladder		697.9
Suture of fallopian tube		786.1
Other repair of fallopian tube		786.9
Other repair of uterus		815.9
Repair of obstetric laceration of uterus		877.1
Repair of obstetric laceration of cervix		877.2
Repair of obstetric laceration of corpus uteri		877.3
Repair of obstetric laceration of bladder or urethra		878.1

Table 4. Characteristics of general practitioner surgeons

CHARACTERISTIC	MEAN (STANDARD DEVIATION)	RANGE
Postgraduate general practice training (y)	1.4 (0.8)	0-3
Additional obstetric training (mo)	4.2 (3.1)	0-12
Additional surgical training (mo)*	4.7 (2.3)	1-6
Total surgical or obstetric training (mo) [†]	6.1 (4.3)	0-12
No. of cesarean sections done during training [‡]	48 (38)	26-120
No. of cesarean sections done in career	264 (198)	50-800
No. of cesarean sections done by each physician in data set	100 (93)	4-310
No. of cesarean sections done per year by each physician in data set [‡]	13 (8)	2-28

*Seven general practitioner surgeons had received non-obstetric surgical training.

[†]Estimated by general practitioner surgeons.

[‡]Total no. of cesarean sections done by each surgeon divided by the number of years in which surgeons in the data set had done at least 1 cesarean section.

RESULTS

Fifty-two surveys were mailed to GPs; response rate was 58%. Fifteen GPs were excluded: 7 had received more than 1 year of surgical training; 5 had not done any cesarean sections during the study period; 1 was not a GP surgeon; 1 replied too late; and 1 did not get hospital approval. Characteristics of the 15 GPs included are shown in **Table 4**.

Data were retrieved for a total of 498 979 cesarean sections, 1509 of which were performed by the GPs in this study. Among the 1509 GP cases, 61 could not be matched to 3 specialist cases and were excluded. Primary outcomes for these excluded cases were not significantly different from outcomes of the remaining GP cases (data not shown). Each of the remaining 1448 GP cases was matched to 3 specialist cases, so 5792 cases were included in the subsequent analysis.

Of all the cesarean sections performed by specialists, 183 (4.2%) were done by general surgeons, and the remainder were done by obstetricians. Mean age of patients was 26.7 years in the GP group and 26.8 years in the specialist group. Other relevant group characteristics were included in the matching algorithm, so the rates were identical (**Table 1**^{6,7}).

Data on rates of composite major morbidity variables, blood transfusions, surgical errors, and patient transfers are shown in **Table 5**. When the *International Classification of Diseases, 9th Revision*,⁶ code for major puerperal infection (endometritis, peritonitis, pyemia, salpingitis, and septicemia) was removed from the 2 composite major morbidity variables, differences in outcomes were non-significant (1.5% vs 1.1% for all major morbidity and 1.0% vs 0.8% for major surgical morbidity). Length of hospital stay was shorter in the specialist group than in the GP group (4.9 vs 5.2 days, mean difference 0.23 days, 95% confidence interval for difference 0.06 to 0.39, *P* = .006). Results of other secondary outcome analyses are shown in **Tables 5, 6, and 7**.

DISCUSSION

Comparing outcomes of GP-managed and specialist-managed patients

Previous studies have compared the outcomes of generalist-managed cesarean sections with referenced rates of complications in the literature³ or with the outcomes of unmatched specialist-managed cases.⁴ This is the first study to do a simultaneous comparison with a set of equivalent patients. Perhaps the most striking finding here is the low rates of all major morbidity and major surgical morbidity observed in both groups, despite the comprehensive definitions of these outcomes.

General practitioners are likely to transfer high-risk patients to specialist centres. Using our matching algorithm, we therefore selected low-risk specialist-managed patients. The complication rates we have calculated should be generalizable to low-risk patient populations.

We found a slight but significantly higher rate of adverse maternal outcomes in the GP group ($P=.009$). Although it might be inferred that the GPs themselves are responsible for this, other factors help explain the difference. The surgical error variable includes the typical surgical mistakes often observed during cesarean sections. The observation that rates of both surgical

error and the need for blood transfusion were similar in the 2 groups suggests that surgical technique does not explain the differences observed in major morbidity outcomes. Other factors, such as socioeconomic status, maternal medical and obstetric history, duration of ruptured membranes, and anesthetic technique were not available in the data set and might help explain these differences.

All the GPs in our study practised in rural or semirural areas, whereas the specialists practised in larger, urban centres. This could have affected our data in several ways: first, socioeconomic status tends to be lower⁸ and maternal parity higher in rural areas, 2 factors that have been shown to affect neonatal and likely maternal outcomes adversely.^{9,10} Second, limited access to obstetric care in rural areas has been shown to affect obstetric outcomes negatively.¹¹⁻¹³ Third, staff in small rural hospitals might be less familiar with delivery and operating room best practices than staff in large centres where specialists tend to practise.

Reasons for different rates of adverse outcomes

The observation that the removal of major puerperal infection from the composite morbidity variables made the differences in outcomes non-significant suggests several explanations for the differences between groups.

Table 5. Primary and secondary outcomes

OUTCOMES	GPS %	SPECIALISTS %	ODDS RATIOS* (95% CONFIDENCE INTERVAL)
Primary outcomes			
• All major morbidity	3.1	1.9	1.6 (1.1-2.3)
• Major surgical morbidity	2.5	1.6	1.6 (1.1-2.4)
Secondary outcomes			
• Surgical errors	0.8	0.7	1.1 (0.6-2.3)
• Blood transfusion	5.9	7.0	0.8 (0.5-1.1)
• Transfer to another acute care facility	6.0	1.5	4.6 (3.6-6.5)

*Odds ratios generated by conditional logistic regression.

Table 6. Rates of diagnoses of major surgical morbidity outcomes by study group

OUTCOMES	GENERAL PRACTITIONERS N = 1448 %*	SPECIALISTS N = 4344 %*
Major puerperal infection	1.6 [†]	0.8
Cardiac arrest	0.3	0.4
Repeat operation	0.2	0.1
Ileus or bowel obstruction	0.2	0.05
Shock or hypotension	0.1	0.2
Repeat operation for hemorrhage	0.1	0.1
Postpartum hemorrhage requiring hysterectomy	0.1	0.1
Death	0.07	0.02
Sepsis	0	0.02
Cardiopulmonary resuscitation	0	0
Septic or fat embolism	0	0
TOTAL	2.5 [†]	1.6

*Percentages do not add to 100 because some patients had more than 1 major morbidity.

[†] $P < .05$ relative to specialists.

Table 7. Rates of diagnoses of all major morbidity outcomes by study group

OUTCOMES	GENERAL PRACTITIONERS N = 1448 %*	SPECIALISTS N = 4344 %*
Major surgical morbidity	2.5 [†]	1.6
Venous thrombosis	0.3	0.1
Cerebrovascular disorders	0.2	0
Pneumothorax	0.1	0.1
Amniotic fluid embolus	0.1	0.05
Complications of anesthesia	0	0.1
Pulmonary edema	0	0.05
Respiratory failure or acute respiratory distress syndrome	0	0.02
Acute renal failure	0	0
Endocarditis	0	0
Need for mechanical ventilation	0	0
Myocardial infarction	0	0
TOTAL	3.1 [†]	1.9

*Percentages do not add to 100 because some patients had more than 1 major morbidity.

[†] $P < .05$ relative to specialists.

[†] $P < .01$ relative to specialists.

Most obvious, differences in infection rates suggest differences in sterility practices between family physicians and specialists or their hospitals. This hypothesis is supported by a previous study of cesarean sections performed by GPs and specialists that noted a difference in the rates of positive cultures and antibiotic treatment.⁴ This information was not available in the DAD. Second, it is commonly believed that the obstetric patients of family physicians have a lower rate of cesarean sections. If true, this implies that family physicians' patients labour longer (family physicians wait longer before proceeding to cesarean section during which time some women deliver vaginally), a factor known to increase the rate of postpartum infection.¹⁴ Other reasons GP patients labour longer could include delays associated with calling in operating room teams or surgeons, which likely takes longer in the smaller hospitals where GPs practise. While the difference between the 2 groups is statistically significant, the infection rates of 1.6% for GPs and 0.8% for specialists is likely of little clinical relevance, as typical infection rates after cesarean section approach 10%.¹⁵

We noted a significantly shorter length of hospital stay for specialist surgeons' patients ($P=.006$). The clinical significance of the 5.5-hour difference is unclear, but we are unable to exclude the possibility that it represents a difference in rate of recovery from surgery.

The rate of patient transfer to an acute care hospital following cesarean section was substantially higher among patients of GPs than among patients of specialists. Although this might imply a higher rate of complications requiring transfer for care by another physician, it could also be explained by the geographic differences between where the groups practise. Specialists practise in larger centres with greater access to other specialists where interdisciplinary referrals for maternity care would not require patients to transfer. In addition, mothers are typically transferred along with their neonates when the babies require specialist consultation, so more mothers are transferred from smaller hospitals than from specialist hospitals. We did not have access to DAD data on neonates, so we were unable to determine the rate of neonatal indications for transfer, and we did not analyze maternal indications for transfer.

Studies comparing outcomes of procedures by volume of treating physician or hospital show, albeit inconsistently, that higher volumes are associated with better outcomes, as one might expect.¹⁶ The best evidence for this volume-to-outcome relationship comes from highly technical procedures, such as pancreatectomy, esophagectomy, and elective abdominal aortic aneurysm repair. Analysis of the volume-to-outcome relationship for obstetrics has focused almost exclusively on neonatal rather than maternal outcomes.¹⁷ One study examining all maternal (vaginal and cesarean section) outcomes from administrative data suggested that there

is a threshold effect, with hospital outcomes dependent on a minimum number of deliveries per year.¹⁸ Analysis of chart-level data^{19,20} does not support this conclusion. The effect of these findings on our results is uncertain given the range of experience of the GPs in this study. Previous studies have suggested that GPs record clinical findings more completely than specialists do.^{3,4} This might have biased our results against GPs due to their more thorough reporting of adverse outcomes.

Limitations

Possible inaccuracies in the database^{7,21-24} represent the most important limitation of studies of this type. As discussed above, we matched patients in this study to overcome referral bias whereby patients with comorbidity are identified antenatally and preferentially referred to specialists for management. Although we attempted to be as thorough as possible in the matching algorithm, including multiple comorbid diagnoses as well as previous cesarean sections, the number of previous cesarean sections received by each patient was not coded in the DAD. The number of patients with multiple previous cesarean sections is likely relatively small, however, and although this factor can affect neonatal outcomes, it likely has a minimal effect on maternal outcomes.²⁵

Conclusion

Both generalists and specialists offer cesarean sections with a low rate of maternal complications. Patients of GPs with a mean of 4 months' surgical training have some differences in outcomes compared with patients of specialists. Factors other than the specialty of the care provider might be responsible for these differences. Further research could examine the adverse health and other effects associated with not having obstetric care close to home,²⁶ as well as the outcomes of women and neonates who require intrapartum transfer for cesarean section when this service is not offered at their local hospitals. 

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Contributors

Dr Aubrey-Bassler, the main author of this article, devised the concept, did the research, and wrote all drafts of the article. **Dr Newbery** assisted with concept and design of the study, the literature review, and writing the drafts. **Dr Kelly** assisted with the concept of the study, acquisition of funding, and editing drafts of the article. **Dr Weaver** assisted with data acquisition and analysis and read the drafts. **Dr Wilson** assisted with writing and editing the drafts and interpretation of data.

Competing interests

None declared

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Glyburide Is a Safe and Effective Treatment for Gestational Diabetes

To the Editor:

In 2004, a survey of 1400 American obstetricians indicated that 13% of them began gestational diabetes mellitus (GDM) first-line treatment with glyburide when diet and exercise failed.¹ This departure from beginning therapy with insulin followed just three years after Langer's landmark randomized controlled trial demonstrating the safety and efficacy of this second generation sulphonylurea in the treatment of gestational diabetes.²

Langer's study of 404 GDM patients was preceded by a placental perfusion study which showed no transplacental transportation of glyburide.³

Since 2000, numerous studies of level I and level II evidence (see Table) have produced similar findings: 80% of GDM patients treated with glyburide achieve glycemic control with no risk to mother or child.^{2,4-16} There are no data on Canadian usage of glyburide in pregnancy.

This is a huge step forward for those of us providing primary obstetric care. While obstetricians in tertiary care centres have easy access to support from endocrinologists, those of us in primary care do not. The option of treating GDM with oral medication is a wonderful development, especially for those of us in rural areas and areas with Aboriginal populations, where access to care is always a challenge and specialty medicine is a distant referral away.

The traditional twice daily insulin dosing was difficult enough to initiate in primary care patients requiring glycemic control in pregnancy. The recent use of four times daily (qid) dosing, which ideally would require pre- and post-meal glucometer testing, leads to 10 needle pokes per day: four for insulin administration and six for testing. We need to simplify the treatment of GDM, particularly since the only study promoting qid dosing showed no improvement in rates of Caesarean section, macrosomia, shoulder dystocia, preterm delivery, or severe neonatal hypoglycemia.¹⁷ Those of us in primary care often deal with patients who may speak little English and may have limited education. Primary care physicians identify insulin compliance as "abysmal"¹⁸ and glyburide as far more cost effective.¹⁹ Three of the prospective studies included a treatment

Studies using glyburide for the treatment of gestational diabetes

Author (year)	n	Type of study	Level of evidence	Goal of treatment (plasma glucose in mmol/L)	Glycemic control with glyburide
Lim ⁸ (1999)	235	RC	II-3		84%
Langer ² (2000)	404	RCT	I	fasting \leq 5.0 1 hr pp \leq 6.7	82%
Gilson ⁵ (2002)	22	PC	II-2	–	82%
Fines ⁴ (2003)	84	RCC	II-2	–	"equal to insulin"
Chmait ⁶ (2004)	69	CT	II-1	fasting \leq 5.0 1 hr pp \leq 7.2	82%
Yogev ⁹ (2004)	82	CT	II-1	fasting \leq 5.3 pp \leq 6.7	"equal to insulin"
Kremer ¹⁰ (2004)	197	CT	II-2	fasting \leq 5.0 1hr pp \leq 7.5	81%
Conway ¹¹ (2004)	75	CT	II-2	fasting \leq 5.3 2hr pp \leq 6.4	84%
Bertini ¹² (2005)	77	RCT	I	fasting \leq 5.3 1 hr pp \leq 5.6	79.2%
Jacobson ¹³ (2005)	584	Retrospective study	II-3	fast \leq 5.5 1hr pp \leq 8.6 2hr pp \leq 7.2	88%
Kahn ⁷ (2006)	95	CT	II-2	fasting \leq 5.3 1hr pp \leq 7.8	81%
Rochon ¹⁴ (2006)	235	RC	II-1	fasting 3.4-5.0 2hr pp \leq 6.7	79%
Anjalakshi ¹⁵ (2007)	23	PC	II-3	2hr pp \leq 6.7	"equal to insulin"
Ramos ¹⁶ (2007)	122	RC	II-3	fasting \leq 5.6 1hr pp \leq 8.7 2hr pp \leq 7.3	84%

(Medline and EMBASE 2006-Dec 2007)

RC: retrospective cohort study; RCT: randomized controlled trial;
PC: prospective cohort study; pp: post prandial

choice, and they describe 100% patient preference for the oral treatment regimen.⁵⁻⁷

There have been no contrary findings since Langer's original study, and others consistently reproduce his results. We need to acknowledge that the use of this oral treatment regimen fills an important role in the primary care of women with gestational diabetes.

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Educational Intervention for Obstetrical Nurses: Introducing Intravenous Fentanyl to the Labour Floor

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Abstract

Objective: To determine the efficacy of an educational intervention in changing nurses' satisfaction and comfort with and their knowledge and use of a newly introduced analgesic agent, fentanyl, to manage pain during labour.

Methods: A written survey was completed by 19 labour and delivery nurses before and after the educational intervention in a small Northern Canadian city.

Results: Prior to the educational intervention, respondents rated their knowledge of and comfort with use of morphine and meperidine as significantly greater than their knowledge of and comfort with use of fentanyl ($P < 0.001$ for all comparisons). Following the educational intervention, their knowledge and comfort with use of fentanyl increased to the same level as their knowledge and comfort with use of morphine and meperidine. Knowledge of and comfort with use of morphine and meperidine did not change after the educational intervention, but with use of fentanyl there was a significant increase in both knowledge ($P < 0.001$) and comfort ($P < 0.001$). Use of fentanyl subsequently increased significantly ($P = 0.016$) and the nurses identified fewer barriers to its use. Satisfaction with (and self-reported use of) fentanyl also increased ($P = 0.001$).

Conclusion: Participation in education regarding fentanyl increased nurses' knowledge of and comfort and satisfaction with this agent. It also contributed to an increase in the use of this agent, which has been documented to be safer than other narcotics for both mother and baby.

Résumé

Objectif : Déterminer l'efficacité d'une intervention pédagogique quant à la modification du niveau de satisfaction et de familiarité des infirmières envers le fentanyl (analgésique nouvellement lancé sur le marché), et de l'aisance avec laquelle elles y ont recours pour la prise en charge de la douleur pendant le travail.

Méthodes : Un sondage écrit a été rempli par 19 infirmières affectées au travail et à l'accouchement avant et après la tenue d'une intervention pédagogique au sein d'une petite ville du Nord canadien.

Résultats : Avant la tenue de l'intervention pédagogique, les répondantes ont classé leurs connaissances et leur degré d'aisance, en ce qui concerne le recours à la morphine et à la mépéridine, comme étant considérablement supérieurs à leurs connaissances et à leur degré d'aisance en ce qui concerne le recours au fentanyl ($P < 0,001$ pour toutes les comparaisons). À la suite de l'intervention pédagogique, leurs connaissances et leur degré d'aisance en ce qui concerne le recours au fentanyl sont passés au même niveau que celui de leurs connaissances et de leur degré d'aisance en ce qui concerne le recours à la morphine et à la mépéridine. Les connaissances et le degré d'aisance, en ce qui concerne le recours à la morphine et à la mépéridine, n'ont pas été modifiés à la suite de l'intervention pédagogique; toutefois, en ce qui concerne le recours au fentanyl, une hausse considérable a été constatée quant aux connaissances ($P < 0,001$) et au degré d'aisance ($P < 0,001$). Par la suite, le recours au fentanyl a connu une hausse significative ($P = 0,016$) et les infirmières mentionnaient moins d'obstacles à son utilisation. Le degré de satisfaction envers le fentanyl (et l'autosignalement quant son utilisation) a également connu une hausse ($P = 0,001$).

Conclusion : La participation à une intervention pédagogique portant sur le fentanyl a entraîné une hausse du niveau de satisfaction et de familiarité des infirmières envers cet analgésique, et de l'aisance avec laquelle elles y ont recours. Elle a également contribué à une hausse du recours à cet analgésique (des résultats soutiennent que cet analgésique est plus sûr que d'autres narcotiques tant pour la mère que pour l'enfant).

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INTRODUCTION

Labour and delivery nurses play a unique role in caring for women and administering pain medications during labour. Nursing beliefs about and comfort with use of individual medications can influence decision making. Their education therefore plays a role in how some medications are chosen and administered. Prescott et al.¹ found that nursing education had a positive influence on decision making. Involving nurses in decision making results in better patient care.^{2,3}

Thunder Bay Regional Health Sciences Centre serves as a primary and advanced secondary labour unit for a population of 150 000 people, with 1600 births occurring

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annually.⁴ As with many other community-based hospitals with a relatively low number of births annually, it has limited capacity for providing epidural analgesia. Therefore, the majority of women use parenteral opioids for analgesia during labour. Currently meperidine (Demerol) is most often prescribed, largely because of its historical advantage rather than proven therapeutic benefit.⁵ Fentanyl has been introduced recently as an alternative narcotic agent, particularly when a shorter duration of action is desired. Morphine is an option for use when a longer acting agent is desired. The methods of analgesia chosen are often influenced by availability, as well as by the provider's prior experience and beliefs.

Parenteral opioids have been used for many years worldwide for management of pain in labour. In the United States, between 39% and 56% of births occur after use of parenteral opioids.⁶ Opioids provide less pain relief and maternal satisfaction than epidural analgesia, but, despite a lack of data confirming their safety and efficacy, they remain one of most widely used methods of managing pain in labour.⁷

Meperidine is the opioid most widely used in labour. Early studies that favoured its effectiveness over other agents were quite flawed.⁵ Recent concerns have been raised regarding its effectiveness and safety for both mother and baby.^{8,9} Meperidine has been shown to cause excessive maternal sedation and nausea.⁸ It reaches a maximum fetal concentration plateau 1 to 5 hours after dosing, and metabolites accumulate after multiple doses, particularly normeperidine (which has decreased clearance in neonates).^{10,11} Meperidine has also been shown to cause a depression in reflexes and to impair suckling, thus contributing to breastfeeding difficulties in the first days of life.¹¹⁻¹⁴

One of the new alternatives to meperidine is fentanyl, a synthetic opioid derived from meperidine. It has a shorter half-life and no active metabolites, thereby leading to fewer maternal and neonatal side effects.¹⁵ Preliminary studies to assess dosing showed that intermittent dosing was tolerated well, with no change in uterine blood flow or tone, maternal or fetal cardiovascular status, or acid-base balance. There was no increased need for naloxone or supplemental oxygen.¹⁶ A standard 50µg dose showed decreased fetal heart rate variability and breathing movements that were transient and similar to the effect of other opioids.¹⁷ Maternal and fetal fentanyl levels decrease in parallel following administration of a single dose of fentanyl, which is not the case with meperidine.¹³ Fentanyl does not depress neonatal reflexes or affect breastfeeding.^{14,18}

In a study published in 1989, patients rated the analgesic efficacy of fentanyl and meperidine as equivalent,¹⁵ but the incidence of maternal side effects, particularly nausea and

vomiting and level of sedation, was significantly different. With respect to fetal safety, the incidence of abnormal fetal heart rates was similar with fentanyl and meperidine; neonatal complications were more common after use of meperidine, with increased use of naloxone.¹⁵

The purpose of this study was to identify nurses' current level of use and knowledge of the three most commonly used opioids in their department (meperidine, morphine, and fentanyl), and to assess their comfort and satisfaction with use of these agents. The study was also intended to determine whether a brief educational intervention could change the level of departmental use, perceived knowledge, and comfort with use of all three agents, and specifically with use of fentanyl.

METHODS

All nurses involved in the care of women in the labour and delivery (L&D) unit of the Thunder Bay Regional Health Sciences Centre were recruited to participate in the study. Most had more than ten years of obstetrical experience. A survey of narcotic use was administered on two occasions: at the onset of the study, and two months after an educational intervention. The participants were surveyed regarding current satisfaction with and use of fentanyl, including barriers to its use. Participants were also asked about their knowledge of and comfort with use of the three opioids used in the department (morphine, meperidine, and fentanyl).

The initial survey (Appendix 1A) served as baseline data, as well as a needs assessment for the development of two forms of education. A short handout about opioids in labour was distributed to all participants (Appendix 2). Participants were invited to a short presentation on the same topic. All L&D staff, including physicians, nurses, and midwives were included in the educational component of the study, but only the nurses were involved in data collection.

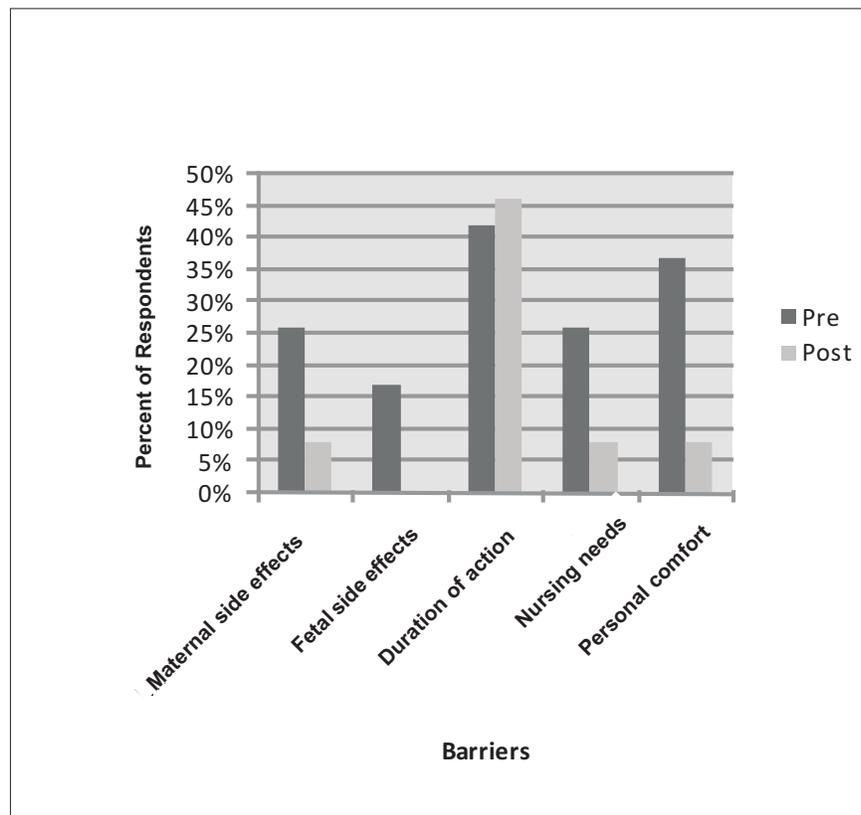
Two months after the educational component, a follow-up survey (Appendix 1B) was distributed again to all of the L&D nurses, but only those who had submitted an original survey were included in the study.

Paired *t* tests were used to compare the responses regarding different opioids, and to compare pre- and post-education responses. Pearson correlations were computed to determine if a change in one area was correlated with a change in another.

RESULTS

Nineteen of 30 nurses currently working in L&D (63%) responded to the initial survey. Thirteen initial respondents (63%) also submitted follow-up surveys two months after

Figure 1. Barriers to using fentanyl in labour



the educational component was completed. One nurse submitted a second survey without completing the first survey or participating in the educational component, and this was excluded from the data. All respondents who submitted a second survey reported having read the information sheet, and 77% of those had attended one of the presentations. Overall, more than 20 of the L&D nurses participated in the educational intervention, with seven of 10 family physicians, three of five obstetricians, and four of seven midwives.

Eighty-four percent of the participants who submitted initial surveys had over 10 years of experience as nurses on L&D. All but one had administered fentanyl in labour. The average number of times that each participant had administered fentanyl in the two months prior to the survey was 2.5 ± 1.5 . Following the educational component, the average number of times fentanyl was administered was 7.5 ± 5.6 . The increase in use was significant, $t(10) = 2.89$ ($P = 0.016$).

Satisfaction with fentanyl, on a rating scale of 1 (not satisfied) to 5 (very satisfied), was rated at a mean of 3.5 ± 1.0 prior to the educational intervention and 4.4 ± 0.6 afterwards. The increase in satisfaction was significant, $t(12) = 4.43$ ($P = 0.001$).

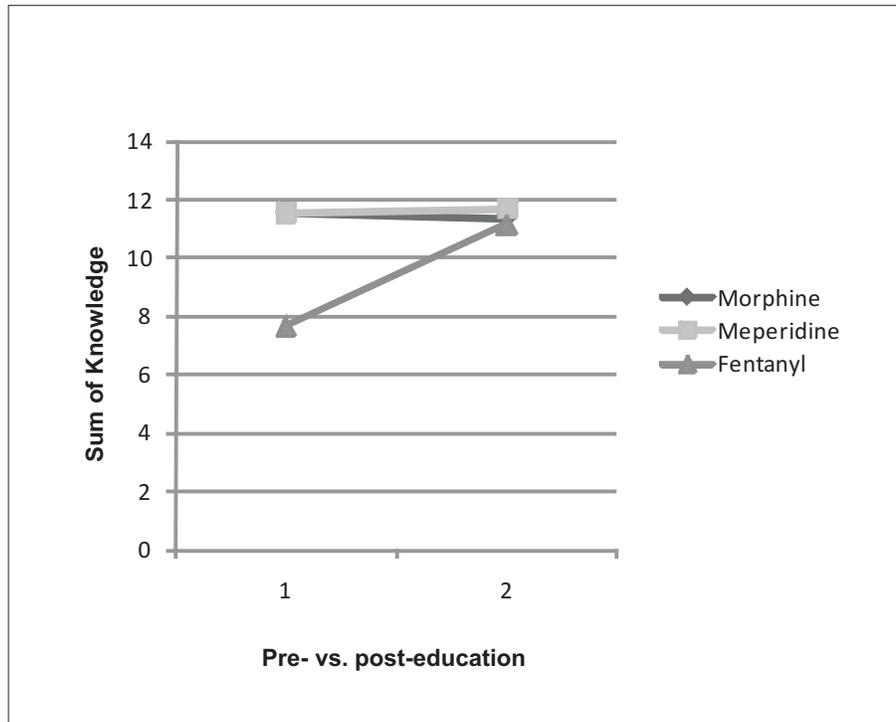
Few nurses reported side effects from the use of fentanyl in labour; the incidence was 10.5% in the initial survey and 7.7% following education, a difference that was not significant. The side effects were mostly related to sedation and nausea.

The participants noted multiple barriers to using fentanyl in labour (Figure 1). More than 40% identified duration of action as a barrier, and this did not decrease following education. However, barriers involving side effects for the mother or baby, nursing needs, and personal comfort all decreased. Measures of significance were not calculated for these values. Other barriers identified by the nurses were the need for intravenous access, dosage ambiguity, and obstetricians' reluctance to order the drug.

Perceived knowledge of all three opioids was rated in three areas: pharmacology, maternal side effects, and fetal side effects. Comparisons of responses before and after education showed that perceived knowledge about morphine and meperidine did not change, but that knowledge about fentanyl increased significantly in all three areas ($P < 0.001$, $P = 0.004$, and $P = 0.001$). These results remained consistent when the three areas were combined ($P < 0.001$ for fentanyl), as shown in Figure 2.

Ninety-four percent of the participants in the initial survey felt that education about the use of fentanyl during labour

Figure 2. Knowledge changes following education



and delivery would increase their current comfort with use of that specific drug. The change in comfort was significant for fentanyl ($t[11] = -5.0, P < 0.001$). No change was identified for morphine and meperidine. The change in comfort between pre- and post-education surveys with use of all three opioids is shown in Figure 3.

Using Pearson correlations, the change in total knowledge for each drug was compared to the change in comfort. This was significant for fentanyl ($r = 0.703, P = 0.011$), but not significant for morphine or meperidine. Pearson correlations were computed to determine if the number of years worked affected initial comfort, or a change in comfort, with use of fentanyl, satisfaction with use of fentanyl, or initial knowledge of any of the drugs, and none showed a significant effect.

DISCUSSION

Participation in education increased nurses' knowledge of and comfort and satisfaction with fentanyl, a new opioid being used in labour and delivery to relieve labour related pain. Knowledge of and comfort and satisfaction with the older drugs, morphine and meperidine, were less affected by education.

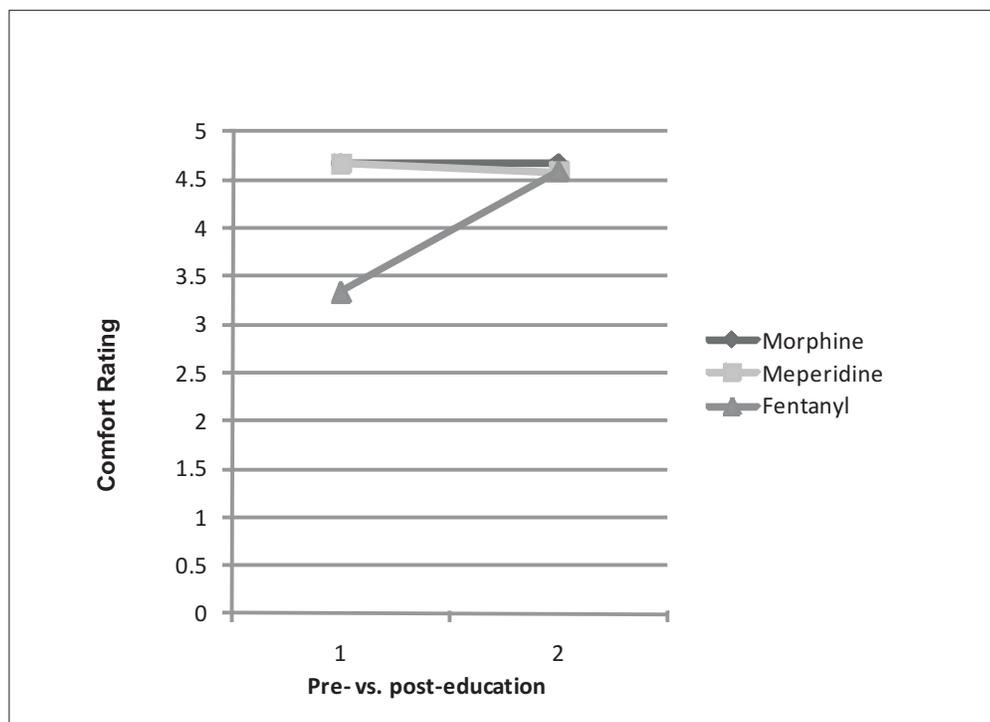
Although the total number of respondents was low, initial survey return rates were 63%, and follow-up survey rates were 68% of initial responses. Despite this, a large

percentage of staff participated in and benefited from the educational component of the project.

Fentanyl is increasingly being used by physicians in Thunder Bay for women with pain during labour. This was evident in the increase in the number of times the nurse respondents had administered the drug. Although the nurses do not decide which agents are used, they can play a role in influencing physicians' decisions. Their increase in comfort with use of this agent is partially reflected by the rise in use. However, physicians were also invited to participate in the educational component of the study, and their increase in knowledge likely contributed to increased fentanyl use.

Comfort with the new drug was directly correlated with an increase in knowledge. This reflects the nurses' ability to better identify its benefits, side effects, and need for repeat doses.

The educational component of the study also included the longer acting opioids. They were already used extensively in labour and delivery, and thus most nurses were comfortable with use of these agents and rated their knowledge at an average of 3.84/5. Their comfort with and knowledge of these agents did not change significantly following education. Fentanyl, however, has been used for only two years in the labour and delivery unit in Thunder Bay. Thus, the nurses were less comfortable with use of this agent and

Figure 3. Comfort changes with education

rated their knowledge of it lower than the other agents across all three areas.

Following education, the nurses' comfort with and knowledge of fentanyl increased significantly, becoming equivalent to their comfort with morphine and meperidine. Nurses' comfort with use of meperidine decreased slightly. Although this was not significant, it does reflect the nature of the education regarding this drug, particularly its negative side-effect profile and prolonged half-life.

These results are important for several reasons. The first is the clinical utility seen by the increase in the use of fentanyl. Although this study did not assess the level of pain relief provided by these agents, established studies have shown fentanyl to be an effective drug for pain relief in labour, with a better side-effect profile than other opioids.¹⁵ It can also be used when a shorter duration of pain relief is desired, and thus should result in women receiving adequate pain medication in the later stages of labour.

The second reason is that the nurses' increase in comfort with use of fentanyl has resulted in fewer perceived barriers to its use, and an increase in satisfaction. They will be more comfortable recommending the use of fentanyl to physicians and explaining its uses and effects to patients. With increased comfort, the nurses will have the confidence to participate in clinical decision making and contribute to a change in culture within the department. The team

atmosphere for working and learning in L&D may have contributed to an environment in which nurses felt comfortable asking questions and participating in decision making with physicians.

A key limitation of this study is its small sample size, although significant results were seen despite this. To increase the sample size, nurses in other hospitals could have been included, but because fentanyl had been used in many sites for a longer time, the nurses at these sites may already have been comfortable with its use. Other sites that had not introduced fentanyl for relief of labour pain would not have produced comparable data. Including physicians and midwives in the data collection would have increased sample size, but because their roles are so different their experiences would not have been comparable to the nursing data. Use was determined by the number of times each nurse recalled administering fentanyl in the prior two months. A significant amount of recall bias may have contributed to the reported increase in use. Following the education, there was more discussion about fentanyl in the department, and the study participants were also more aware of their use of the drug, and this may have contributed to their recording higher rates of use. A chart review of drugs actually used in labour would provide a more accurate picture of the use of fentanyl and the other agents.

Although many institutions have recently begun using fentanyl to manage pain in labour, its use has not been studied or compared with other agents in over 20 years. This study has demonstrated that teaching can contribute to increased comfort and use, but it has not addressed effectiveness.

CONCLUSION

Participation in education regarding fentanyl increased nurses’ knowledge of the drug and their comfort and satisfaction with its use. Education also contributed to an increase in the use of this agent, which has been documented to be safer for both mother and baby.

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Appendix 1A IV Fentanyl Survey (pre)

1. How many years have you worked as a Labour and Delivery Nurse?
 - 0-2 years
 - 2.1-5 years
 - 5.1-10 years
 - 10.1-20 years
 - 20.1 + years
2. Have you administered IV Fentanyl in Labour?
 - Yes No
3. If yes, how many times in the last 2 months have you used this analgesic agent? _____

4. How satisfied are you with the pain relief observed in your patients using IV Fentanyl?

1	2	3	4	5
not satisfied		somewhat satisfied		very satisfied

Comments about pain relief with IV Fentanyl

5. Have you observed adverse reactions in your patients using IV Fentanyl? Yes No

If yes, what specific adverse reactions?

6. What do you see as the barriers to using IV Fentanyl for labouring women (check all that apply)?

- Maternal side effects
- Nursing needs
- Fetal effects
- Personal comfort with IV Fentanyl
- Duration of action
- Other(specify)_____

7. Please rate your current Knowledge of the following systemic opioids by circling the appropriate number.

a) Please rate your current Knowledge of the Pharmacology of:

Morphine:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

Demerol:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

Fentanyl:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

b) Please rate your current **Knowledge of maternal side effects** of:

Morphine:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

Demerol:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

Fentanyl:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

c) Please rate your current **Knowledge of fetal side effects** of:

Morphine:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

Demerol:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

Fentanyl:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

8. Please rate your **current Comfort level with using** the following systemic opioids by circling the appropriate number.

Morphine:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Uncomfortable Some comfort Comfortable

Demerol:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Uncomfortable Some comfort Comfortable

Fentanyl:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Uncomfortable Some comfort Comfortable

9. Would more education about Fentanyl change your current comfort of using this agent? Yes No

10. What specifically do you feel you need to learn about Fentanyl (check all that apply)?

- Pharmacology
- Maternal side effects
- Historical use of systemic opioids
- Fetal effects

- Comparison of Fentanyl with other opioids
- Other uses of Fentanyl
- How it can be used on Labour and Delivery
- Other _____

Thank you for submitting this survey and needs assessment.

Please stay tuned for information regarding Opioids in Labour and the post education survey.

Appendix 1B IV Fentanyl Survey (post)

1. Did you read the information sheet about Opioids in Labour? Yes No
2. Did you attend one of the Presentations about Opioids in Labour? Yes No
3. Have you observed a change in the last 2 months, in the use of Opioids on L&D in Thunder Bay? Yes No

If Yes, Describe _____

4. Have you administered IV Fentanyl in Labour? Yes No
5. If yes, how many times in the last 2 months have you used this analgesic agent? _____
6. How satisfied are you with the pain relief observed in your patients using IV Fentanyl?
 1 _____ 2 _____ 3 _____ 4 _____ 5
 not satisfied somewhat satisfied very satisfied

Comments about pain relief with IV Fentanyl

7. Have you observed adverse reactions in your patients using IV Fentanyl? Yes No
 If yes, what specific adverse reactions?

8. What do you see as the barriers to using IV Fentanyl for labouring women (check all that apply)?
 - Maternal side effects
 - Nursing needs
 - Fetal effects
 - Personal comfort with IV Fentanyl

- Duration of action
- Other (specify) _____

9. Please rate your current Knowledge of the following systemic opioids by circling the appropriate number.

a) Please rate your current **Knowledge of the Pharmacology** of:

Morphine:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

Demerol:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

Fentanyl:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

b) Please rate your current **Knowledge of maternal side effects** of:

Morphine:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

Demerol:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

Fentanyl:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

c) Please rate your current **Knowledge of fetal side effects** of:

Morphine:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Novice Intermediate Advanced

Demerol:

1 _____ 2 _____ 3 _____ 4 _____ 5

Novice Intermediate Advanced

Fentanyl:

1 _____ 2 _____ 3 _____ 4 _____ 5

Novice Intermediate Advanced

Morphine:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Uncomfortable Some comfort Comfortable

Demerol:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Uncomfortable Some comfort Comfortable

Fentanyl:

1 _____ 2 _____ 3 _____ 4 _____ 5
 Uncomfortable Some comfort Comfortable

10. Please rate your **current Comfort level with using** the following systemic opioids by circling the appropriate number.

11. Is there anything you wish had been covered in the educational component of this study?_____

Appendix 2 Opioids in Labour – Handout^{5,6,8,10,13,15-21}

In the United States, Parenteral Opioid use ranges from 39-56% of births. Differs based on number of births/yr: 39% if >1500 births & 56% if 500-1500 births. This most likely represents the availability of epidurals.

There is little evidence available for all systemic opioids in labour, and even less for 1 agent over another. Most choice of agents is historical.

There is evidence that epidurals produce better pain relief, but also cause longer 1st & 2nd stage,

- more oxytocin augmentation (40 vs 52%),
- more fetal malpositions (7 vs 15%),
- more instrumental deliveries (17 vs 26%).

Rate of C-section was not significantly different (8vs10%)

General Considerations

- Opioids can help women cope with the pain of labour, they will not eliminate it
- Opioids are an alternative to epidural, when less available or when wishing to reduce risks of an invasive procedure
- All opioids are sedating & cause respiratory depression
- All opioids in labour can cause neonatal respiratory depression
- Naloxone should always be available

- Multiple doses of naloxone may be required for longer acting opioids
- All opioids can cause ↓FHR, of little consequence (sleep state)

Meperidine = Demerol = Pethidine

A synthetic opioid

Rapidly crosses the placenta & in breast milk

Breaks down to metabolite Normeperidine

very long 1/2 life (20h mat, 60h neonate)

accumulates w/ multiple doses

lowers seizure threshold

depressive effects, not fully reversible w/ narkan

Compared w/ other opioids:

more maternal nausea

depresses apgars, more naloxone use

impairs initiation of breast feeding

Demerol Dosing

50 mg up to 100mg IM

repeat q 2-4 hrs

likely require an anitmetic

Morphine

Given by multiple routes, IM or IV in labour
 Rapidly crosses placenta
 Metabolite (G6M) is inactive
 & excreted via kidney (not liver)
 No neonatal behavioural effects,
 even w/ sustained exposure in breast milk
 No worsening of seizure potential

Morphine Dosing
 Early: 10-20mg IM
 Later: 3-5 mg IV, repeat in 10 min prn
 repeat q1-2hrs

Fentanyl

Pharmacology

Semi-synthetic, derived from meperidine
 Shorter onset of action & duration of effect
 Redistributes quickly in adipose tissue
 No active metabolites
 Umbilical levels < maternal serum levels

Maternal Effects

Less maternal nausea
 More potent analgesia for comparable dose
 Original concerns about Respiratory Depression described in the anaesthesia literature as
 “stiff chest” due to increased muscular rigidity, not recently substantiated

No significant respiratory depression seen in doses used in labour

Mild, short lived sedation can be seen

No changes in uterine blood flow or tone

Fetal Effects

No effect on gross body mov’t

↓FHR variability & ↓breathing movement → both temporary, & similar to other opioids

No ↑ need for O2 or Naloxone

No difference in Apgars or cord gases

Few episodes of minor oxygen desaturations, no difference in severe desats <80%

Less neurobehavioural changes (feeding difficulties, reflexes, tone)

Fentanyl Dosing
 Initial 1-2 mcg/kg (50-200mcg) bolus
 Then variations:
 Tbay – repeat immed if no effect,
 then hourly prn
 Other – Smaller doses more frequently
 ie. 25-50mcg q15min prn

Parameter	Morphine	Meperidine	Fentanyl
Route	IV or IM	IV or IM	IV
Dose equivalent	10 mg	75 mg	100 mcg
Duration of effect	3-4 h (IV/IM)	2-3 h (IM)	≤ 1 h
Maternal T ½	~ 1 h	~ 8 h	< 1 h (redistr.)
Neonatal T ½	~ 6 h	~ 22 h	~1 – 6 h
Active metabolite?	No	Normeperidine	No
Metabolite T ½ (maternal)	N/A	~ 20 h	N/A
Metabolite T ½ (neonatal)	N/A	~ 62 h	N/A

Cross-Cultural Client Safety

A Case Study: The Care & Handling of Fetal Remains

Background

Cultural competency and safety is an emerging area of interest. Anishnabe practices related to birth are an important part of our understanding and knowledge that underpin cultural competency at SLMHC.

A Very Busy Obstetrical Practice

SLMHC has a very active and growing obstetrics practice. We now average a birth per day. Unfortunately, almost 100 miscarriages and stillbirths also occur annually.

Tragedy Strikes!

In April 2004, three tragic incidents involving miscarriages happened within 5 days. Usual processes were not followed and “lab specimens” were returned directly to mothers in 3 of our communities without notice or appropriate handling. Burial and ceremonial handling of fetal remains is a common practice in many of our First Nations communities. These lab specimens did not have the appearance of a baby in any way, leaving the families to believe that their babies’ remains had been destroyed and substituted. The shock, anger and pain experienced by the mothers, families and tight-knit communities coupled with an initial denial of any problem by the regional laboratory service added to the anger and generated outrage on a national scale over the concern that it might happen again. Community leaders and Elders called for prompt action to ensure that “it will never happen again”.

The Search for a Better Way

A thorough external and internal review identified root causes of the problem, the potential on a wide scale for similar problems to occur because of the many differences in need among the 12 million people of Ontario because of their great diversity. The two hospitals involved were mandated to develop an approach that could be shared with all Ontario hospitals to prevent the recurrence this type of problem. An information packet has now been developed that will provide all Ontario hospitals and numerous other health service providers with a set of best practices and support materials. Contents of the information packet are identified below:

- Background on the loss of 3 babies, how the remains were mishandled and resulting impact on many people
- Outline of the processes followed to correct the problem and to develop best practices
- Definition of promising practices in the handling and care of fetal remains
- Sample policies, procedures, protocols, process flowcharts, checklists, etc. for nursing and lab staff

regional laboratory service added to the anger and generated outrage on a national scale over the concern that it might happen again. Community leaders

- Basic staff training and orientation materials
- Patient/family/community education and information materials
- An annotated bibliography

A Number of Promising Practices have been Identified

- Adopt a patient - or client-centered approach to all care transactions
- Build staff understanding and knowledge
- Change the language of care
- Ensure clearly defined course(s) of action with built-in triggers and rigorous communications
- Monitor performance consistently
- Build client/patient knowledge and understanding
- Provide choice and ensure consent
- Adopt prospective risk mitigation strategies (eg. FMEA)
- Use incident investigation techniques that identify root causes
- Support people who have experienced an adverse event by providing a healing pathway for them
- Share promising practices with others and learn from their experience in using them

Results to Date

- Several promising practices have been identified
- Model policies, procedures, flowcharts, checklists and other materials have been developed
- Patient and public communication materials have been developed
- Widespread dissemination of an information packet will support others in changing potentially adverse approaches
- Early identification and remedy of process breakdown has prevented any recurrences for the past 4 years despite almost 400 miscarriages and a dozen still births
- The circumstances that occurred and the search for a better way have resulted in a major cross-cultural safety initiative at SLMHC

Conclusion

SLMHC is moving beyond providing cultural awareness and training support for staff to a point where cultural competency and cross-cultural fluency are embedded in the psyche of the organization and reflected in the behavior of the staff.

** A more comprehensive version of this document can be found at Sioux Lookout Meno Ya Win Health Centre.*

End-of-life issues for aboriginal patients

A literature review

Len Kelly MD MCISc CCFP FCFP Alana Minty

ABSTRACT

OBJECTIVE To understand some of the cross-cultural issues in providing palliative care to aboriginal patients.

SOURCES OF INFORMATION MEDLINE (1966 to 2005), CINAHL, PsycINFO, Google Scholar, and the Aboriginal Health Collection at the University of Manitoba were searched. Studies were selected based on their focus on both general cross-cultural caregiving and, in particular, end-of-life decision making and treatment. Only 39 relevant articles were found, half of which were opinion pieces by experienced nonaboriginal professionals; 14 were qualitative research projects from nursing and anthropologic perspectives.

MAIN MESSAGE All patients are unique. Some cultural differences might arise when providing palliative care to aboriginal patients, who value individual respect along with family and community. Involvement of family and community members in decision making around end-of-life issues is common. Aboriginal cultures often have different approaches to telling bad news and maintaining hope for patients. Use of interpreters and various communication styles add to the challenge.

CONCLUSION Cultural differences exist between medical caregivers and aboriginal patients. These include different assumptions and expectations about how communication should occur, who should be involved, and the pace of decision making. Aboriginal patients might value indirect communication, use of silence, and sharing information and decision making with family and community members.

RÉSUMÉ

OBJECTIF Tenir compte des questions interculturelles dans la prestation de soins palliatifs aux patients autochtones.

SOURCES DE L'INFORMATION On a consulté MEDLINE (1966 à 2005), CINAHL, PsycINFO, Google Scholar et l'Aboriginal Health Collection de l'Université du Manitoba. On a conservé les études qui portaient sur les soins de santé interculturels généraux et plus particulièrement sur la prise de décision et les traitements en fin de vie. On a repéré seulement 39 études pertinentes, dont la moitié étaient des opinions anecdotiques de professionnels chevronnés non autochtones; 14 étaient des études expérimentales qualitatives du point de vue de l'anthropologie et des soins infirmiers.

PRINCIPAL MESSAGE Chaque patient est unique. Certaines différences culturelles risquent d'apparaître lorsqu'on dispense des soins palliatifs à des patients autochtones pour qui la famille, la communauté et le respect de l'individu sont des valeurs importantes. Il est fréquent que la famille et la communauté participent aux prises de décision pour les questions portant sur la fin de vie et les cultures autochtones ont souvent des approches différentes pour communiquer les mauvaises nouvelles et maintenir l'espoir chez les patients. L'utilisation d'interprètes et de modes de communication variés ajoute au défi.

CONCLUSION Des différences culturelles existent entre le personnel soignant et les patients autochtones. Mentionnons, entre autres, des croyances et attentes différentes sur la façon de communiquer et ceux qui devraient y participer et sur le rythme de la prise de décision. Le patient autochtones pourrait préférer communiquer indirectement, recourir au silence et partager information et prise de décision avec la famille et les membres de la communauté.

This article has been peer reviewed.

Cet article a fait l'objet d'une révision par des pairs.

Can Fam Physician 2007;53:1459-1465

Terminally ill patients and their family members face difficult decisions. When medical staff members are not of the same cultural background as the patient, communication and decision making take on new challenges.¹ This review was undertaken to see how the published literature could inform care delivery for dying aboriginal patients.

Data sources

MEDLINE (1966 to 2005), CINAHL, PsycINFO, and Google Scholar were searched using various MeSH headings, including *American Indians; communication barriers; traditional medicine; health knowledge, attitudes, practice; terminally ill; right to die; palliative care; decision making; informed consent; advance directives; and organ transplantation*. The Aboriginal Health Collection at the University of Manitoba Library was also searched.

Study selection

Three hundred articles were identified in the search. Most of the articles dealt with specific medical problems (eg, diabetes, tuberculosis, HIV), rather than end-of-life issues. Only 39 articles focused on death and dying or relevant cross-cultural medical caregiving.

The studies reviewed varied in size from fewer than 10 subjects to large population surveys. Of the 39 articles used, 15 were review or opinion pieces, and 14 were qualitative studies using interviews or focus groups. Three quantitative studies used observed interactions or surveys. Population surveys included the 1991 Aboriginal Peoples Survey (N=25 122) and the 2003 Ontario First Nations Regional Health Survey (N=1094). Article characteristics are outlined in **Table 1**.¹⁻³⁹

Most papers were written by nonaboriginal authors exploring various aspects of aboriginal beliefs. Relevant papers covered several of the following topics: palliative care and barriers to such care, end-of-life decision making, coping with death in the family or community, organ and tissue donation, and modern and traditional aboriginal health and healing.

Levels of evidence

Level I: At least one properly conducted randomized controlled trial, systematic review, or meta-analysis

Level II: Other comparison trials, non-randomized, cohort, case-control, or epidemiologic studies, and preferably more than one study

Level III: Expert opinion or consensus statements

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Most research studies were qualitative. Salvalaggio et al and Macaulay suggest that community-based qualitative methodology might be the most appropriate cross-cultural methodology.^{23,33,34}

Synthesis

Many traditional aboriginal perspectives differ from the viewpoints of other Canadians.²⁷ Authors encountered various attitudes when studying end-of-life issues, demonstrating the variety of beliefs within aboriginal communities. Ellerby et al noted that some aboriginal patients valued the “maintenance of quality of life rather than the exclusive pursuit of a cure” and emphasized that “life is to be preserved and should be pursued whenever meaningful quality can be maintained.”⁸ In contrast, Molzahn et al documented that some aboriginal patients believe medical intervention should be minimal and that the Creator determines the time of death.²⁷ Diversity of beliefs might vary between and within aboriginal communities, owing to differences of “traditional, acculturated or religious perspectives.”³⁹ While generalizations are often inappropriate, some common themes documented below might be reflected in end-of-life issues.^{20,27}

Respect. Several commentators identified the importance of family, community, and respectful interpersonal relationships to aboriginal culture.^{3,8,13,16} Browne’s in-depth interviews of 5 Cree-Ojibway key informants from northern Manitoba found that actively listening and accepting others’ decisions were important for successful interpersonal relationships.⁴ Brant, a Mohawk psychiatrist, identified the concept of non-interference in his opinion article.³ He suggested that many aboriginals believe that all people are entitled to make their own decisions. This high degree of respect for personal independence means that advising, persuading, or instructing is “undesirable behaviour.”³

Elders might be participants in decision making, as they are highly respected in aboriginal communities. They are valued for their wisdom and experience³ and might be quite knowledgeable about medicinal herbs and spiritual matters.³² This respect for elders and healers can lead aboriginal patients to accept medical advice from physicians without question, out of respect for their parallel role as healer.³

Traditional perspectives. Traditional medicine is often assumed to refer to land-based medicines and plants. Hart-Wasekeesikaw, an aboriginal nurse who did a qualitative research study involving interviews with 42 aboriginal patients, suggests it is probably best understood as a set of assumptions concerning the holistic nature of a person.¹⁰ Both physical and emotional health are seen to stem from balance between the mind, the body, and the spirit, as well as strong interpersonal

Table 1. Articles focusing on end-of-life issues*

AUTHOR (YEAR)	NO. OF PARTICIPANTS (N)	TYPE OF STUDY	LEVEL OF EVIDENCE	COMMENTS
Benoit et al ² (2003)	61	Qualitative	II	Focus groups and interviews, Vancouver, BC
Brant ³ (1990)	—	Opinion	—	Overview, Mohawk psychiatrist
Browne ⁴ (1995)	5	Qualitative	II	Interviews regarding respect, Cree-Ojibway, MB
Browne and Shultis ⁵ (1995)	15 reserves	Survey	II	Matched aboriginal and nonaboriginal communities regarding services, ON
Callender et al ⁶ (1997)	40	Qualitative	II	Organ donation, US minorities
Cree Regional Child and Family Services Committee ⁷ (2000)	—	Participatory research	—	Participatory research, Cree, QC
Ellerby et al ⁸ (2000)	—	Review	III	Discusses aboriginal values, Ojibway
Garro ⁹ (1990)	121	Qualitative	II	Ethnographic field work, Anishinaabe, MB
Hart-Wasekeesikaw ¹⁰ (1996)	47	Qualitative	II	Ethnographic interviews with cancer patients and their families, MB
Health Canada ¹¹ (2000)	—	Opinion	—	General overview
Hepburn and Reed ¹² (1995)	—	Opinion	—	Palliative decision making, United States
Hotson et al ¹³ (2004)	44	Qualitative	II	Patients and medical personnel, MB
IMPACT ¹⁴ (2005)	—	Statistics	II	Death and injury, motor vehicle accident statistics, ON
Iwasaki et al ¹⁵ (2005)	26	Qualitative	II	Focus groups, aboriginal and Métis, MB
Jennings ¹⁶ (1994)	—	Opinion	III	Discussion of patient autonomy, United States
Kaufert and O'Neil ¹⁷ (1989)	—	Qualitative	II	Dying patients in MB and Inuit in NWT
Kaufert and O'Neil ¹⁸ (1989)	25	Qualitative	II	Field observation of inpatients regarding giving consent, MB
Kaufert et al ¹⁹ (1998)	12	Qualitative	II	Observed conflict behaviour and interviews, MB
Kaufert et al ²⁰ (1999)	12	Qualitative	II	Observation and interviews, Ojibway, Cree, Island Lake
Kaufert ²¹ (1999)	40	Qualitative	II	Interviews with patients and family about cancer care, MB
Kelly and Brown ²² (2002)	10	Qualitative	II	Grounded-theory interviews of physicians, Canada
Kelly and O'Driscoll ¹ (2004)	—	Opinion	III	Clinical palliative care issues
Macaulay ²³ (1994)	—	Opinion	III	Ethics guidelines
MacKinnon ²⁴ (2005)	—	Review	—	Political review Romanow
MacMillan et al ²⁵ (2003)	1094	Survey	II	Ontario First Nations Regional Health Survey
McQuay ²⁶ (1995)	—	Opinion	—	Organ donation review, United States
Molzahn et al ²⁷ (2004)	14	Qualitative	II	In-depth interviews, Coast Salish, BC
Newbold ²⁸ (1999)	25 000	Survey	II	Analysis of 1991 Aboriginal Peoples Survey regarding disability care
Paniagua ²⁹ (1994)	—	Opinion	III	Communication guidelines, United States
Preston and Preston ³⁰ (1991)	—	Qualitative	II	25 yrs of ethnography James Bay Cree, QC
Prince and Kelley ³¹ (2006)	216	Survey and nested qualitative	II	13 northwestern ON communities
Reynolds-Turton ³² (1997)	100	Qualitative	II	Foundational inquiry, US Ojibway and Chippewa
Royal Commission on Aboriginal Peoples ³³ (1996)	—	Report	III	Government of Canada report
Salvalaggio et al ³⁴ (2003)	12	Qualitative	II	Interviews with aboriginal patients, Anishinaabe, ON
Sarsfield et al ³⁵ (1988)	—	Opinion	—	Role of community health representatives, MB
Schaeffer et al ³⁶ (1998)	495	Retrospective	II	Organ donation demographics, United States

Table 1 continued...

AUTHOR (YEAR)	NO. OF PARTICIPANTS (N)	TYPE OF STUDY	EVEL OF EVIDENCE	COMMENTS
Smylie et al ³⁷ (2000)	—	Policy statement	III	Society of Obstetricians and Gynaecologists of Canada policy statement
Verble et al ³⁸ (2002)	323	Qualitative	II	Focus groups about organ donation, United States
Westlake Van Winkle ³⁹ (2000)	—	Review	III	American and Alaskan literature review

*Blank cells indicate that information was not available or not applicable.

relationships.^{8,15,24,32} This holistic view means that modern healing practices that focus purely on physical problems are often not immediately accepted by aboriginal patients, particularly elders. They might prefer to be treated by traditional healers, using healing circles, sweet grass, or other spiritual methods. Patients might also wish to involve elders in their care and treatment decisions.^{2,8,37} Kaufert and colleagues suggest that access to a traditional healer in a modern hospital is similar to access to a hospital chaplain.²⁰

Garro encountered an aboriginal perspective that differentiates between “Anishinaabe sickness” and “white man’s sickness.”⁹ Anishinaabe sicknesses can be caused by such things as “onjine” (bad behaviour) or bad medicine, and can only be cured by medicine men, not by modern doctors. White man’s sicknesses, which did not exist until the Anishinaabe people were exposed to white men, require a physician who might be more adept at these treatments.¹⁹

Not all aboriginal patients want traditional healing.^{11,22} During the 44 interviews conducted by Hotson et al in northern Manitoba, “most community informants... did not identify the need for any ‘traditional’ services for those who are dying.”¹³ This topic therefore needs to be cautiously explored with aboriginal families, as those from a Christian tradition might take offence.³⁴

Truth-telling. Jennings, McQuay, Ellerby et al, and Kaufert et al all discuss the concepts of truth-telling and maintenance of hope.^{8,16,19,20,26} Relatives of a terminally ill aboriginal patient might not want their loved one to know the seriousness of the medical condition, as positive thinking is thought to promote health. Discussing terminal illnesses or death can cause the patient to die more quickly. For this reason, some aboriginal patients might accept “uncertainty in prognosis or disease progression” more easily than nonaboriginal patients.⁸ Ellerby et al and Kaufert et al cite instances where this focus on hope led relatives to protect their sick loved ones by acting as proxy decision makers or by discouraging physicians or interpreters from delivering bad news.^{8,19,20}

Use of interpreters. Some aboriginal people do not speak English and rely on interpreters in their health care. In 3 studies using observed interactions with follow-up

interviews, Kaufert and colleagues discussed the particular skills interpreters should have.^{19,20,21} Owing to differences in values and beliefs surrounding medical care, interpreters require good understanding of patients’ cultures as well as their languages. Kaufert et al and Smylie et al explain the disadvantage of using a family member as an interpreter, despite the apparent convenience.^{19,21,37} Individual privacy concerns and end-of-life values might conflict between the patients and their family members. This can lead family member–interpreters to consciously or unconsciously alter the doctor’s message in order to deliver a message that they think their loved one would want to hear.^{19,21,37} In addition to invaluable cultural and language interpretation, experienced nonfamily interpreters might have links to traditional healers and other services of interest to patients or their families.¹⁷

Trust. Benoit and colleagues studied 36 aboriginal women living in Vancouver, BC, using participant observation, focus groups, and follow-up interviews.² The women liked the informal nature of the services at their urban health centre. They preferred aboriginal staff and wanted more information available in areas of parenting and coping with family illness. They liked the fact that they did not have to give any personal medical information on their first visit. Once they had built trust with the staff, nurses, and physicians, then they could address their specific medical concerns.⁸ Kelly and Brown also found this importance of trust in their interviews with 10 Canadian physicians working with aboriginal patients.²² They learned that it often took years of working in the same community before patients really started to open up and discuss issues.

Similar comments were made in northern Quebec by women involved in a diabetes education program.⁷ They thought the group of researchers should have had more understanding of their Cree community before coming to teach them about gestational diabetes. They also thought more local people could have been involved in organizing the project.⁷

End-of-life decision making. Many authors said aboriginal patients strongly preferred immediate and extended family members to be involved in medical decision making.^{8,13,16,19,20,39} Reviews by Ellerby et al, Brant, Kaufert et al, and Jennings, as well as interviews by Hotson et al

and Kelly and Brown, all demonstrated the centrality of family and community.^{3,8,13,16,19,20,22} When it comes to end-of-life decision making, family members of many aboriginal patients attempt to balance keeping their loved ones informed with still allowing them to maintain hope.^{20,21}

Several authors mentioned the difficulty obtaining advance directives from aboriginal patients.^{12,39} The formal structured approach used by many hospitals might be ineffective with aboriginal patients.^{12,18} Hepburn and Reed, as well as Westlake Van Winkle, recommend trying to determine patients' wishes in a less formal manner.^{12,39}

Kaufert et al and Kelly and Brown also suggested that language barriers, as well as cultural differences in behaviour, might impede a physician's ability to assess the patient's mental competence to make informed decisions.^{20,22}

Family caregiving. Newbold reviewed the Aboriginal Peoples Survey of 1991 (N=25 122) and learned that family or friends often care for disabled aboriginal patients, instead of involving external agencies.²⁸ This might be due to the geographic remoteness of patients, financial barriers, or the personal importance of family. MacMillan et al had similar findings in 2003, analyzing the Ontario First Nations Regional Health Survey (N=1094) compared with the National Population Health Survey (N=4840).²⁵ It is difficult to tell if this caregiving by family members is by choice or out of necessity.²⁵ Most aboriginal patients would like to die at home¹³ but do not.³¹ Aboriginal northern Ontario community members (N=216) cited inadequate resources, training, and time as contributing factors.³¹ Aboriginal patients in remote communities more commonly interact with nurses, social workers, and alternative health care providers than they do with family doctors. Aboriginal patients might, therefore, be more comfortable with nonphysician care providers.

Family involvement with the death of the patient. In the event patients are incapable of making their final wishes known and a substitute decision maker has not been appointed, health care providers might have to determine which family member acts as spokesperson. Hepburn and Reed found that a spokesperson often emerges without any formal intervention by caregivers.¹²

Some aboriginal people see death as a necessary part of the life cycle and are quite accepting.^{12,39} Terminally ill patients might feel that it is very important to say goodbye to loved ones before they pass away.³¹ This might relate to their belief in an afterlife and the importance of maintaining relationships with loved ones upon entering the spirit world.^{18,30}

Once an aboriginal patient has passed away, there might be additional local cultural considerations. In

aboriginal communities, news that someone has died is usually told simply, directly, and promptly.³⁰ Views on the handling of the body vary by community and family. The review by Smylie et al presents several belief systems.³⁷ It might be important for family and community members to be present at the time of death. The patient or family might request that the death take place in the home community. If this is not possible, the family might request to have the body returned to the community soon afterward. The family might ask to be directly involved in the preparation of the body, and some traditions even require that the body not be left alone until after burial or that the body be buried within 24 hours of death.^{26,37}

The process of dying. Many traditional aboriginal cultures consider death to be very natural. For many aboriginal people, a "good death" is one where they meet death with dignity and composure.³¹ Dying this way implies a further experience of an afterlife.¹¹ Focus groups in 10 northern Ontario communities further defined a "good death" as "during sleep, without pain, in a patient who had received proper care."³¹

There are several accounts of aboriginal patients seeming to know when they will die. This can allow them to prepare themselves both physically and spiritually. Some people die while dressed in particular clothing which family members believe were specifically worn as preparation for their journey. This knowledge allows them to say goodbye to their loved ones, thereby maintaining their important positive relationships.³⁰

Most authors point out that dying is a uniquely individual process, and care must be taken to ensure sensitivity toward the specific patient's wishes.

Organ donation. Molzahn and associates conducted interviews with 14 members of the Coast Salish people in British Columbia regarding organ donation. They encountered a belief in the existence of spirits within each person: when aboriginal people die, they should be buried with a complete body and soul so that they are prepared for their next life.²⁷ This concept was also discussed by Kaufert et al in their reviews, and by Verble et al in their study of data collected from routine organ donation meetings (N=323).^{18,20,38} Molzahn et al also discussed the concept of spirit transfer: some of the participants believed that part of a donor's spirit might be transferred to the recipient during an organ transplantation.²⁷

These body-wholeness and spirit-transfer values might be issues for aboriginal patients contemplating organ donation. Molzahn et al mentioned the large number of aboriginal people awaiting transplantation and the low donation rate. The need for an intact body and complete spirit at burial might be met by performing a cleansing ceremony before the procedure.²⁷

Injury is the leading cause of death for aboriginal people, most from motor vehicle accidents.¹⁴ Evidence from United States general population shows that minority ethnicity lowers donation rates across many cultures.³⁶ Molzahn et al pointed out that many aboriginal people do support organ donation but lack relevant information.²⁷ In the United States, Callender and colleagues found that a community-based minority research program in Washington, DC, increased organ donation rates over a 17-year period, addressing awareness and “ethnically similar messengers” with “culturally sensitive messages.”⁶ Even among the 14 interview participants of Molzahn and colleagues, there was considerable diversity of beliefs, and the authors acknowledged the paucity of Canadian research on barriers to and beliefs about organ donation in aboriginal communities.²⁷

Grieving. The concept of grieving parallels culturally appropriate care. Aboriginal people express their grief in various ways. Some aboriginal cultures view outward expressions of emotion as inappropriate,²⁰ and the apparent grieving period is often quite short.³⁰ Some families hold sharing circles or other ceremonies to help with their emotional pain.²⁰ A traditional healer is sometimes consulted to help bereaved families spiritually.²⁶ Additional customs sometimes take place during the year following the death of a family member.^{11,30}

Complications and barriers. Hotson et al interviewed 44 key informants including community residents, elders, northern physicians, and nurses.¹³ They identified some of the challenges to providing a high level of health care: geographic isolation, language barriers, and financial barriers. The remote nature of many reserves means less access to medical procedures and professionals, lack of inpatient facilities, lack of permanent nursing staff, and difficulty accessing medications.¹³ Physician turnover and inexperience can also play a role.^{28,35} Brown and Shultis found that nonaboriginal communities had more health care services than aboriginal communities of similar size and geographic remoteness.⁵

Physical distance might force patients to leave their families and communities and go to larger cities for medical treatment. Hospitalized patients often feel isolated and lonely without these supports,^{8,17,34} compounded by the unfamiliar atmosphere of a distant hospital.¹⁷ One author wondered if a history of “inadequate health care and broken treaties” might contribute to an undercurrent of suspicion of Western caregivers.³⁹ Doctors’ and aboriginal patients’ communication styles often differ. Aboriginal patients might be comfortable with more silence than Western caregivers are.^{11,22,29}

Discussion

This small literature set gave a consistent, incomplete picture of issues that can arise in dealing with end-of-life

EDITOR'S KEY POINTS

- Many aspects of traditional aboriginal perspectives differ from the views of other Canadians. These perspectives might affect decision making and provision of palliative care.
- It is important to note that beliefs regarding end-of-life issues vary within aboriginal communities. The authors caution that the process of dying is uniquely individual. Care must be taken to ensure sensitivity toward patients' specific wishes.

POINTS DE REPÈRE DU RÉDACTEUR

- Les façons de voir traditionnelles des Autochtones diffèrent de celles des autres Canadiens à plusieurs égards, ce qui est susceptible d'influencer la prise de décision et la prestation des soins palliatifs.
- Il importe de noter que les croyances concernant les questions de fin de vie diffèrent d'une communauté autochtone à une autre. Les auteurs rappellent que le processus de mourir est éminemment individuel. On doit être particulièrement attentif aux attentes spécifiques des patients.

care for aboriginal patients and their families. Recurrent themes include the creative tension between individual care decisions and family and community values, the mind-body holistic conceptual framework, and geographic isolation and its effects on medical resources.

These themes have implications for communication issues: style and pace of discussions, use of interpreters, and involvement of family and possibly other community members. Cultural beliefs of respect, trust, and spirituality can also factor into end-of-life discussions.

Several electronic and library databases were accessed to find the studies considered in this review. Other excellent small research projects might not have been catalogued and were therefore not reviewed.

This literature review has been a useful starting point for development of a community-based research project in northwest Ontario in partnership with an aboriginal research institute. We hope to explore some of the issues identified in the literature and see how they apply in our region. This could inform development of culturally appropriate tools for stating end-of-life preferences, patient transfer to medical facilities, level of investigations and care, and organ donation. Community-based regional research might remove some barriers to effective communication about these important end-of-life issues.

Conclusion

Aboriginal patient care might involve unspoken beliefs about end-of-life issues typically unexplored by physicians. These discussions can involve interpreters, family, and other key community members. Family members

as interpreters might not be the best choice in these situations. The interplay of patients' individuality and of community and family concerns presents challenges for caregivers. Generalities might be useful to inform physicians of the potential scope of individual variation in end-of-life discussions, but each patient and family needs to be addressed individually. ❁

Contributors

Dr Kelly and Ms Minty contributed to concept and design of the study; data gathering, analysis, and interpretation; and preparing the manuscript for submission.

Competing interests

None declared

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Palliative care of First Nations people

A qualitative study of bereaved family members

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ABSTRACT

OBJECTIVE To understand cross-cultural hospital-based end-of-life care from the perspective of bereaved First Nations family members.

DESIGN Phenomenologic approach using qualitative in-depth interviews.

SETTING A rural town in northern Ontario with a catchment of 23 000 Ojibway and Cree aboriginal patients.

PARTICIPANTS Ten recently bereaved aboriginal family members.

METHODS Semi-structured interviews were conducted, audiotaped, and transcribed. Data were analyzed using crystallization and immersion techniques. Triangulation and member-checking methods were used to ensure trustworthiness.

MAIN FINDINGS First Nations family members described palliative care as a community and extended family experience. They expressed the need for rooms and services that reflect this, including space to accommodate a larger number of visitors than is usual in Western society. Informants described the importance of communication strategies that involve respectful directness. They acknowledged that all hospital employees had roles in the care of their loved ones. Participants generally described their relatives' relationships with nurses and the care the nurses provided as positive experiences.

CONCLUSION Cross-cultural care at the time of death is always challenging. Service delivery and communication strategies must meet cultural and family needs. Respect, communication, appropriate environments, and caregiving were important to participants for culturally appropriate palliative care.

EDITOR'S KEY POINTS

- Aboriginal family members of palliative care patients emphasized the importance of respectful and compassionate care. Their experiences outline the need for changes in services and physical surroundings.
- Involvement of the whole hospital staff (eg, house-keeping, kitchen staff) is important in the delivery of palliative care; as such, palliative care training should be universally available.
- Palliative care of First Nations people will always remain a challenge. Ongoing learning is required in order to move forward in this area.

*Full text is available in English at www.cfp.ca

This article has been peer reviewed.

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Soins palliatifs aux personnes des Premières nations

Étude qualitative auprès de personnes vivant le deuil d'un proche

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RÉSUMÉ

OBJECTIF Comprendre le point de vue des membres des Premières nations concernant les soins palliatifs prodigués en fin de vie à un de leurs proches.

TYPE D'ÉTUDE Approche phénoménologique utilisant des entrevues en profondeur qualitatives.

CONTEXTE Une municipalité du nord de l'Ontario avec une population de 23 000 autochtones des nations des Ojibways et des Cris.

PARTICIPANTS Dix autochtones ayant récemment vécu la mort d'un proche.

MÉTHODES Les entrevues semi-structurées ont été enregistrées sur ruban magnétique et transcrites. Les données ont été analysées par des techniques de cristallisation et d'immersion. Des méthodes de triangulation et de vérification par les pairs ont été utilisées pour s'assurer de la fiabilité de l'analyse.

PRINCIPALES OBSERVATIONS Les membres des familles des Premières nations voient les soins palliatifs comme une expérience touchant la communauté et la famille élargie. Ils ont souhaité avoir accès à des chambres et services respectant ces besoins, notamment un espace permettant d'accueillir plus de visiteurs que ce qui est habituel dans la société occidentale. Les participants ont souligné l'importance de stratégies de communication franches et respectueuses. Ils reconnaissaient que tous les employés de l'hôpital avaient un rôle dans les soins de leurs proches. Ils estimaient que les relations de leurs proches avec les infirmières et les soins que ces dernières prodiguaient étaient des expériences positives.

CONCLUSION Prodiger les soins aux mourants de culture différente pose toujours un défi. La prestation des services et les stratégies de communication doivent répondre aux besoins des familles et de leur culture. Pour les participants, respect, communication, milieux appropriés et bons soins étaient des aspects importants pour que les soins palliatifs respectent leur culture.

POINTS DE REPÈRE DU RÉDACTEUR

- Les proches des patients autochtones en soins palliatifs ont insisté sur l'importance du respect et de la compassion dans les soins. Leur expérience souligne la nécessité de changements dans les services et l'environnement physique.
- Il est important que tout le personnel hospitalier (incluant celui de l'entretien et de la cuisine) participe aux soins palliatifs; en ce sens, la formation en soins palliatifs devrait être accessible à tous.
- Prodiger des soins palliatifs aux personnes des Premières nations constituera toujours un défi. Tout progrès dans ce domaine devra s'appuyer sur une formation continue.

*Le texte intégral est accessible en anglais à www.cfp.ca
Cet article a fait l'objet d'une révision par des pairs.
Can Fam Physician 2009;55:394-5.e1-7

Most patients die in hospital¹; this is close to home and culturally appropriate for many urban and rural patients. For First Nations patients from distant communities, however, dying in a hospital means being far from home and family, and being in an unfamiliar cultural milieu. We wanted to understand what the hospital experience was like from the perspective of bereaved First Nations family members. The results from this study have helped us gain an understanding of what our facility is doing well and what could be improved. The participants' experiences will inform future program development by incorporating changes in services, cultural practices, and physical surroundings.

The Meno Ya Win Health Centre in northwestern Ontario has been designated as a centre of excellence for aboriginal care.² The hospital's mission is based on culturally responsive values, providing traditional healing options, interpreter services, and traditional foods.³ Its new facilities, slated to open in 2010, will include a smudge room and a palliative care area large enough for extended family. Information gleaned from this study will complement the centre's approach to care and optimal palliative care services for aboriginal patients in this region.

International qualitative studies document the common aboriginal preference to die at home.⁴⁻⁸ Limitations in community resources hinder this option in remote areas.⁹⁻¹¹ Despite the fact that many aboriginal patients die in hospital, few studies provide practical knowledge that can be applied to their hospital-based care. This is the first study to explore hospital-based end-of-life (EOL) care from the perspective of aboriginal family members.

Many interconnected factors challenge high-quality EOL care for First Nations patients. Geographic, communication, cultural, and institutional issues can all be involved.¹² A 2007 Canadian literature review of aboriginal EOL care identified the main themes: family and community values, traditional and holistic concepts of health and dying, respectful communication, and the challenges surrounding geographic isolation.¹³

Literature review

Researchers in 2 previous studies of nonaboriginal patients interviewed family members to assess quality of EOL care^{14,15}: one study identified trust in the treating physician¹⁴ as the most important element while the other found physician honesty ranked first.¹⁵ Three studies assessing aboriginal EOL care performed community-based assessments.^{4,6,8} Hotson and colleagues' interviews with key informants in remote First Nations communities in northern Manitoba identified patient relocation and isolation from family members as important challenges. Hotson et al recommended improving access to family supports.⁴ Distance from family was the main theme that emerged from Prince

and Kelley's focus groups and surveys in 10 northwestern Ontario First Nations communities.⁶ The Helping Hands Program in Alaska addressed similar challenges faced by aboriginal residents of remote communities by creating the infrastructure to provide more of them with the option of dying at home.⁶ McRae and colleagues' study, which interviewed 13 aboriginal and nonaboriginal families about EOL services, on Manitoulin Island in 2000 found that access to care and symptom control were issues.¹⁶

In a 2006 multicity study of urban Canadian palliative care services, Heyland et al found communication with family members and other health professionals was problematic, particularly when transferring care out of hospital. They found in general that delivery of EOL care was rated as poor by family members when their loved ones were treated in tertiary care centres. They recommended multiple areas of improvement, including intensive care unit residency training in EOL care.¹⁴

Communication and culture

Contrasting styles of communication can complicate care. A qualitative study by Kelly and Brown looked at communicating with First Nations patients in northwestern Ontario and discussed the use of nonverbal communication with an emphasis on listening and accepting silence.¹⁷ Similarly, McGrath's qualitative study of pain management signaled the need to attend to nonverbal cues when assessing levels of pain in Australian aboriginal patients.¹⁸ Several articles discuss the role of interpreters in facilitating cross-cultural communication.^{9,10,19-21} Interpreters often act as advocates and mediators between different sets of values and are therefore a source of empowerment for patients.¹⁵⁻¹⁸ Kaufert and Smylie both describe the disadvantages of family members acting as medical interpreters, including the possibility that they might not inform patients of bad news.^{10,22}

Cultural and institutional barriers negatively affect aboriginal EOL care. Kaufert and O'Neil describe the fundamental conflict that dying in hospital presents for some First Nations patients.^{9,10,23} Traditional values regarding family and community imply taking care of each other until death.^{9,10} Additionally, hospital policies might pose barriers to traditional practices and cultural grieving processes.^{4-7,9} Restrictions on number of visitors and time limitations challenge the valued aboriginal tradition of being surrounded by the entire family throughout the EOL stages.^{6,7,12} Traditional practices such as sweet grass ceremonies and smudging are often prohibited.²³

There is a recent emergence of dialogue and initiatives among organizations. The Canadian Hospice Palliative Care Association,¹ Assembly of First Nations,²⁴ and the National Aboriginal Health Association²⁵ have released documents and recommendations for improving EOL services for First Nations patients.

METHODS

Participants

Ten aboriginal family members whose relatives had died at the Meno Ya Win Health Centre in Sioux Lookout, Ont, consented to interviews. They were considered key informants who would share their experiences and thoughts. We were limited by the availability of informants who lived near Sioux Lookout or who were visiting the community from the north. Participants' family members had received palliative care as recently as several months and up to several years before the interviews. Most had family members who had received such care within the past year. All had lost a parent or spouse. They gave us either written consent or verbal audiotaped consent. Participants were given access to a confidential grief counselor if they felt so inclined after the interviews. Ethics approval was granted by the Meno Ya Win Health Centre Research Review Committee.

Data gathering

The semi-structured interview questions were developed in a bicultural, interdisciplinary setting (Figure 1). The interviews were conducted in English with some Ojibway-Cree words intermingled. The 2 interviewers were experienced nurses with extensive backgrounds in palliative care and they had not been involved in the care of the patients. Each interview was conducted by a single interviewer, accompanied by a research assistant who looked after the audiotaping, took field notes, and ensured that no topics went uncovered. One participant consented to field notes only without audiotaping.

The research design team was an interdisciplinary and cross-cultural group of researchers. The process was informative from the start. We decided not to include questions about organ donation. We learned from the First Nations members of the team that discussing organ donation would distract from exploring EOL care.

Data analysis

The interviews were analyzed by 4 researchers independently. There was 1 collating analyst. The interviews were subjected to immersion and crystallization, using a phenomenologic approach. By steeping themselves in the documents, the analysts were able to understand and experience some of the feelings expressed by the participants. Beyond this triangulation of researchers, member checking with the interviewers was undertaken to ensure trustworthiness.

FINDINGS

Three themes arose from content analysis of the

Figure 1. Interview questions asked of aboriginal family members whose relatives died at the Meno Ya Win Health Centre in Sioux Lookout, Ont

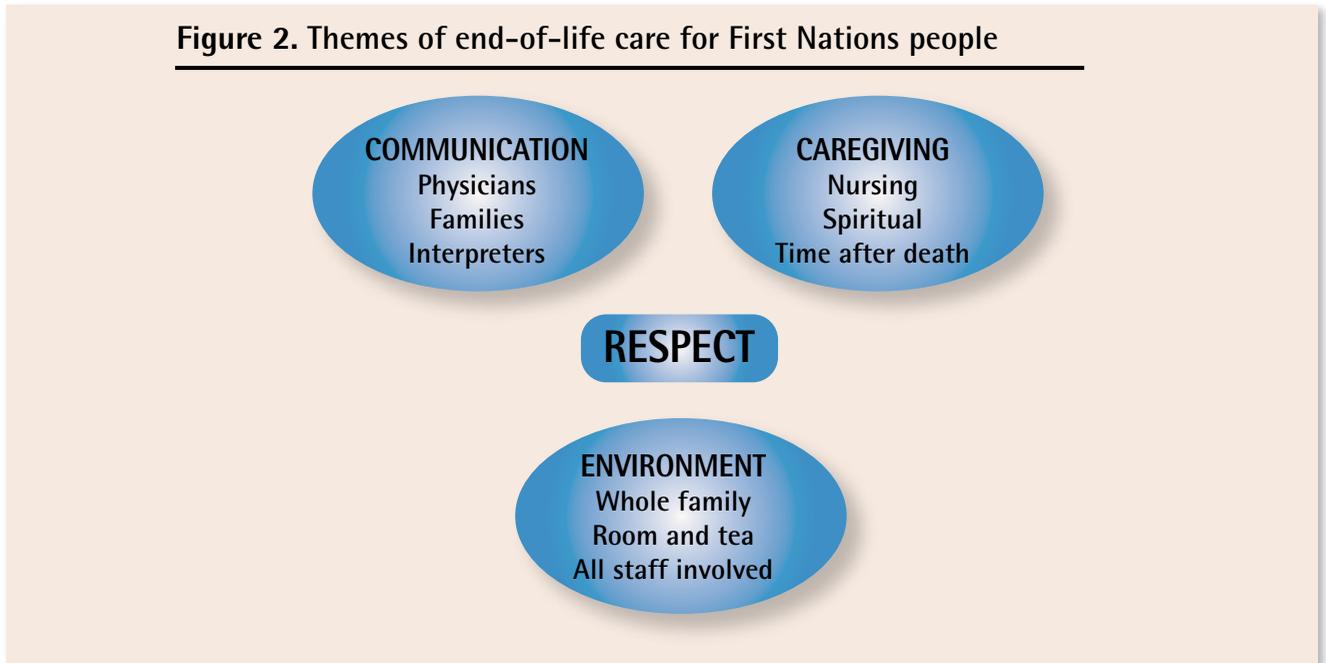
1. I understand that you have experienced the loss of a family member to an illness at Meno Ya Win Health Centre. Can you tell me what that was like for you?
2. How was the hospital experience?
3. How was the hospital care for your dying family member?
4. Tell us about the hospital services for family members and visitors of the patient:
 - How were the room and services?
 - How were the doctors and nurses?
 - What things were done well?
 - What things need improvement?
5. In most hospitals, end-of-life care is called palliative care. The purpose of this care is to keep the patient comfortable and pain-free when it is clear they are dying. The doctors and nurses do not actively try to stop the patient from dying.
 - What do you think of that?
 - How do you think this should be discussed?
 - Whom should it be discussed with? The patient? The family?
6. Do you have any suggestions for the new hospital, the nurses, and the doctors when dealing with dying patients and their families?
7. Sometimes it is hard to get agreement among family members about how to provide end-of-life care and comfort to a dying patient. How should we approach this communication?
8. Sometimes when patients have terminal illnesses, they do what is known as advanced care planning (directive). This means they talk with their doctors or nurses about their care before they actually get too sick and they decide on how and what they would like done. If you had a terminal illness and you wanted to discuss this before you got too sick, how could we help you?
9. Many people see dying as a spiritual experience. How can hospital staff or others be helpful with this?
10. After a person dies at the hospital, the funeral director comes to gather the patient. This usually occurs an hour or so after the person dies to give the family some time alone with the deceased. Is this all right?
11. Are there any other things you would like to add to this interview?
12. Are there any things that we should do at the new hospital that we are not doing now to help people die in peace?

transcripts: communication, caregiving, and environment (Figure 2).

Communication

Communication was the most extensively discussed participant issue and included communication with or between physicians, family members, and interpreters.

Figure 2. Themes of end-of-life care for First Nations people



Communication with physicians. Bereaved aboriginal family members expressed the need for physicians to communicate directly: “The doctor ... he was helpful and telling us straight out that it was terminal.” They wanted physicians to communicate respectfully and to take the time:

I guess it’s all part of our culture with respecting a dying person.

The underlying principle of the health care system has to be respect—respect for the differences we have. For me, that’s the underlying principle of the work of the hospital.

They wanted communication to include words of encouragement:

The most encouraging words I heard was when she died, a doctor said that she wasn’t defeated by the cancer. Every day she fought to be with us. It didn’t defeat her. It’s the words that people use with us.

They did not want false hope:

I think that the facts are good and not giving the patient false hope.

[One physician] was different from the others. He gave a false sense of hope. I didn’t like that.

The doctor told me that [my spouse] had 6 months to a year, and she didn’t even last a month.

The value of experienced physicians was identified:

It depends on the individual [physician] and how much they know of the people and how long they’ve been around here, you know. If they know our ways and, you know. I think those are the better doctors for an elderly [patient] dying rather than a new student coming in from medical school.

Not all feedback on communication was positive:

I didn’t see enough, personally, like the doctor coming in enough to give us information.

The doctors were very busy, especially the specialists in the city. There was one that would come in and then leave without telling us what he found. Until we asked, then he took the time to explain. I thought he probably thinks that we don’t have a good grasp of the English language that we wouldn’t understand the medical terminology and that he thought his time would be wasted on us. That bothered me. I know they are overrun but as long as they take the time. We need to know what’s going on throughout, because it’s a progressive disease.

Communication within the family. End-of-life care is a stressful time for families:

Like, when it comes to that point of somebody dying and I wonder why they [the families] choose to have a big fight then.

It’s very hard when there is fighting.

For other families things went smoothly:

I don't think me and my family really had any chances to disagree on anything. Just whatever one person said, we just went along with it, that way things just went smoother.

I think it is to support each other in the family and if you have a disagreement ... I think there has to be one spokesperson for the family as hard as that is. One to make the decisions.

Culture played a role in family communication and decision making:

It's always the elder we go to, in our family anyways, and in most other families that I know.

I find with Native people ... that they don't want to say this or that. They don't want to make choices, especially when the person that is dying is not in that right state of mind.

Advanced care planning. Research questions about advanced care planning were not particularly fruitful. They did, however, lead to elaboration on individual family decision styles. Some patients gave specific instructions to the family:

We didn't have any decisions to make. She had it all planned out and it was easier for us.

She prepared and told us what to do after she was gone She told me how to make a white kerchief for her, just to use the white material.

For other families, however, not speaking of illnesses was the tradition:

She didn't know she had cancer. I don't think she ever really found out what was wrong with her. They asked my dad. My dad decided not to tell her. It was too far along. Dad didn't want her to know. I don't think that was a good thing to do.

In a Native way, nobody really doesn't make those kind of plans.

I think it is difficult for us because we see so many unnatural deaths, people dying so early and this causes fear. People think that the more they talk about it, it will come.

Interpreters or translators. One of the key elements of communication with aboriginal patients was the use of interpreters. Family members were able to speak in

the language of their relatives, but they expressed concern when interpreters were not available:

Most of the elders cannot express what they need The only people that can really talk to the patient ... are the interpreters.

I would often think that the people taking care of her could know what she was saying in her language. She would compliment and encourage them and I wish they could have heard it. I think it would mean something to them.

She got upset all the time and she was crying and would say, "When I want to talk to someone that speaks my language ..." Or "If I want to go to the bathroom ..." You know, things like that.

Interpreters played a role in EOL care that went beyond language translation: "Interpreters are not really trained to be palliative ... a lot of people are uncomfortable."

Caregiving

The second theme was caregiving. Participants were generally comfortable with the symptom control their family members received and almost always had positive comments about the care:

You know that she was going to die but you're really happy when the doctors and nurses come, even though you know there's nothing they can do for her. You feel relief when they come because it shows they care.

Nursing care. Family members made the following statements about the nurses:

Everybody looked after him. The nurses were very good.

I found that the hospital staff, the nurses, and doctors were all very supportive of our family.

I still talk to all the nurses that were helping my mom. They were really friendly ... [but] it always seems like there's one nurse that just kinda makes it a bit difficult.

Spiritual care. Spiritual care was mentioned as important by most families:

Because Nishnabe believe in the bible, they [Nishnabe people] believe I don't know what else they believe in. But it's different for everyone and that we should respect.

The minister was here all the time and she brought communion every Sunday and the traditional people

would come in and do that too.

Praying and singing were often synonymous:

Patients ... ask me if I can pray or if I can sing [with them].

And there were a few people that were around his place and they were able to play the guitar and those things—in the hospital—and nobody complained about that either, even all the nurses, and we asked Everybody liked it. Even some patients want to come out in the hallway to listen to it, to hymns and guitar.

With us, her death was at 5 AM and they took the body at 9 AM. We sat with the body and had prayers. My sisters and I would sing. The nurses told us we were too noisy for the others across the room. That's what we do when somebody dies.

Attendance after death. Families expressed a need for flexibility in removal of the remains of their loved ones after passing. This often meant personal or family time, or consideration for relatives traveling from the north:

We were told it was up to us when the body was removed. I needed that. I needed to wait until all my children came in. Two of my children came after midnight.

I know there are times when we've had the deceased laying there for more than 3 hours, just so that we can meet the family's requests I think the hospital is good with families in that respect, for giving them their room and their privacy during this time.

The elders will place the body in a certain way. They have different practices and the [hospital staff] have to be aware of that ... allow people to create the environment they want.

Death at home. Although we were asking about hospital EOL care, the option of dying at home came up:

The doctor told me 3 days before he knew that it was almost time and I should make arrangements for her to go back up north. But then I talked to her. She said, "I'll just stay here and let the nurses take care of me."

Other elders I have worked with, they have asked to go home and they wanted to die at home. Mom could have gone home, but we were here and she seemed quite happy. But with my aunt, she said, "Now that I know I'm dying, I want to go home and see my

children and my grandchildren. I haven't seen them in a long time." I'm glad she got home because she could still remember. She could still see. So I'm glad it was possible for her.

Environment

Appropriate facilities. Aboriginal EOL care involves the whole family and other community members, so the facility needs to comfortably accommodate such large groups. In many ways, the culture combines the Western practice of a wake and EOL care.

Especially in our culture, towards the end you need more people. We want not just the family, but friends there too. Not just immediate family.

She would name names and then we would call them and they would come down. We would have 20 people in the room and that was really hard because there was no room for us all. She wanted us there all the time.

Like with Native people, even when we have family dying at home, there are always people at night that want to be there with family. It would be nice to have a room just for that so they don't disturb anyone else and that they have their privacy and make sure the patient sleeps well at night.

Kitchen service. When family member participants were asked general questions about hospital services, they all lauded the practice of the kitchen staff and nurses arranging refreshment trays of tea and cookies. Sharing tea is a part of common social discourse.

I believe the hospital was really good to us at that time. They provided us with tea, you know, because we knew Dad's time was short, so we didn't have to go very far to have a cup of tea and I really appreciated that.

Involvement of all hospital staff. Just as the whole family played a role in EOL care, bereaved participants identified that all of the hospital staff were involved in EOL care.

Because all staff are affected, you know, when someone is dying on the floor or even patients down the hall kinda know. They can sense that something is happening. I think that everybody should be educated on the circle of life.

At times I saw how the people at the hospital were affected by her passing. I now think that I should have reached out to the caregivers and [told] them that we were grateful and to acknowledge them.

DISCUSSION

Our study confirmed some things that we already knew about our institution: our rooms are too small for large extended family visiting palliative patients and visiting hours inhibit family attendance. We were surprised to learn that the long-established practice of bringing tea and cookies to family members was universally praised. This practice was developed over the years by our nursing and kitchen staff with no formal program, without us noticing its positive effect on families.

We discovered that the extended family and community were important members of the care and attendance team—as identified in the 2007 literature review by Kelly and Minty.¹³ Our findings brought us a step closer to understanding that the whole hospital staff is also involved in the delivery of palliative care, including the kitchen and housekeeping staff. In our small hospital, First Nations palliative care is not only a whole family event, but also a whole hospital staff experience. This was particularly true for the interpreters who were identified as key personnel involved in EOL care; as Kaufert et al documented, they function as cultural navigators as well as translators.²⁰

We now recognize that all hospital staff are involved, and they might need training and debriefing. We further outlined that the physical environment needs to accommodate reasonably large numbers of extended family members, who appreciate some privacy and kitchen service.

It was no surprise that communication arose as a theme, which it often does in patient care. We discovered several specific issues: false hope was not appreciated by family members; insufficient physician communication was sometimes ascribed to possible physician misperception that the aboriginal patient or family member might not understand his or her explanation; and family members preferred direct, respectful communication. Respect, music, and spirituality were all perceived to be part of good caregiving, which had previously been documented in the aboriginal literature.^{7,13}

Unlike the studies by Heyland et al¹⁴ and McRae et al,¹⁶ symptom control was not identified as an issue. This might be because it was appropriately managed or that it was not attested to by participants, despite the use of probe questions relating to it.

Limitations and directions for future research

Our study is limited by the fact that our participants were all local, and these results might not apply to other palliative care providers in other First Nations regions. We have learned many important lessons to guide us to move forward in an area that might always remain challenging. Our interviews took place in English, although we offered translation services if needed. Because we

interviewed locally represented English-speaking family members, we might have missed issues specific to non-English-speaking families and missed concerns of distant families, as geographic distance might create additional issues.

Future research should include understanding the question of First Nations organ donation—perhaps a focus group with our hospital Elders Council could help understand this issue. We are contemplating instituting a brief telephone follow-up 2 to 3 weeks after the death of a palliative care patient from our institution to ensure quality of palliative care and ongoing learning.

Conclusion

Family members generally believed their loved ones received good nursing and medical care in our rural hospital. They emphasized the importance of respectful care. This involves directness in communication, assisting intrafamily communication, and frequent use of interpreters when needed.

Caregiving should include access to various spiritual modalities, compassionate nursing care, and allowing time with the deceased after death.

The facility needs to allow for large groups of extended family to spend time with dying patients. Because all hospital staff might be affected, palliative care training should be universally available. These findings will inform the planning and program development of the new Meno Ya Win Health Centre, opening in 2010. 

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Contributors

Dr Kelly designed the overall study and wrote all drafts. **Ms Linkewich** and **Ms Cromarty** helped design the semi-structured questions, did the interviews, and approved theme extraction. **Ms St Pierre-Hansen** attended, recorded, and analyzed all interviews, and assisted in writing drafts. **Drs Antone** and **Gilles** assisted in the development of questions and analyzed the interviews. All authors approved the final draft.

Competing interests

None declared

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EDUCATING FOR TOMORROW:

Enhancing Nurses' Pain Management *Knowledge*





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Nurses play a vital role in the assessment and management of clients' pain across the lifespan and in diverse clinical settings. However, research has shown that knowledge deficits, especially in the areas of pain assessment and titration of dosages, may contribute to the under-treatment of pain (Coulling, 2005; McCaffery, Ferrell, & Pasero, 2000). Recognizing that developing competencies in pain assessment and management requires nurses to enhance their knowledge and skills, the Centre for Education and Research on Aging and Health at Lakehead University, Thunder Bay, Ont., developed a pain management education program for front-line nurses.

Historically, nurses have been at the forefront of initiatives to improve the quality of life for patients experiencing pain. Recent studies suggest that a major barrier to effective pain management is the lack of continuing education for nurses and other health-care professionals (Kohr & Sawhney, 2005). Numerous knowledge and attitudes surveys have identified inadequacies in pain management (Glajchen & Bookbinder, 2001; Schafheutle, Cantrill, & Noyce, 2001). Many nurses maintain myths and beliefs about pain, and they lack up-to-date knowledge on pain techniques, both of which affect their ability to provide good pain management to patients and families (McCaffery et al., 2000). It has also been suggested that nurses' confidence in their knowledge directly affects their perceived competence, thereby further emphasizing the need for ongoing education about pain and new technologies (Glajchen & Bookbinder). Some of the commonly identified areas of lack of competency are the use of adjuvant drugs, equianalgesic conversions, intravenous administration, patient-controlled analgesic pumps and spinal infusions.

Generally speaking, the available evidence supports the fact that the assessment and management of pain is among the priority needs for continuing nursing education (CNE). However, there are many challenges in designing programs to educate nurses and other health-care professionals in pain management. These challenges include pre-existing attitudes and beliefs of both patients and nurses about the assessment of pain and the use of opioids, the holistic nature of pain (physical, emotional, social and

spiritual), the variability of the skills and techniques required to address patients' unique responses to pain, and the interdisciplinary communication needed to link the patients, families and professionals together and thus to develop an individualized care plan for the patient (Sherman, Matzo, Paice, McLaughlin, & Virani, 2004).

Whether CNE has a positive impact on changing nurses' practice has been controversial. Research indicates that CNE programs are likely to result in a significant increase in knowledge and a change in attitudes. A meta-analysis of 34 published and unpublished studies by Waddell (1991) suggests that CNE has a positive effect on practice. However, researchers have also pointed out that even though nurses have identified the application of newly acquired

ABSTRACT

The Centre for Education and Research on Aging and Health at Lakehead University, Thunder Bay, Ontario, was the lead agency in developing a pain management continuing education program for front-line nurses in a variety of settings in northwestern Ontario. A committee of experts from the centre as well as from the Thunder Bay Regional Health Sciences Centre; Regional Cancer Care; the Pain and Symptom Management Team, North West Community Care Access Centre; the Victorian Order of Nurses and Lakehead University school of nursing developed the program. The program included a pre-test of knowledge and attitudes; four two-hour educational sessions focusing on total pain, acute pain, chronic pain and cancer pain; and a post self-test at the end of each session. The educational sessions were evaluated through a survey to participants. Overall, the nurses expressed high satisfaction with the workshops, and the post self-tests indicated a better understanding of patients' pain management experiences. As a result of the evaluation, the education planning committee refined the program, which is currently being delivered to nurses in rural and remote communities via telehealth.

KEYWORDS

continuing education in pain management, pain assessment, pain management

CNE knowledge as a priority (Glajchen & Bookbinder, 2001), their work environment and a lack of time to practise new skills have been cited as barriers (Warmuth, 1987). Educators also have to take into consideration that “learning pain assessment and management involves cognitive, psychomotor and affective domains of learning” (Sherman et al., 2004, p. 119). Also, learners gain knowledge through a variety of teaching methods, such as lectures, case studies, discussions and visual aids (Glajchen & Bookbinder; Sherman et al.).

In a survey designed to study attitudinal barriers to pain management, patient and family attitudes were identified as a significant factor, along with nurses’ attitudes and beliefs (Weiner & Rudy, 2002). Many of the articles and studies reviewed stressed that CNE strategies must target the myths and misconceptions about pain assessment and management in order to be effective and sustainable (Coulling, 2005; Schafheutle et al., 2001). Although short, two-hour educational programs have shown positive effects, the overall design and length are significant factors in an educational program. Further research is needed on the effect of these factors on educational programs designed to change nursing practice related to the assessment and management of pain (Pederson, 1996).

Nurses living in rural and remote communities, as in northwestern Ontario, often lack the expertise and educational opportunities to pursue their continuing education needs (Kelley, Habjan, & Aegard, 2004; MacLean & Kelley, 2001). The front-line nurses practising in Thunder Bay recognized their learning needs in the area of pain management. To address these identified needs, a committee of experts and academics in pain management collaborated on the development and delivery of an education program.

PROGRAM DEVELOPMENT

As the leader in palliative care education in northwestern Ontario, the Centre for Education and Research on Aging and Health (CERAH) initiated the stakeholders’ meeting. Developing the pain management education program was a collaborative project of the Thunder Bay Regional Health Sciences Centre; Regional Cancer Care; the Pain and Symptom Management Team, North West Community Care Access Centre; the Victorian Order of Nurses; Lakehead University school of nursing and CERAH. The representatives of these organizations were recognized leaders in pain management.

Assessment. The first step in developing the program was to establish nurses’ baseline knowledge about pain and areas where knowledge might be lacking. A survey instrument, the Learning Needs Assessment Questionnaire, was therefore developed, adapted from a survey in the article “Your Patient is in Pain—Here’s How You Respond” (McCaffery and Robinson, 2002). The survey was designed to provide nurses with a self-evaluation tool to assess their knowledge, skills and attitudes about pain management and to provide a guideline for educators setting educational

priorities. The CERAH questionnaire also included material from the palliative care program of the Medical College of Wisconsin Pain Pharmacology Pre-test (Medical College of Wisconsin Palliative Care Program, 1999).

The Learning Needs Assessment Questionnaire comprised 20 questions: five demographic questions (respondent’s gender, age, highest level of nursing education, practice setting and number of years in practice) and 15 multiple-choice, knowledge-based questions, primarily addressing assessment practices and drug therapy (including addiction issues). The nurse experts on the education planning committee revised the tool to reflect local practices and potential practice settings represented by the survey population. The tool was pilot tested by a fourth-year nursing student and an experienced nurse before administration. The interdisciplinary education planning committee reviewed, revised and approved the assessment tool.

The questionnaire was distributed to about 500 individuals, including nurses from acute care, community agencies, long-term care facilities, chronic care and hospice care, and fourth-year nursing students. A total of 178 questionnaires were returned.

Program. The results obtained from the knowledge-based questions were used to develop the curriculum of the education program. The program was called Pain Management Workshops: How to Manage your Patient’s Pain More Effectively, and was divided into four workshops: Total Pain, Acute Pain, Chronic Pain and Cancer Pain. Each workshop was presented by an interdisciplinary team, consisting of pain management experts to whom the participants had access in their workplaces. The presenters were given the results of the questionnaire, specifically the knowledge-based questions, which did not score highly, to guide them in their preparations. The Total Pain Management workshop was presented by a nurse and a social worker, and the other three workshops were led by a nurse and a physician. At the end of each workshop, the participants were given five multiple-choice, knowledge-based questions as a post self-test of the obtained knowledge.

These two-hour workshops were offered in the evening over four weeks in May and June 2005 at the centre, a location that was accessible to the target audience. The number of participants varied with each workshop from a high of 55 to a low of 38. All the participants were nurses, and they practised in a variety of settings, including acute care, chronic care, hospice care, long-term care and community care.

Evaluation. After each session, the participants were given the opportunity to evaluate the workshop. Overall, the completed evaluations showed a high level of satisfaction with the education program, and participants expressed a desire for these kinds of workshops to be offered more frequently.

The nurses were asked to rank the content on a five-point scale, with 1 being poor and 5 being excellent. The majority of respondents



One of the unique features of the workshops was the involvement of local interdisciplinary pain management experts in the development and delivery of the sessions.

IMPLICATIONS FOR PRACTICE

Evaluation of the education initiative indicated that this type of program assists nurses in developing a better understanding of their patients' pain management needs. However, research points to the fact that high-quality, evidence-based, well-designed courses are not the only method to increase nurses' pain knowledge; targeted clinical practice training in the workplace is also needed (Coulling, 2005). There are numerous organizational barriers that prevent nurses from being able to apply their newly acquired knowledge about pain management, such as lack of staff, workload, and legal and institutional constraints or policies (Schafheutle et al., 2001; Warmuth, 1987). Therefore, it is critical to increase

ranked the content as very good or excellent (Total Pain mean, 4.29; Acute Pain mean, 4.45; Chronic Pain mean, 4.56; Cancer Pain mean, 4.78).

In addition to ranking their satisfaction, the participants were also asked to comment on what they liked best and least about the workshops. In response to the question "What was the most valuable part of the workshops?", the participants identified six areas of information and discussion: the role and responsibilities of the nurse in the assessment and management of pain; the concept of assessing total pain; the pathophysiology of pain and the effects of various pharmacological agents; the differentiation between acute, chronic and cancer pain; the use of complementary therapies; and real-life examples of complex pain management situations. In response to the question "What was the least valuable part of the workshops?", the respondents, for the most part, said that everything was relevant; however, they did not like completing the post self-test.

The participants indicated that they would have liked more resources (handouts, books and videotapes) to assist them in reviewing the content at a later date. It was suggested that the sessions could be videotaped and made available through staff education and the hospital and agency intranet.

the awareness of educators and administrators of the importance of evidence-based pain management and to enlist their support in creating education programs that will address the ongoing learning needs of nurses and other health-care professionals in a variety of clinical settings. Although raising such awareness was not the focus of this project, it is evident from the literature review and the evaluation of the program that educators and administrators need to be engaged in the planning and support of future projects.

One of the unique features of the workshops was the involvement of local interdisciplinary pain management experts in the development and delivery of the sessions. For the most part, these experts were known to the audience and available for followup. A unique feature of the curriculum was the incorporation of the results from the learning needs assessment questionnaires. Also important to the process of curriculum development was the interdisciplinary background of the education planning committee members, as communication between disciplines is often cited as a barrier to the effective coordination of pain management. A recent survey of the knowledge and attitudes of nurses and physicians indicated that nurses are more knowledgeable than physicians in assessment and delivery systems for pain but that physicians are more knowledgeable about drug pharmacology and ▶

In future, it would be a priority to track pre and post attitudes about pain assessment and management in order to validate the strategies that have most affected and sustained a positive attitudinal change.

side-effects (Coulling, 2005). This finding supports the notion that continuing education for pain assessment and management must be developed and delivered in an interdisciplinary manner and include evidence-based interventions, roles and responsibilities of providers, professional communication processes, and ethical and legal implications.

The education planning committee recognized that these educational sessions, though successful in meeting the learning needs of a small group of nurses, were a one-

shot approach. It is questionable whether the learning gains will be sustained without followup education. In future, it would be a priority to track pre and post attitudes about pain assessment and management in order to validate the strategies that have most affected and sustained a positive attitudinal change. It would also be helpful to re-survey the nurses to establish an optimal time frame for refresher education sessions. According to Innis, Bikaunieks, Petryshen, Zellermeier and Ciccarelli (2004), a good time frame for re-evaluation is three months.

To promote sustainability, however, the education planning committee recommended that nurses adopt recognized best practice

guidelines such as the Registered Nurses' Association of Ontario's best practice guideline *Assessment and Management of Pain*. ■

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The occasional trigger point injection

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Trigger points and myofascial pain are common diagnoses. They can occur in any patient, even in those not diagnosed with a chronic condition, such as fibromyalgia or recurrent myofascial pain syndromes. The underlying mechanism for the development of these discrete hyperirritable nodular areas of muscles, first described in 1949,¹ is unknown. The commonly acceptable pathological explanation includes an area of contracted muscle sarcomeres² and irritable muscle end plates.³

Clinicians find patients complaining of musculoskeletal pain that does not fit an accepted neurologic or orthopedic strain pattern. The trigger point will be painful to the touch and compression will illicit a local and referred pain that simulates the patient's discomfort.¹

Needling therapies for pain relief have been used for thousands of years.⁴ Chinese physicians performed dry needling in the seventh century AD. Acupuncture and dry needling did not become of major interest to Europeans until the 1800s.

Literature review

Although commonly encountered in clinical practice, the literature is scant on this subject. There is a distinction in the literature between tender points (associated with fibromyalgia), which are painful to soft touch, and trigger points, which require more pressure and are often an identified muscle knot.⁵ Such a discussion is beyond the scope of this article. Since fibromyalgia patients often have both tender points (considered less responsive to injections) and trigger points, a trial of a trigger point injection may be beneficial.²

We searched Medline for myofascial pain syndromes, therapy and trigger point injections. Of the 152 articles we found, there were 3 systematic reviews and 15 somewhat controlled studies. Most were level III evidence. A 2000 Cochrane review⁶ concluded that there was inadequate evidence for or against the use of trigger point injections for the management of low back pain.⁶ We examined the literature beyond this review and found several small

studies that compared which agents worked best for injections. However, they did not have enough power to comment on overall efficacy.⁷⁻¹⁰

Most studies use a variety of sterile water, lidocaine or bupivacaine, and there is no clearly superior substance. One author found equivalent results with dry needling when compared with local anesthetic.¹¹ Interestingly, a small crossover study of 10 patients did find that the benefits of successful trigger point injections were reversible with intravenous naran, perhaps indicating a local or regional endorphin response to needling.¹¹

The illustrated self-treatment guide by Davies and Davies, *The Trigger Point Therapy Workbook*, is an excellent resource to physicians and patients.¹² It is clearly written and describes how patients can identify and treat their own regional pain trigger points, often with application of pressure, e.g., leaning against a tennis ball over specific points. The classic, 2-volume, *Myofascial Pain and Dysfunction: The trigger point manual*, is a more extensive medical text on the subject.¹³

Patient presentation

While fully developed fibromyalgia and chronic pain syndromes require interdisciplinary rehabilitation services, primary care physicians may often be faced with a patient with isolated or recurrent trigger points.

Typically, a patient will present with pain or paresthesia symptoms that do not fit an organic illness diagnostic pattern. Rather than feeling overwhelmed at the vast differential diagnosis, one should perform a simple search for trigger points, which very often results in positive findings. An appropriate examination is prudent to rule out serious pathology. This is followed by a simple trigger point injection, which may alleviate the vast majority of the patient's myofascial pain. A common response would be an 8 or 9 out of 10 pain reduction. The neck and shoulder are common sites of myofascial pain ([Fig. 1](#) and [Fig. 2](#)).

If the trigger point is not found, the patient may leave with a long series of investigations in front of him or her, or with angst that some ominous process is brewing. It is remarkably common to have patients with the same problem say that they have seen many physicians over the years, that they have been through an extraordinary number of investigations and that they have often been prescribed protracted doses of narcotics. They are happy to leave the office pain-free with an exercise prescription in hand (or low dose amitriptyline at hs). A recurrence of symptoms requiring a repeat injection every 6-12 months is not uncommon. Once the diagnosis is made, a busy practitioner might refer a patient to a chiropractor, massage therapist or acupuncturist, etc., often with similarly good results.

Procedure

The procedure is easy and only takes a few moments.

Step 1

In our experience 0.25% bupivacaine 1-2 mL per trigger point is appropriate. The long-acting nature of this agent will prevent the local soreness that some patients experience from the process. One percent or 2% lidocaine can also be used.

Step 2

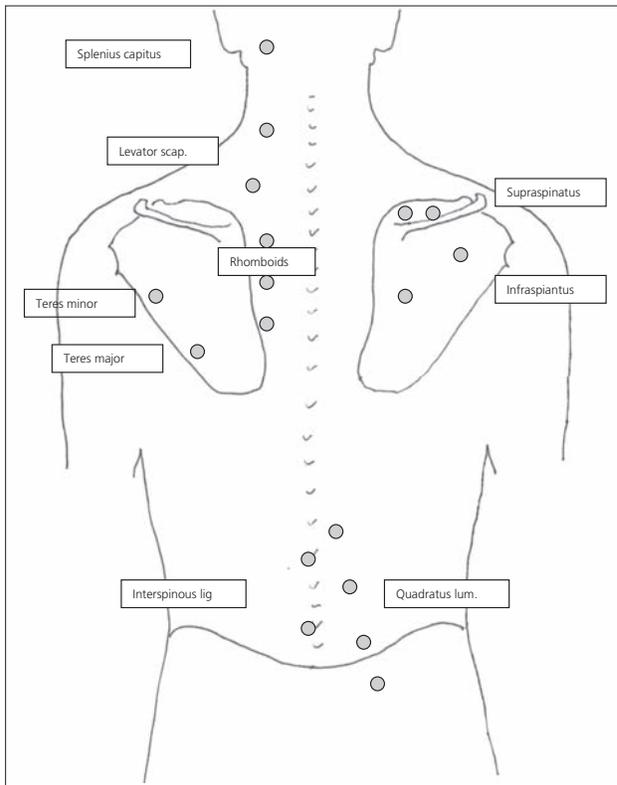


Fig. 1. The dots represent upper and lower back areas where trigger points commonly occur.

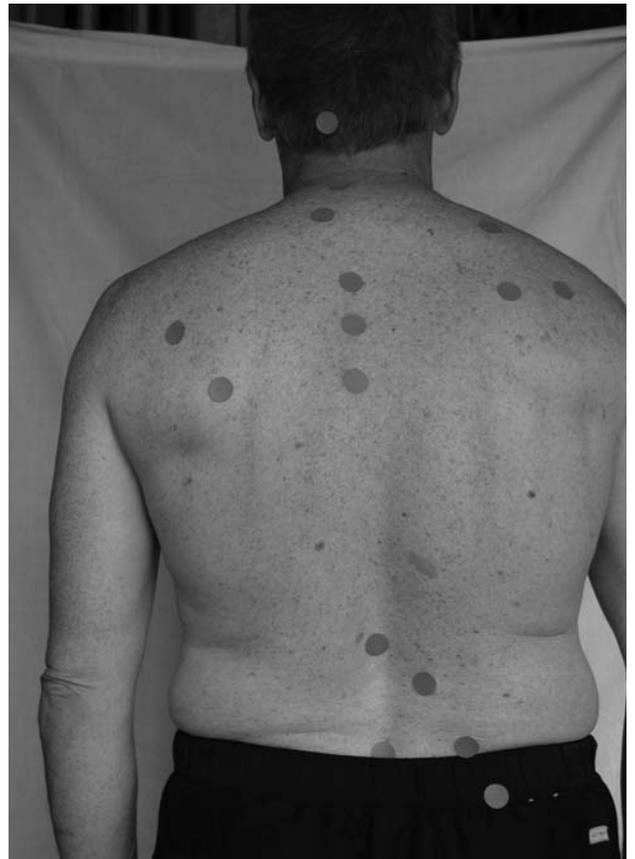


Fig. 2. The dots represent the same common trigger points that are shown in Figure 1 as they are identified clinically. The points are bilateral but, for clarity, are shown here unilaterally.

The trigger point is localized with finger pressure — it is often helpful to landmark the spot with the plastic needle cover to create a superficial "target" impression on the skin ([Fig. 3](#), [Fig. 4](#) and [Fig. 5](#)).

Step 3

After an alcohol swipe, the 25-gauge needle is inserted smoothly to the clinical depth; usually 1 cm into muscle or interspinous ligament ([Fig. 6](#) and [Fig. 7](#)). The amount of overlying adipose tissue will determine total needle depth; the physician will feel the increase in resistance upon entering the muscle. At the moment of injection the patient will often identify an intense reproduction of their presenting symptoms and, importantly, in the same radiating pattern. This is a good sign and usually correlates with positive outcome.

Conclusion

Mastering the simple trigger point injection allows the practitioner to identify and treat pains that do not fit traditional patterns. It sometimes allows for immediate resolution of the pain without the need for further investigation. Follow-up with the patient will allow us to identify successful interventions that may be repeated if the trigger point becomes active in the future. This is a safe and simple procedure that we may often overlook, particularly in our more challenging patients.

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Fig. 3. The image shows how the trigger point is found, by gentle palpation and increased finger pressure, which causes a local and radiating reproduction of the pain that is consistent with the symptoms.

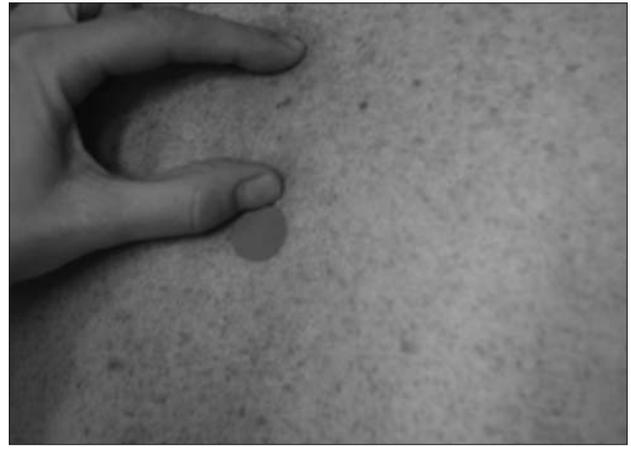


Fig. 4. The image shows how the skin is stretched between 2 fingers to lessen the pain of injection and immobilize the underlying muscle knot.

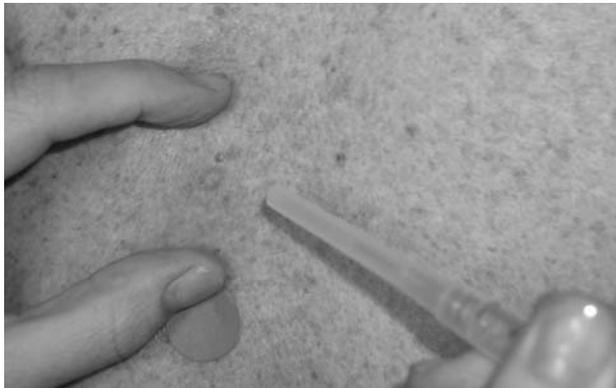


Fig. 5. The most tender spot is localized accurately using the needle cover and giving the patient choices until the sorest spot is identified and marked with pressure. This gives a "bullseye" to inject.

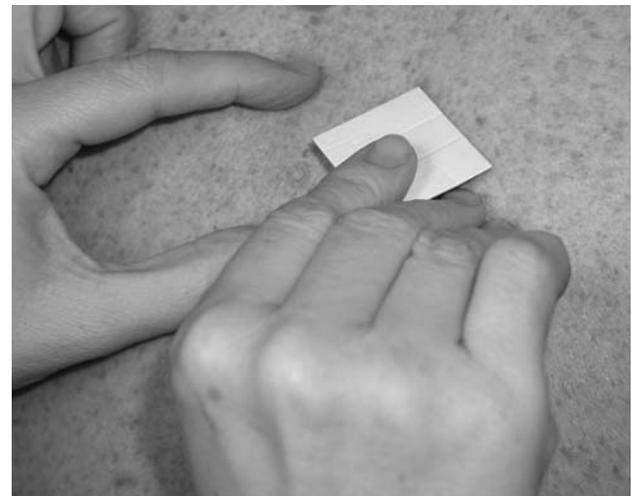


Fig. 6. The image shows how the technique in Figure 5 is followed by an alcohol swipe, using clean technique.

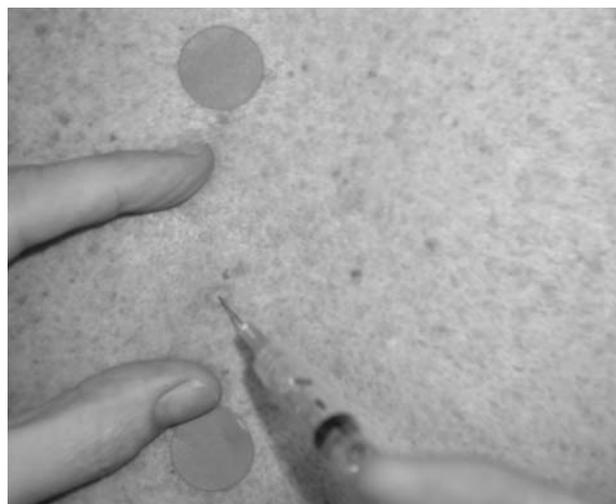
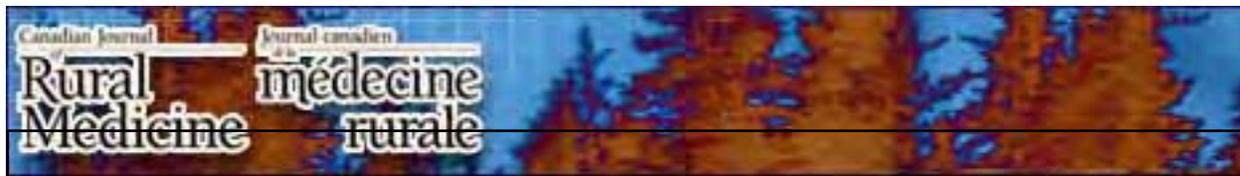


Fig. 7. The needle is uncovered and placed smartly through the skin, entering to an approximate muscle depth of 1 cm. The physician will eventually develop a feel for when he or she is entering the affected muscle. The injection is made slowly and is accompanied by an anticipated initial increase in the pain along the particular radicular pattern identified by the patient. If there is no temporary worsening of the pain, the needle has likely missed the mark and may need to be repositioned.

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The occasional shoulder reduction

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The shoulder is the most mobile joint in the body. With this relative instability, it is no surprise that it is the most common joint dislocation seen in the emergency department.¹ With an annual incidence of 17 per 100 000 people,² a rural physician group serving 10 000-20 000 patients may encounter only several each year.

Reduction methods can be confusing, if only because there are multiple options. In this article I offer what pearls there are and I review the 10 reduction methods in the literature. Most emergency physicians will need their chosen approach as well as one or 2 backup methods.

General considerations

Some general comments are in order. A dislocated shoulder is neither time sensitive nor limb threatening. Several methods include only gentle movements and claim to require little sedation.³⁻⁶ These methods may work well on the calm and relatively pain-free patient who may have suffered an atraumatic dislocation. Reduction methods that use traction on the sore shoulder will require analgesia or sedation. The simplest medication to consider is 10-20 mL of 1% xylocaine injected into the joint space. If the patient is deeply sedated, he or she requires constant monitoring, oxygen and saturation monitoring, intravenous access and airway capabilities at hand. I use intravenous narcotics and always have naloxone (Narcan) drawn up in a syringe. An old chart can sometimes outline prior reduction successes if the patient is one of the 25% of people who present with a recurrent dislocation.

In some cases, the shoulder cannot be reduced in the emergency department and requires total muscle paralysis in the operating room. The reduction in the emergency department may fail and referral may be necessary; rarely, an open reduction is needed.⁷

Successful reductions may be accompanied by a satisfying "pop," but more often are not. It is therefore helpful to have a clinical sense of the defect below the deltoid where the humeral head should sit, as the shoulder may relocate quietly with one's initial efforts.

History

Most shoulder dislocations are anterior (97%), resulting from external rotation and abduction.⁸ This commonly occurs from a fall on an outstretched arm or a sporting injury.⁹ People who have recurrent dislocations, especially the young and active, may eventually need elective referral for operative repair after their third or fourth episode.

The rare posterior dislocation may be due to anteriorly directed force or it may be secondary to seizure activity.^{10,11}

X-rays

Most clinicians are familiar with the typical anteroposterior (AP) view of the anterior dislocation. Rare posterior dislocations are easily picked up by adding a routine trans-scapular view to the AP view. The most common accompanying fracture is an avulsion fracture of the greater tuberosity of the humerus. These fractures (as well as HillSachs and Bankhart lesions) do not affect the decision or approach to reduction.¹² However, if a surgical humeral neck fracture or dislocation is present, refer this patient on, as this can be fraught with complications and may require open reduction.¹²

Physical exam

Typically, the patient is unable to touch his or her good shoulder with the hand of the affected arm. Before reduction, assess and document the neurovascular status of the limb: radial pulse and nerve, and auxiliary nerve. The auxiliary nerve enervates the deltoid muscle, which initiates abduction in the healthy subject. While this cannot be tested in the patient with a dislocation, the sensory "cadet patch" of skin over the lower deltoid is easily tested for touch perception. Such common (8%) nerve palsies are documented before a reduction and are followed afterward with conservative management.¹³ They generally resolve on their own and they often require physiotherapy, prolonged sling application and may need electromyograph studies at the 3-month time frame, if ongoing. Since the auxiliary nerve shares the posterior aspect of the brachial plexus with the radial nerve, it too should be tested with wrist extension and sensation to the dorsum of the hand. The latter are very rare injuries.

Treatment

Reduction methods have evolved since ancient times and often have a clinician's name associated with them. None are cast in stone and they may involve variations of previous approaches. Basically, we are trying to apply force across the joint in a somewhat predictable manner to attain reduction. Generally, traction, leverage and rotation are involved. In the elderly, forced rotation and leverage must be used cautiously as they may predispose an elderly patient to a humeral fracture. Leverage is used in the Kocher⁶ and Hippocratic¹⁴ methods. Traction is used in Milch,^{8,15} Spaso,⁴ Stimson¹ and Matsen's traction counter-traction^{14,16} approaches. Rotation is common to many, but is the mainstay of scapular manipulation^{3,15} and of the modified Kocher.¹⁷

Treatment should not exhaust the clinician or the patient. Simple rotation methods can be attempted without medication. They need to be done very, very slowly and should be the first attempt at reduction, with a cooperative patient. I have often been called in after a failed attempt and have used a traction counter-traction method with a healthy dose of analgesia on board. I begin with a careful description of this method, as it works in most situations. For purposes of discussion, let's assume that the patient's left shoulder is dislocated.

Equipment list

- Oxygen and saturation monitor
- IV, running
- Intubation equipment available
- Midazolam 0.015-0.05 mg/kg (1-5 mg)
- Fentanyl 1-3 •g/kg (50-300 •g)
- Naloxone 0.4 mg

Matsen's traction counter-traction method

When this method was originally described in the 1940s, 2 attendants tied themselves to the patient and actively pulled in opposite directions.¹⁴ I have modified this method so only one physician is needed and no active muscles are required.

Step 1

The patient is supine, sedated, monitored, has nasal prongs and is tied to the far side of the stretcher with a triple knotted sheet. The knots should be visible so the clinician can ensure that they are not slipping, or the ends should be clamped with a snap ([Fig. 1](#)).

Step 2

The physician then attaches a triple knotted sheet to his waist and loops it over the patient's flexed elbow. The physician keeps his own elbows fully extended and maintains the patient's elbow flexion to ensure it does not jack-knife open. Essentially, the physician is passively pushing the patient's wrist away with his locked arms and applying traction to the humerus with his body weight. Physicians of slight build may not develop enough force to use this method successfully ([Fig. 2](#)).

Step 3

With the patient sedated to the point where he or she does not respond to conversational stimuli, the physician applies traction passively, by beginning to "water ski," applying weight to the traction sheet. If the patient rouses, more analgesia or sedation and time are required. ([Fig. 3](#))

Step 4

By applying an increasing angle of "water skiing," more traction force is applied ([Fig. 4](#)). The physician can also do some gentle back and forth rotation of the arm to facilitate reduction. The object is to "hang there" and wait for the spasming muscles to relax. This may take several minutes. Since the patient is sedated, post reduction x-rays are taken with a single AP view using a portable machine. Once reduction is verified, I administer Narcan (naloxone) so that the patient awakens from his or her narcotic sedation and requires less monitoring.

Kocher and modified or partial Kocher

This is a widely taught and successful method with several important theoretical variations. Since leverage is used in the classic Kocher manoeuvre, care should be taken when using this method in the elderly as there is a risk of fracture. The patient is usually lying supine.

The original method was described in 1870 without traction on the humerus.⁶

Step 1

The first step consists of external rotation of the adducted arm, held at the patient's side (in hitchhiking position)

Step 2

The patient's elbow is then slid along the chest to midline (levering the humerus against the thorax).

Step 3

The patient's palm is internally rotated to touch the opposite shoulder. The original translation from German added in humeral traction at the elbow, which is how it is now commonly described and performed.¹² Traction at the elbow may or may not assist the reduction.⁶

A newer version of this method includes only the external rotation performed very slowly (5 min or more) by the patient or physician, with the elbow stabilized at the patient's side. This method is done without humeral traction and without moving the elbow position at all¹⁷ ([Fig. 5](#), [Fig. 6](#), [Fig. 7](#), [Fig. 8](#), [Fig. 9](#)). External rotation is performed around the fixed elbow to 70-80 degrees. Some methods suggest that you should be successful at this point if the rotation has been very gradual (more than 5 minutes) and if the patient is calm and comfortable.¹⁷ (If external rotation is the extent of the manipulation, this can be done in the seated position.)

Stimson's method

In 1905, Stimson¹ described hanging 10 lb from a prone patient's arm and letting the shoulder self-reduce. This method does not allow for ready observation of the patient's airway and may not be useful in the inebriated or sedated patient. The Stimson method can be combined with scapular rotation^{5,15} ([Fig. 10](#)).

Scapular Rotation method

Described in 1977,¹⁸ scapular rotation attempts to replace the ball in the socket by rotating the scapula (the socket) so that it "picks up" the inferiorly displaced humeral head. As we can see from the previous photo ([Fig. 10](#)), passive Stimson's traction or active physician traction can be combined with scapular manipulation.

Step 1

The bottom of the scapula is identified and the physician's thumbs push it sharply medially while the top of the scapula is stabilized ([Fig. 11](#)). Several attempts may be needed.

Step 2

Scapular rotation can be combined with active traction by a sole clinician or by an assistant ([Fig. 12](#)).

Step 3

Scapular rotation can also be performed in the seated position with the bed at 90 degrees ([Fig. 13](#)).

Step 4

This method can be performed with or without downward humeral traction ([Fig. 14](#)).



Fig. 1. Step 1 of Matsen's traction counter-traction method in which the patient is tied to the stretcher.



Fig. 2. Step 2 of Matsen's traction counter-traction method. The physician is attached to the patient using a bed sheet.



Fig. 3. The physician applies traction as part of Matsen's method.



Fig. 4. The physician "water skiing" (Matsen's method).



Fig. 5. Initial position for a classic or modified Kocher.



Fig. 7. External rotation around the fixed elbow to 70–80 degrees (very slowly) as part of the Kocher method.



Fig. 6. Traction at the elbow is not part of original Kocher method, but is commonly performed and may require increased analgesia.



Fig. 8. In the Kocher method, the physician brings the patient's elbow across the chest, which levers the humerus against the thorax.



Fig. 9. Internal rotation across the chest follows the movement of the patient's elbow across the chest (Kocher method).



Fig. 10. Stimson's method in which a 5 kg weight is attached to the patient's arm (the patient should not hold the weight).



Fig. 11. Identification of the scapula.



Fig. 12. Scapular rotation method may be accompanied by traction of the arm.



Fig. 13. Scapular rotation performed in a seated position with the bed at 90 degrees.



Fig. 14. Scapular rotation method in which the physician applies downward traction to the patient's arm.

Milch method

Essentially, the patient has his or her arm brought slowly to the overhead baseball-throwing position. The patient's elbow can be flexed or extended.^{8,15} The physician applies a small amount of traction on the arm while stabilizing the dislocated humeral head with his or her other thumb. The physician then applies a bit of external rotation to the arm when it is fully flexed to 90 degrees, and the physician uses the thumb of his or her other hand to push the patient's humeral head into the glenoid fossa. If one uses the flexed elbow approach to this manoeuvre, the patient appears to be scratching the back of his or her head.

Step 1

The physician firmly places his or her hand on the affected shoulder and stabilizes the humeral head with his or her thumb so it does not move inferiorly when the arm is abducted ([Fig. 15](#)).

Step 2

The physician slowly brings the arm to full abduction. The traction on the arm is increased while the physician pushes up with his or her thumb to replace the humeral head into the glenoid fossa ([Fig. 16](#)).

Spaso method

This method is similar to the Milch method except that the end position of the humerus is not full abduction (the overhead-baseball-throwing position), but rather full flexion at 90 degrees.⁴

Essentially, the supine patient is pointing at the ceiling. The physician assists in slowly raising the arm into this position and with gently maintained traction at the patient's wrist, externally rotates the arm. Once at full flexion, wait several minutes maintaining traction. This is all that may be required. Additional assistance in relocating the humeral head can be obtained with direct pressure by finger pressure in the axilla.

Step 1

The physician grasps the patient's wrist and with gentle traction, slowly raises the arm to 90 degrees ([Fig. 17](#)).

Step 2

Once flexed at 90 degrees, the physician externally rotates the arm, maintaining traction ([Fig. 18](#)). This may need to be held for several minutes until reduction is achieved. If the patient is painfully raising his or her shoulder off the bed, more analgesia is needed.

The humeral head may need help into position with some posterior pressure from the other hand ([Fig. 19](#)).

Self-reduction in the back country

Canoeists often know all about this method or have had to figure it out themselves. The patient sits against a tree and locks his or her fingers together around his or her bent knees. While he or she sits there gnomelike, the shoulders are shrugged and the knees are pulled into the chest to accomplish the reduction.



Fig. 15. The physician stabilizes the humeral head as part of the Milch method.



Fig. 16. In the Milch method, the physician abducts the patient's arm.



Fig. 17. Initial position of the Spaso method. The physician grasps the patient's wrist.



Fig. 18. The full extension of the Spaso method with the patient's arm externally rotated and pointing toward the ceiling.



Fig. 19. The Spaso method with the physician applying pressure to the humeral head.

Analgesia

As with most procedures, the clinician must be confident that the patient can be safely monitored and that airway capabilities and monitoring equipment are present and functioning. There are several approaches to analgesia and sedation for reducing shoulders. The physician must be very familiar with his or her choice of medication. Intravenous access is often required. The first and simplest method is injection of 10-20 mL of 1% xylocaine into the dislocated joint. Pain relief is achieved in 5-10 minutes.¹⁶

I prefer a single agent that is quickly and easily reversible with Narcan. Demerol in 50 mg aliquots until the patient is sedated but rousable is my drug of choice for the traction counter-traction reduction method. Fentanyl is an excellent alternative. Once the successful procedure is completed, the Narcan, already drawn up, is administered to the patient to lessen the need for intense monitoring.

Many clinicians prefer to add medazolam to their narcotic of choice, with excellent results. Some services use ketamine or propofol. All of these are sound choices as long as the practitioner is familiar with the drug and can handle any predictable complications. No one method is superior as long as the patient is safely medicated. If the patient moans and squirms against traction, their sedation is not deep enough. I do not begin traction on the affected limb until the patient is not responding to verbal stimulus.

Gentler reduction methods can be attempted in the right patient, with a calming presence and very gradual joint manipulation.

Postreduction care

First-time dislocations should be treated with a sling for 4-6 weeks, with the sling initially pinned to the shirt or bandaged to the chest wall to eliminate external rotation. People with repeat dislocations receive less benefit from prolonged immobilization, and can mobilize sooner as long as overhead movements and external rotations are avoided.

Four months without doing sports that require overhead activity is a common recommendation. The evidence is scant for these recommendations, but many researchers¹⁹ agree that the younger, first-time dislocating patient likely receives the most benefit from a sling and avoidance of external rotation.

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This article has been peer reviewed.

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Update on acute rheumatic fever

It still exists in remote communities

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Acute rheumatic fever (ARF) remains a disease of First Nations residents of northwest Ontario, despite a declining incidence in developed economies. This review article was prompted by 5 unrelated cases seen over 36 months in our regional community hospital. We hope that it will remind physicians working in remote areas of Canada that ARF remains a part of our clinical vocabulary.

Quality of evidence

A literature review was undertaken; we searched MEDLINE, EMBASE, and the Cochrane Database of Systematic Reviews from 1996 to 2007 using MeSH terms *rheumatic fever* and *rheumatic heart disease* for articles focusing on prevention, epidemiology, or disease management. The abstracts of 600 papers were read, and 60 key articles (either comprehensive reviews or from established journals) were read in full. Most were reviews, outbreak descriptions, treatment descriptions, or secondary prevention program descriptions (levels II and III evidence). There were no recent randomized controlled trials owing to the known virulence of the illness, and the only level I articles were a meta-analysis and a systematic review. Case series data from medical records at the Sioux Lookout Meno Ya Win Health Centre in Ontario were also used. Ethics approval for the case series was obtained from the Sioux Lookout Meno Ya Win Health Centre Research Review Committee.

Main message

Literature review. Two distinct schools of literature exist for ARF: studies and commentaries from North America and Europe that view rheumatic fever as a rare disease and discuss the limited efficacy of screening for streptococcal sore throat, ARF's presumed precursor; and literature from the developing world and international aboriginal literature that documents a robust discussion of the presentations, epidemiology, and control of rheumatic fever and its sequela, rheumatic heart disease (RHD), which is of ongoing relevance.

In a meta-analysis of antibiotics for the primary prevention of ARF in patients with documented pharyngitis (N=7665), Robertson et al found a protective effect (relative risk 0.32, 95% confidence interval 0.21 to 0.48) for a reduction in risk of almost 70% (level I evidence).¹ Interestingly, inclusion of randomized controlled studies done in the 1950s by the US Army might make such overviews less informative, as they were done in an era of endemic group A streptococcus (GAS) and ARF.¹

This article has been peer reviewed.

Cet article a fait l'objet d'une révision par des pairs.

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Abstract

OBJECTIVE To remind physicians who work with aboriginal populations of the ongoing prevalence of acute rheumatic fever and to review the recent evidence on presentation, treatment, and secondary prophylaxis.

SOURCES OF INFORMATION The Cochrane Database of Systematic Reviews, MEDLINE, and EMBASE were searched from 1996 to 2007 with a focus on prevention, epidemiology, and disease management. Case series data from medical records at the Sioux Lookout Meno Ya Win Health Centre in Ontario were also used.

MAIN MESSAGE Acute rheumatic fever is still a clinical entity in aboriginal communities in northwest Ontario. Identification, treatment, and secondary prophylaxis are necessary.

CONCLUSION Acute rheumatic fever is not a forgotten disease and still exists in remote areas of Canada.

Résumé

OBJECTIF Rappeler au médecin qui travaille avec les populations autochtones que le rhumatisme articulaire aigu est toujours présent, et revoir les données récentes sur son tableau clinique, son traitement et la prophylaxie secondaire.

SOURCES DE L'INFORMATION On a consulté la Cochrane Database of Systematic Reviews, MEDLINE et EMBASE entre 1996 et 2007, en ciblant surtout la prévention, l'épidémiologie et le traitement de cette maladie. On a aussi utilisé les données d'une série de cas du centre de santé Sioux Lookout Meno Ya Win en Ontario.

PRINCIPAL MESSAGE Le rhumatisme articulaire aigu est toujours présent dans les communautés autochtones du nord-ouest de l'Ontario. Détection, traitement et prophylaxie secondaire sont nécessaires.

CONCLUSION Le rhumatisme articulaire aigu n'est pas une maladie oubliée et il existe toujours dans les régions reculées du Canada.

A Cochrane review by Del Mar et al looked at the benefit of antibiotics for sore throats (N=2835) and found that they reduced ARF by more than two-thirds (relative risk 0.22, 95% confidence interval 0.02 to 2.08), although in developed societies most patients would derive no benefit given the low incidence of ARF (level I evidence).²

Natural history. Repeated GAS infections are thought to occur and prime the immune response before the first episode of ARF.³ Symptoms of arthritis, carditis, erythema marginatum, subcutaneous nodules, or chorea usually present 1 to 3 weeks after GAS pharyngitis (level II evidence).⁴ In recent outbreaks in the United States, affected patients reported only mild pharyngitis, for which only a few sought medical attention (level II evidence).^{4,5} The subsequent outcome, RHD, might be the first presentation: 46% of RHD patients in the Northern Territory of Australia, for example, had no known prior diagnosis of ARF (level II evidence).⁶

Risk factors are poorly understood but likely include host factors such as susceptibility to the immune response to GAS (limited to 3% to 6% of the population); housing and overcrowding remain important considerations (level III evidence).^{2,7} The Jones criteria, established in 1944, were revised in 1965 and 1984, then updated in 1992 and 2002 to provide diagnostic guidelines for clinical diagnosis.⁸⁻¹⁰ They require 2 major or 1 major and 2 minor criteria and evidence of prior streptococcal infection (throat culture positive for the bacteria, positive rapid antigen detection test results, or elevated antistreptolysin O titre [ASOT]). Major and minor criteria are outlined in **Box 1**. Echocardiogram is not part of the criteria but is often part of the cardiac workup.

Disease frequency. In Canada ARF is not a reportable disease. Available data place Canadian, American, and Western European incidences at 0.1 to 2 cases per 100 000 persons (level II evidence).^{11,12} Isolated cases can occur anywhere from time to time. A series of 3 cases in Nova Scotia was reported in 1998 (level II evidence).^{13,14} Another 3 cases were reported in a UK teaching centre during a 6-month period in 2000 (level II evidence).¹⁵

Acute rheumatic fever is now generally seen as a disease of "emerging economies," indigenous communities,

Box 1. Jones criteria for diagnosing acute rheumatic fever: *Diagnosis requires 2 major, or 1 major and 2 minor, criteria and evidence of streptococcal infection or chorea alone.*

Major criteria

- Carditis—tissue inflammation or new changing murmur
- Polyarthritis—migratory pain in limb joints
- Chorea—abrupt, purposeless movements with or without emotional changes
- Erythema marginatum—nonpruritic rash, spares face
- Subcutaneous nodules—painless, firm, on bones or tendons

Minor criteria

- Fever
- Arthralgia
- Previous acute rheumatic fever or rheumatic heart disease
- Acute-phase reactants—erythrocyte sedimentation rate, C-reactive protein, leukocytosis
- Electrocardiogram—prolonged PR interval

Evidence of streptococcal infection

- Throat culture positive for the bacteria
- Positive rapid antigen detection test results
- Elevated antistreptolysin O titre
- Scarlet fever

and tropical regions, with incidences in these settings of 10 to 20 cases per 100 000 persons (level II evidence).¹² Hot spots, such as Northern Australia, have rates of more than 50 cases per 100 000 persons (level II evidence).¹⁶ According to W. De Groote, MD, among aboriginal children presenting to a Winnipeg, Man, referral centre serving northwest Ontario and Manitoba, ARF remains the most common underlying cause of cardiac murmurs (level III evidence) (written communication, March 2008). Despite this, no association with ethnicity has been identified in the literature (level III evidence).³

Changing epidemiology of GAS infections. Only rheumatogenic strains of GAS result in ARF (level II evidence).¹⁷ The endemic strains seen during World War II had particularly high ARF rates (3%).¹⁷ By the 1970s those streptococcus M antigen serotypes (which confer resistance to phagocytosis) had virtually disappeared in North America, although there was little change in the rate of endemic streptococcal sore throat (level II evidence).⁴ Lower incidence of ARF had more to do with changes in virulence and improvement in socioeconomic conditions than with use of antibiotics (level II evidence).⁴

By the 1980s a resurgence of the streptococcus M antigen subtype 5M occurred, along with outbreak reports in Utah and Colorado identifying more than 30 cases annually (level II evidence).⁵ The epidemiology of ARF in aboriginal communities in Australia challenges the historical belief that streptococcal skin infections cannot cause the disease. In these communities pyoderma is the most common manifestation of GAS, and

Levels of evidence

Level I: At least one properly conducted randomized controlled trial, systematic review, or meta-analysis

Level II: Other comparison trials, non-randomized, cohort, case-control, or epidemiologic studies, and preferably more than one study

Level III: Expert opinion or consensus statements

typical rheumatic strains are not present (level II evidence).¹⁸ Researchers postulate that even non-GAS infections (eg, group C and G streptococci) might play a role in these high-incidence settings and note that the high rates seen among Australian aboriginal children parallel overcrowding and poor living conditions.¹⁹

Changing presentation of ARF. Acute rheumatic fever is a clinical diagnosis for which presentations are highly variable (level III evidence).²⁰ Rheumatic carditis is associated with the murmurs of valvulitis and is more common in children; arthritis predominates in adults (level II evidence).²¹ In the Utah outbreak of the 1980s, carditis was seen in 80% of patients, arthritis in 70% of patients, and chorea in 28% of patients (level II evidence).²² The arthritis is migratory, with pain often worse than physical findings would suggest; any one site might resolve within 2 to 5 days (level II evidence).²³ Chorea occurring alone meets the Jones criteria and typically presents 2 to 6 months after the initial infection as purposeless movements of the extremities, dysphonia, and possible emotional lability.²⁰

Disease-related murmurs are most often caused by mitral insufficiency; aortic insufficiency is the second most common disease-related cause (level II evidence).¹⁵ Silent carditis is sometimes found during echocardiography (7% to 47% of cases).¹⁵ Mitral stenosis is a delayed complication with increasing age (level II evidence).⁷ There is a natural improvement of the carditis over several years, in the absence of ARF recurrences, with more than 65% of patients demonstrating resolution or improvement (level II evidence).⁵ Disease recurrence, however, increases long-term risk and the degree of valvular damage.⁵ Erythema marginatum and subcutaneous nodules are both infrequent, occurring in less than 5% of presentations (level II evidence).⁷

Investigations. Investigations are useful mainly to confirm the existence of prior streptococcal infection by elevated ASOT, to check for ongoing pharyngeal GAS infection, and to assess erythrocyte sedimentation rate. Echocardiography is not part of the diagnostic criteria, but is generally done as part of the initial workup to clarify cardiac involvement.

Prevention, treatment, and prophylaxis. Most cases of ARF can be prevented by antibiotic treatment received within 9 days of GAS pharyngitis (level II evidence).²⁴ After onset of ARF there is no effective treatment for the immune reaction. Salicylates and antibiotics for any current GAS infection remain the cornerstone for treating most cases (level II evidence).²⁵ Salicylates give relief from fever and arthritis. They have no role in the treatment of carditis, which is addressed with bed rest (level II evidence).¹ Prednisone is not useful for arthritis but it is the drug of choice for those patients who experience chorea (level II evidence)¹ (Box 2).

Box 2. Treatment of acute rheumatic fever

Bed rest—for carditis

Anti-inflammatories—acetylsalicylic acid for fever and joint pain and inflammation; steroids for chorea

Antibiotics—penicillin; erythromycin for patients allergic to penicillin

Secondary prophylaxis for prevention of new GAS pharyngitis is warranted for all patients, as there is an 8% to 10% recurrence rate of ARF within 5 years—with an attendant increase in cardiac involvement (level II evidence).¹⁵ Oral regimens can be used, but the treatment of choice remains intramuscular benzathine penicillin injections given monthly for 5 years, until adulthood, or for longer, depending on the severity of RHD or the existence of frequent ARF in the community.²⁶

No vaccine currently exists, although development of a multivalent streptococcal M antigen vaccine is under way.⁴

Disease in northwest Ontario. Our observation of 5 unrelated ARF cases out of 60 000 patient-years gives an incidence rate of 8.33 cases per 100 000 persons. This is a much higher rate than generally reported for developed countries (0.1 to 2 cases per 100 000), but lower than rates seen in some indigenous communities of Australia. Our rate of cultures positive for streptococcus was in keeping with other general population studies (about 25%), and there was a correlation between the peak months of streptococcal throat infections and the timing of ARF presentations (level I evidence).²⁷

Presentations were generally similar to those reported in the literature. We saw arthritis in 40% of cases and joint symptoms in 60% overall (literature shows up to 80%). Chorea was prominent as a presenting symptom, seen in 2 of 5 of cases (40%); both patients were female. The literature documents the increasing presence of chorea and a nonclassic oligoarthritis that does not respond to acetylsalicylic acid (level II evidence).^{7,24,26} Each of the rare manifestations (erythema marginatum and subcutaneous nodules) was found in at least 1 patient.

Our cases differed in that cardiac presentations were seen in 4 of 5 cases (literature suggests 40%). Echocardiography documented valvular cardiac involvement in 3 cases and an innocent murmur in a fourth case. The ASOT was positive in all cases, and the erythrocyte sedimentation rate was elevated in 4 of 5 cases, consistent with literature rates of 80% or higher.

Conclusion

A low but substantial rate of ARF is present in the First Nations population of northwest Ontario. A Cochrane review recognizes its presence in “emerging economies,” implicating socioeconomic factors. Physicians would

be well served to consider ARF when arthritic, cardiac, choreiform, or other Jones criteria symptoms occur and to assess for possible history of GAS infection by measuring ASOT.

The rationale for disease identification and secondary prophylaxis is 2-fold. Valvular damage from an acute attack can be minimized, and those with 1 episode of ARF have an increased susceptibility to recurrence, which is associated with greater cardiac involvement. ✱

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Contributors

Dr Madden and Kelly contributed to the literature review, selection and review of studies, and preparation of the manuscript for publication.

Competing interests

None declared

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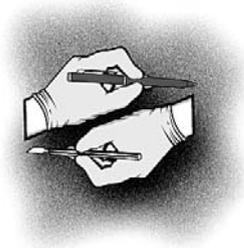
EDITOR'S KEY POINTS

- Although acute rheumatic fever (ARF) is relatively rare in developed economies, it is much more common in the developing world and among aboriginal populations. Higher rates of ARF might be related to overcrowded and poor living conditions.
- Diagnosis requires 2 major, or 1 major and 2 minor, Jones criteria, as well as evidence of previous streptococcal infection. Major criteria include carditis, polyarthritits, chorea, erythema marginatum, and subcutaneous nodules; minor criteria include fever, arthralgia, previous ARF or rheumatic heart disease, acute-phase reactants, and prolonged PR interval on electrocardiogram.
- Most cases of ARF can be prevented with antibiotic treatment received within 9 days of group A streptococcal pharyngitis. After onset of ARF there is no effective treatment for the immune reaction. Salicylates provide relief from fever and arthritis, prednisone can be used for patients who experience chorea, and carditis is addressed with bed rest. Secondary prophylaxis to prevent recurrence is warranted for all patients.

POINTS DE REPÈRE DU RÉDACTEUR

- Même si rhumatisme articulaire aigu (RAA) est relativement rare dans les économies développées, il est beaucoup plus fréquent dans les régions en voie de développement et chez les populations autochtones. Des taux plus élevés de RAA pourraient être reliés à la promiscuité et aux mauvaises conditions de vie.
- Le diagnostic requiert 2 critères de Jones majeurs ou 1 majeur et 2 mineurs, en plus d'une preuve d'infection antérieure au streptocoque. Les critères majeurs incluent: cardite, polyarthrite, chorée, érythème marginé et nodules sous-cutanés; les critères mineurs comprennent: fièvre, arthralgie, RAA ou cardite rhumatismale antérieurs, réactants de phase aiguë et prolongation de l'espace PR à l'électrocardiogramme.
- La plupart des cas de RAA peuvent être prévenus par un traitement antibiotique administré moins de 9 jours après une pharyngite à streptocoque du groupe A. Une fois le RAA installé, il n'y a pas de traitement efficace contre la réaction immune. Les salicylates procurent un soulagement de la fièvre et de l'arthrite, la prednisone peut être utilisée chez les patients qui présentent une chorée, et la cardite se traite par le repos au lit. La prophylaxie secondaire pour prévenir les récives est indiquée pour tous les patients.

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ORIGINAL ARTICLE ARTICLE ORIGINALE

“Industrious, submissive, and free of diseases”: 156 years of physicians in Liidlii Kue/Fort Simpson, Northwest Territories

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Introduction: Physician recruitment to rural and remote communities poses a major challenge to health care delivery in Canada. Rather than focusing solely on the politics and policies that contribute to the shortage of family physicians in Canada’s North, we argue that more attention should be paid to the reasons that lead, and have led, family physicians to the North, and also to the factors that contribute to physician retention.

Methods: We used archival research and semi- and unstructured interviews to provide a history of medicine in Liidlii Kue/Fort Simpson, NWT, and to describe the features of physicians who have served and continue to serve this Northern community.

Results: Results show that medicine in Liidlii Kue/Fort Simpson can be divided into 4 distinct eras: the prehospital era (1848–1916), the early hospital era (1917–1925), the middle era (1926–1972) and the government era (1973–present). Thirty-eight physicians were identified as having worked in Liidlii Kue/Fort Simpson. Of those, 19 were contacted. Nine physicians and the offspring of 1 deceased physician were interviewed. We found physicians fell into 1 of 4 categories: new graduates, those seeking midcareer (or midlife) change, those about to retire and international medical graduates.

Conclusion: By examining Liidlii Kue/Fort Simpson as a case study, this research fills the dearth of knowledge in the factors that contribute to physician recruitment and retention in Canada’s North.

Introduction : Le recrutement des médecins dans les communautés rurales et éloignées pose un défi majeur à la prestation des soins de santé au Canada. Au lieu de nous concentrer uniquement sur la politique et les politiques qui contribuent à la pénurie de médecins de famille dans le Nord, nous sommes d’avis qu’il faut accorder plus d’attention aux raisons qui y attirent et y ont attiré des médecins de famille, ainsi qu’aux facteurs qui contribuent à les y garder.

Méthodes : Cette communication est fondée sur une recherche effectuée dans des archives et sur des entrevues semi-structurées et non structurées afin de présenter un historique de la médecine à Liidlii Kue-Fort Simpson (T.N.-O.) et de décrire les caractéristiques de médecins qui ont servi et servent toujours dans la cette communauté du Nord.

Résultats : Les résultats montrent qu’il est possible de décrire la médecine à Liidlii Kue-Fort Simpson à quatre époques distinctes : l’époque préhospitalière (1848–1916), les débuts de l’époque hospitalière (1917–1925), la période intermédiaire (1926–1972) et l’époque gouvernementale (1973 à aujourd’hui). On a déterminé que 38 médecins avaient travaillé à Liidlii Kue-Fort Simpson et on a communiqué avec 19 d’entre eux. Nous avons interviewé neuf médecins et un descendant d’un médecin décédé. Nous avons constaté qu’il y avait quatre catégories de médecins : les nouveaux diplômés, ceux qui cherchent un changement en milieu de carrière (ou en milieu de vie), ceux qui sont sur le point de prendre leur retraite et les diplômés de facultés de médecine étrangères.

Conclusion : En analysant Liidlii Kue-Fort Simpson comme étude de cas, cette recherche comble les lacunes du savoir sur les facteurs qui aident à recruter des médecins dans le Nord du Canada et à les garder en poste.

INTRODUCTION

In recent years, the federal, provincial and territorial governments in Canada, along with the media, have focused a great deal of attention on physician shortages in rural and remote communities, particularly in northern regions.^{1,2} According to the Society of Rural Physicians of Canada, 22.2% of Canada's population lives in towns of less than 10 000 residents, but only 10.1% of physicians practise in such environments.³ Clearly, there is a shortage of rural physicians. Despite the current heightened interest in this issue, physician shortages have plagued Canada's North for well over 100 years. Rather than focusing solely on the politics and policies that contribute to the shortage of family physicians in Canada's North, we believe that more attention should be paid to the reasons that lead and have led family physicians to practise in the North, and also to the factors that contribute to physician retention.

THE CANADIAN CONTEXT

The European project of colonization extended far beyond inhabiting Northern communities and exploiting their resources. Early Europeans, in what is now called Northern Canada, brought with them ideologies pertaining to "civilization"; certainly, European notions of health played a prominent role in the physical and ideological colonization of the North. While Aboriginal residents practised their own forms of medicine, European explorers and fur traders often brought with them their own doctors and their own understandings of medicine when travelling to and in the North.⁴ The practice of bringing doctors to the North from the South continues to this day. Despite 17 Canadian medical schools, the current demand for doctors in Canada's North is so high that many Northern Canadians rely on international medical graduates (IMGs) for the provision of their health care.⁵ This foreign solution to a Canadian problem is over 100 years old; indeed, even the Hudson's Bay Company (HBC) sought foreign-trained physicians to treat its Northern-based employees at trading posts and forts.⁴ Despite the influx of foreign-trained physicians, physician retention in the Northwest Territories (NWT) has been, and remains, very low.⁶ The ongoing difficulties associated with attracting and retaining family physicians — Canadian or otherwise — makes it imperative that health care administrators develop an understanding of the personal and demographic characteristics that can be used as predictors for the

type of physician who might have an increased likelihood of choosing a long and satisfying career in Canada's North.

James Rourke⁷ succinctly summarized the findings of the Canadian Medical Association's report of the advisory panel on the provision of medical services in underserved regions. He listed professional factors contributing to the decision to leave rural practice as including "work hours, professional backup, specialty services, additional training, hospital services, continuing medical education and earning potential." Among family and personal reasons for leaving were "children's education, spousal job opportunities, recreation, cultural opportunities and retirement." Mayo and Mathews⁸ expanded the literature on the spousal influence in the decision for a physician to live in an underserved area by identifying 2 factors that directly affected spousal happiness in rural Newfoundland communities: 1) physician workload and 2) community integration (which relies on employment opportunities, having a rural background or experience in rural communities, proximity to family and friends, maturity, cultural differences and children).

In terms of finding solutions to these problems, Duplantie and colleagues⁹ suggest that telehealth consultations with specialists might make working in rural and remote environments easier on physicians by providing them with timely access to backup and second opinions.

Most of the literature on the recruitment and retention of physicians in rural and remote Canadian locations has involved asking physicians from across the country to reply to surveys rather than looking to see whether there are characteristics unique to specific regions, towns or physicians. This paper seeks to explore the personal characteristics of physicians who worked in Liidlii Kue/Fort Simpson[†] over the last 156 years and to determine whether previously identified factors hold true for this group of individuals.

METHODS

Situating the community and its residents

Liidlii Kue/Fort Simpson is a community located at

[†]Liidlii Kue is the South Slavey name for the community that was later given the name Fort Simpson. By providing both names for the community, we acknowledge the multiple identities and attachments of the residents of the land upon which this research was conducted.

the confluence of the Mackenzie and Liard Rivers (Fig. 1). Historically, the community has served as a gathering and trading place for Aboriginal peoples in the Dehcho (District of Mackenzie) region of the NWT. Aboriginal residents of this region are Dene, specifically Slavey and Métis. According to Abel,¹¹ the Slavey are “found along the Mackenzie [River] between Great Slave Lake and Fort Norman [now Tulita], along the Liard River to Fort Nelson, and through northern British Columbia and Alberta to Hay River.” Though long important for Aboriginal peoples, Liidlii Kue/Fort Simpson gained prominence for Europeans when it became a location for a fur-trading post for the North West Company, and later the HBC. The North West Company built “Fort of the Forks” in 1803, though the Fort’s name was changed to Fort Simpson when the HBC absorbed the North West Company in 1821.¹¹ Today, Liidlii Kue/Fort Simpson is a village of about 1200 Aboriginal and non-Aboriginal residents that

is accessible by both road and air. It has offices for branches of local and regional Aboriginal governments, the territorial government and a municipal government, and it is home to the regional high school and, notably, to a health centre.

Prior to commencing this research project, the requirements for ethical approval as set out by Dalhousie University’s research ethics board were satisfied. In addition, a research licence was obtained from the Aurora Research Institute, the institution that issues research licences on behalf of the government of the NWT. To obtain a research licence in the NWT, community consultation must be conducted with the Aboriginal and non-Aboriginal governments located within the research area. As a result, we conducted community consultations with the Village of Fort Simpson, Liidlii Kue First Nation, Dehcho First Nations, and Metis Nation Local #52. All organizations granted permission for the research to take place.



Fig. 1. Canada's Northwest Territories.¹⁰

Archival research

Through interviews and the examination of patient files, church records and a photographic archive, we identified those physicians who had practised in Liidlii Kue/Fort Simpson for a duration of at least 4 months during the period from 1848 to 2002.

Initially, it was hoped that most physicians would be identified through the examination of old patient files. About 100 files belonging to deceased or inactive patients were located in a storage closet at the current health centre. Unfortunately, the physicians' handwriting and signatures in the old files were difficult to decipher and thus did not aid in the identification of physicians. Nevertheless, the prevalence of tuberculosis in Canada's North during the middle of the last century generated a tremendous number of pathology specimens: fortunately, the pathology reports from sputum samples were typed and included the legible names of the physicians requesting the tests. These pathology reports generated the names of most of the physicians identified by this research.

While the lack of a complete set of formal hospital records presented a challenge, the Catholic and Anglican Churches' records were useful for the purposes of identifying physicians who had practised in the community. The Village of Fort Simpson's visitor information centre houses several historical documents, including 2 centenary papers: 1 produced by the Sacred Heart Mission¹² and 1 produced by St. David's Anglican Church parish.¹⁵ The Sacred Heart document identified several doctors who worked at the hospital in the first half of the 20th century and provided their arrival and departure dates. A search of the NWT online photographic archives yielded labelled photographs of 2 doctors who practised in Liidlii Kue/Fort Simpson. Short-term locum physicians who filled in for physicians while they were out of town were not included in this research. This decision was made to restrict our focus to physicians who made a more significant time commitment to the region. We arbitrarily chose 4 months of work in Fort Simpson/Liidlii Kue as the cut-off for inclusion in this project.

Interviewing community members

Snowball sampling, a form of purposeful sampling, was used to locate interview participants. Cresswell¹⁴ notes that snowball sampling "identifies cases of interest from people who know people who know what cases are information-rich." Through this process, 6 Liidlii Kue/Fort Simpson residents were

asked whether they would be willing to be interview participants, and all agreed to participate. Each of the participants in this study was provided with a participant information letter and consent form to ensure free and informed consent.

It should be noted that it was at times culturally unacceptable to seek written consent. In such cases, a verbal explanation of the contents of the participant information letter was provided either in English or, with the help of an interpreter, in South Slavey, the local Dene dialect, and the potential participant's response of giving consent was recorded in detail in field notes. If a participant wished to withdraw from the study, he or she was able to do so at any time without consequence, and information based on interviews or observations would have been removed and destroyed by the researcher on request. Happily, this situation did not arise.

Both semistructured and unstructured/informal interviews were conducted with local residents to gather data about physicians who had worked or were working in Liidlii Kue/Fort Simpson. Interviews ranged in length from 5 to 60 minutes. Questions included but were not limited to the following:

1. Do you know the names of any of the doctors who have worked in Liidlii Kue/Fort Simpson?
2. Do you know the approximate date when each of the above-listed physicians started work in Liidlii Kue/Fort Simpson?
3. Do you recall the approximate date that they left Liidlii Kue/Fort Simpson?
4. Do you know why the doctor left town?

Six townspeople were interviewed.

Community members were able to physically describe many of the former physicians who had worked in Liidlii Kue/Fort Simpson; however, they were only able to provide the names of 4 former physicians, an ambulance driver and a physician's assistant who had worked in Liidlii Kue/Fort Simpson over the years. A local resident who had run the ambulance service for many years was particularly helpful in providing accurate names and key information concerning physicians. These names were then added to a list that had been generated through the aforementioned archival research.

Once the names of physicians had been identified, an internet search of their names was conducted with the Google search engine (google.com). The results helped to create leads as to where surviving physicians might be practising or to their medical school of origin. The website for each province's College of Physicians and Surgeons was searched. This provided contact information for physicians who were still in

practice as well as several retired physicians. Some of the physicians identified through the research were difficult or impossible to track down because of the common nature of their surnames, for example, Dr. Clark. It often took several attempts to connect with the physician who was the target of the research. Physicians with the same name as the target who were accidentally contacted were extremely helpful in redirecting the investigator.

Interviewing the physicians

Questions posed to the physicians were piloted on 2 physicians and the interview questions were then refined. Two types of questions were asked: closed-ended questions concerning basic demographic data (e.g., sex, medical school, year of graduation, marital status) and open-ended questions pertaining to why physicians had chosen to practise in Liidlii Kue/Fort Simpson as well as the factors that ultimately led to their departure (Why did you choose to leave Liidlii Kue/Fort Simpson? What might have been done that would have convinced you to continue to practise in Liidlii Kue/Fort Simpson?). Physicians were interviewed in person and via email, fax and telephone. Though there was a limited response to requests for interviews, it should be noted that those physicians who did participate in the project were extremely enthusiastic and often went above and beyond the scope of the interview by contributing photos, videotape footage and personal documents.

RESULTS

Historical data: the 4 eras

Through the examination of archives and interviews with physicians and townspeople, 4 distinct eras of family medicine were identified in Liidlii Kue/Fort Simpson: the prehospital era (1848–1916), the early hospital era (1917–1925), the middle era (1926–1972) and the government era (1973–present).

Prehospital era (1848–1916)

From its inception, the HBC realized that it needed skilled physicians to provide health care to its workers in remote, Northern communities.¹⁵ The HBC understood that it needed to acquire the services of physicians whom it believed were suited for work in the relative isolation and harsh climate found in Canada's North. As a result, the HBC targeted residents of the Orkney Islands as potential physician

recruits because it believed the Orcadians to be "industrious, submissive, and free of diseases."¹⁵ HBC physicians hailing from abroad, along with missionaries, provided basic medical services before the establishment of a hospital in Liidlii Kue/Fort Simpson.

During the early prehospital period in Liidlii Kue/Fort Simpson, physicians were often at the Fort only during the winter months as they waited for the ice to break up so that they could continue their scientific adventures. These physician-adventurers included such notable men as surgeon and biologist Sir John Richardson, who was in the region studying ichthyology and searching for the lost Franklin expedition in 1848,¹⁶ and Dr. John Rae. Dr. Rae was a surgeon from the Orkney Islands who acted as Chief Factor for the HBC in Liidlii Kue/Fort Simpson in 1849 but left the post to join the search for Franklin and his men.¹⁶ Known as Canada's "Great Pedestrian," Rae covered over 21 000 km on foot and mapped 2800 km of Canada's northern coastline.¹⁶ Though both Richardson and Rae were in Liidlii Kue/Fort Simpson chiefly as explorers, it is reasonable to hypothesize that they used their medical skills to help those in need.

The prehospital years in Liidlii Kue/Fort Simpson also saw medical care being provided by missionaries with a variety of skills. Ministers and their spouses, who were in residence at St. David's Anglican Church in Liidlii Kue/Fort Simpson, were occasionally pressed to provide medical care. In the Anglican Church's centenary document¹⁵ it is noted that the minister's wife, Rose Spendlove, who had limited medical knowledge and expertise, provided medical services that saved the lives of more than 1 parishioner. During her tenure in Liidlii Kue/Fort Simpson, Rose Spendlove is said to have performed 2 successful surgical amputations and to have nursed many back to health during the epidemics of influenza and measles in 1881.

Early hospital era (1917–1925)

Missionaries were also involved in the care of local residents in the early hospital years. Hospital service in Liidlii Kue/Fort Simpson began on Sept. 7, 1916, when the Grey Nuns, working with the Sacred Heart parish of the local Catholic Church, opened St. Marguerite's Hospital.¹² The Grey Nuns, part of the order of the Sisters of Charity of Montreal, provided medical care in Liidlii Kue/Fort Simpson from 1916 to 1990. They were both lay and professional nurses who travelled great distances to provide health care to poor and underserved patients.

The Nuns' contribution to the health of Northerners cannot be overstated and is well-documented elsewhere, for example in Sutherland's (1996) text *Northerners Say: "Thanks, Sisters."* For the first 10 years of the hospital's existence, the Sisters acted as medical officers and performed minor operations¹² without the help of a permanently appointed physician: itinerant physicians were rarely available.

The middle era (1926–1972)

The first permanent doctor, Dr. A.W.M. Truesdell, arrived in Liidlii Kue/Fort Simpson in August 1926. He began his work at St. Marguerite's Hospital and stayed for a record 23 years (Don Truesdell, son of A.W.M. Truesdell: personal communication, 2003). Unfortunately, St. Marguerite's Hospital burned to the ground in 1930;¹² it was quickly replaced by St. Margaret's Hospital in 1931. St. Margaret's served mainly as a tuberculosis hospital, with some patients staying for up to 8 years (Ed Lindberg: personal communication, 2003). Though the hospital became the primary residence for many patients with tuberculosis, the Sacred Heart Mission's archives reveal that many residents of Liidlii Kue/Fort Simpson were eager to avoid spending time there:

Unfortunately, a relatively large number of patients have died at the Hospital during the first quarter century of its operation ... an opinion began to spread in the early 30s that admission at the St. Margaret's Hospital meant for the patients admission to the cemetery.¹²

The facilities at the early hospitals in Liidlii Kue/Fort Simpson were modest and likely did not instill confidence in local residents or physicians. For instance, surgery at St. Margaret's Hospital was often postponed until the late afternoon when the operating room was best illuminated by sunlight (Micheal Thain, former Liidlii Kue/Fort Simpson physician: personal communication, 2004). Indeed, the shortage of basic equipment, such as adequate lighting, likely disappointed southern-trained physicians who were accustomed to having such things as electricity at their disposal.

Government era (1973–present)

In 1973, the federal government took over management of St. Margaret's Hospital from the Grey Nuns, closed it, and subsequently opened Fort Simpson Hospital.¹⁷ The federal government found that it was impossible to run Fort Simpson Hospital with paid employees on the same budget that the

nuns had used at St. Margaret's: this eventually culminated in the downgrading of the Fort Simpson Hospital to a health centre on Sept. 1, 1997. The health centre, unlike the hospital, did not provide acute care beds.¹⁸ From this point on, acutely ill patients in need of hospitalization have been medically evacuated to Stanton Territorial Hospital in Yellowknife, NWT, or to 1 of several hospitals in Edmonton, Alta. While the current Liidlii Kue/Fort Simpson Health Centre does not have acute care beds, it does feature a 14-bed long-term care facility for elders and individuals living with severe physical or mental disabilities, or both.

Physicians

Our research with living doctors resulted in a total of 19 doctors and the offspring of 1 deceased physician, all of whom were contacted. Of the 19 physicians who were contacted, 9 physicians and 1 descendant participated in the project. With the 10 physicians who had practised in Liidlii Kue/Fort Simpson for 4 months or more and responded to requests for interviews (or a descendant responded on their behalf), the years 1925–2003 were represented by at least 1 physician per decade, with the exception of the 1950s (Table 1). On average, physicians stayed in Liidlii Kue/Fort Simpson for 49 months (range 4–276 mo). That number, however, is skewed by 1 physician who stayed for 276 months (23 yr). The median length of physician stay was 18 months. Upon examination of the physicians' employment experiences before working in Liidlii Kue/Fort Simpson, we found that the physicians had a mean of 7.1 years post-medical school graduation before they accepted their posting in the community. Eight of the physicians had experience working with First Nations, Métis or Inuit populations, and 7 of them had previously practised in the North. Five of the physicians interviewed had recently graduated

Table 1. Physician sex and time period spent in Fort Simpson/Liidlii Kue

Physician sex	Time period
Male	1926 to 1949
Male	Aug. to Nov. 1942
Male	Fall 1964 to spring 1966
Female	Feb. 1966 to Sept. 1967
Male	July 1967 to July 1968
Male	Sept. 1968 to July 1969
Male	July 1971 to Apr. 1974
Male	June to Oct. 1985
Male	1991 to 1995
Male	July 1998 to July 2002

from medical school when they ventured north. Five doctors were recent graduates when they practised in Liidlii Kue/Fort Simpson and 4 were in midcareer. Data analysis revealed 4 subcategories of physicians who ventured to Liidlii Kue/Fort Simpson: new graduates, those seeking midcareer (or midlife) change, those about to retire and IMGs. A long-time physician in Liidlii Kue/Fort Simpson shared his understanding of the first 3 groups:

1) You get the young guys, the young new grads that are looking for adventure, who are willing to try anything. And some of them are very good. Some of them, though, I can say that I don't think that this would be the place for a new grad. Experience really helps — working in a small group; 2) The midlife crisis guys, as I call them, of which I'm one. You sort of get tired of what you're doing and want a change and have the experience and stability to look around. I personally think they're a good group to grab — and they're not common. And, unfortunately, when those docs say that they want to change jobs, there's so much out there available that they're usually snagged by someone else long before they phone up here; 3) The almost gonna retire guys who want to do something different for the last few years of their practice [and] pay for the kids' university.

The categorizations provided by this physician aligned extremely well with this study's findings. Five of the physicians interviewed had recently graduated from medical school and had not had much experience. One physician remarked:

I was very naive. I knew I'd have to do obstetrics. By the time I got to obstetrics in my training, I knew I was going to Fort Simpson and they gave me extra training. Now knowing how much trouble you can get into I think I'd be less likely to go now.

Four physicians either identified themselves as experiencing a "midlife crisis" or were middle-aged and reported that they were seeking adventure, a change of routine or both. One physician practised in Liidlii Kue/Fort Simpson at the end of his career. Members of 1 final category, IMGs, were not interviewed as none could be located despite considerable effort.

One physician provided us with a perhaps unorthodox framework for categorizing physicians who have travelled north:

These categories have long been used to describe any person working in the North, and while they may have negative connotations for some they have become part of the rural vocabulary. You know about the 3 Ms — the 3 types of people who live in the North: mercenaries, missionaries and misfits. I was a bit of all 3. A mercenary because I was there to earn money, a missionary because I was there to work at my goal (seeing if I could hack it as a doctor) and a misfit because I didn't fit into traditional modes and didn't join a GP practice in TO [Toronto] right after internship.

Reasons for coming

Physicians who practised in Liidlii Kue/Fort Simpson stated various reasons for deciding to work in the community. Three physicians said that they were approached directly by Northern Health Services, a federal government body that recruited physicians for Canada's North. Two physicians contacted Northern Health Services themselves, while 2 other physicians answered an advertisement recruiting physicians to the North. A desire for adventure was the reason 2 other physicians gave for coming north, and the final 2 physicians identified the challenge of remote medicine as their reason for moving to Liidlii Kue/Fort Simpson. One respondent described his reasons for working in the community as follows:

By pure luck and circumstance, I ran into L.L. who said she was looking at working in the North and that the pay was really good. If there had been the equivalent job in Vancouver, say something 9-5, then I would have done that but ... the monetary incentive was good enough to come up here that I would not have to work full-time which would then give me lots of time off. So that was the big reason for coming up here. I didn't have a burning desire to come to the Northwest Territories. In fact, I had not even thought of it until talking to L.L.

Economic factors influenced physicians' tenure in Liidlii Kue/Fort Simpson. For instance, 8 of the physicians felt they were adequately financially compensated for their work, especially when they considered that their housing was provided. All but 1 of the physicians had their travel to and from Liidlii Kue/Fort Simpson funded. Seven of the physicians felt that the vehicle with which they were provided while in the community was safe and adequate. All the physicians agreed that their lodgings were reasonable. Physicians were not motivated solely by remuneration: 4 physicians indicated that the desire to work with an underserved population factored into their decision to practise in the community. Currently, Liidlii Kue/Fort Simpson locum physicians are offered a competitive salary, housing and the use of a minivan (Shane Barclay, medical director, Dehcho Health and Social Services: personal communication, 2003).

Reasons for leaving

For various reasons, none of the living physicians interviewed were interested in making a long-term commitment to practise and live in the community. The 2006 NWT Physician Survey revealed that 17 of the 38 physicians practising in the NWT stated that it was "unlikely" or "very unlikely" that they

would be practising in the NWT in 5 years.⁶ While remuneration certainly played a role in attracting physicians to the community, it was apparently not enough to retain their services. Physicians cited several different reasons for leaving their practice in Liidlii Kue/Fort Simpson. Four reported that they never intended to stay longer than their initial contract. Two cited the 24 hours per day, 7 days per week call schedule as factoring into their decision to leave. One left after being offered a promotion, and 1 other physician left his practice because his spouse could not cope with the isolation of living in Liidlii Kue/Fort Simpson. Four physicians cited the lack of access to continuing medical education (CME) as a reason for leaving. A sense of professional isolation, moving to another area of Canada with a perceived greater need for a physician and the desire to live with one's family on a full-time basis (it is not uncommon for physicians who work in remote regions of Canada to work in a community far from home and periodically return to their home community and family) were other reasons cited for leaving Liidlii Kue/Fort Simpson.

Another factor that is both controversial and difficult to measure directly, the perceived poor quality of the educational system in town, caused at least some of physicians to leave before their children reached school age. Four of the physicians interviewed stated that they did not want their children to attend the schools in Liidlii Kue/Fort Simpson and that this was one of the most important factors influencing their decision to leave. One physician noted that "we left partly because we couldn't see having children reach school age in Simpson." Only 1 physician said that he believed that his children received an adequate education in the community.

Finally, physicians noted that a lack of locums to fill in for them while they were away prevented them from attending CME events and caused them to feel that they were falling behind in their practice of medicine. Four physicians explicitly stated that the lack of access to CME was one of the reasons why they left Liidlii Kue/Fort Simpson. One physician stated, "it became hard to sustain the belief that someone else with more training could not have done better." One doctor succinctly stated the problems of working in Liidlii Kue/Fort Simpson in response to the question: Why did you leave Fort Simpson?

1) Professional isolation and 2) the government had promised me a certain amount of educational leave but there always seemed to be a reason why I couldn't get out. During that time we founded the NWT Physician's Association. I had good holidays and I used to take them in one big lump in the summer

and they always had difficulty replacing me. Some of the locums trashed the house we were living in. There was some frustration with what the government had promised and didn't happen.

While there were clearly benefits and enjoyable features for family physicians practising in Liidlii Kue/Fort Simpson, for this small sample size they did not seem to be enough to outweigh some of the negative aspects that the physicians described.

DISCUSSION

Employing physicians from each career stage identified previously can be associated with various benefits and drawbacks. As noted, 5 of the physicians interviewed had recently graduated from medical school. While new graduates certainly have up-to-date skills, it is possible that they lack experience and may not have the skills needed to work as a solo physician. Four of the physicians interviewed were placed in the midcareer category. Physicians in this category usually possess good practical experience and solid technical skills; however, their mobility is often hampered by school-aged children and spouses who are looking for employment. Only 1 of the physicians interviewed was at the end of his career in medicine.

The final category identified was IMGs. As mentioned above, though many IMGs have worked in Liidlii Kue/Fort Simpson, unfortunately none could be located for interview. These physicians help to fill the need for physicians in the North and, indeed, throughout Canada: it has been calculated that 23% of practising physicians in Canada are foreign-trained.¹⁹ The foreign-trained doctors who came to Liidlii Kue/Fort Simpson did not necessarily have to have a Canadian medical license. Many foreign graduates who worked in the North served the minimum amount of time that was once required to allow them to move on to the next phase of licensing. Like physicians in any rural community, some foreign graduates will go to a Northern community with the intention of staying for the minimum period of time and end up spending their entire career there. In fact, Thind and colleagues²⁰ revealed that IMGs were "more likely than Canadian-trained medical graduates were to be serving in small towns and rural and isolated communities." While it is difficult to determine whether this geographic phenomenon is by choice or as a result of licensing restrictions, foreign-trained physicians are vital to the Canadian health care system as they fill positions in communities that would otherwise be without a physician.

The 3 Ms categories — missionaries, mercenaries

and misfits — merit some discussion. As mentioned in the results section, missionaries made considerable contributions to medicine in Canada's North. The contributions of the other 2 categories, mercenaries and misfits, require further elucidation.

The *Oxford English Dictionary*²¹ defines “mercenary” as an adjective meaning “primarily concerned with money or other reward” and as a noun meaning “hired soldier in foreign service.” Both terms are apt for partially describing the motivation of the wave of physicians that followed the adventurers and missionaries to Liidlii Kue/Fort Simpson in the middle and government eras. While all doctors work for payment, money is not necessarily the driving force behind their decision to work in a particular community. Some physicians chose to work in Liidlii Kue/Fort Simpson when the rate of pay was less than they could have earned in the South because they were looking for adventure and the challenge of rural and remote medicine.

Years later, physicians were lured to Liidlii Kue/Fort Simpson by a salary that was higher than they could earn in the South. These men and women were doctors for hire — they had no particular loyalty to the community or the North. They were seeking financial gain and exciting medicine, and they were willing to travel to achieve their goals. Though perhaps the word “misfits” is harsh, it describes an eclectic group of people who were scattered throughout the entire 156-year period this study examined. There is an abundance of anecdotes about a physician who was said to have removed an appendix from the same person more than once, another who wore safari gear and a third who was so scared of the locals that she would not walk in the community. These sorts of tales, however, are more legend than good research and, certainly, every community has a few eccentric characters.

Future physician recruitment

Strikingly similar to the findings of the Canadian Medical Association's report of the advisory panel on the provision of medical services in underserved regions (as previously quoted from Rourke⁷), there are several changes that the physicians interviewed suggested could be made to entice more doctors to practise in Liidlii Kue/Fort Simpson. These include guaranteeing locum coverage for vacations and CME, and funding accommodation for those who sign permanent contracts. One important change has already taken place: Liidlii Kue/Fort Simpson was designated as a 2-physician community in April 2005

(Hazel Isiah, Dehcho Health and Social Services: personal communication, 2006). Designating the community as one requiring 2 doctors means that physicians are able to take call every other night as opposed to every night. Further, the community can be covered by a physician when the second physician is away holding clinics in the neighbouring communities. Issues that remain include providing guaranteed locum coverage for CME and vacations so that physicians can continue to maintain and upgrade their medical skills and take much needed rest without having to worry about finding a replacement. Finally, the current locum contract provides physicians with accommodation and a vehicle, while the permanent contract does not offer such perks — thus there is little incentive to sign a permanent contract. Though the above-mentioned changes would likely be costly, the medical care and resident satisfaction with that care in the Dehcho would likely improve with the ensuing continuity, and as a result, other costs, such as those associated with recruitment and arranging constant locums, might decrease.

Physicians with certain personality traits were found to be more likely to travel north. Physicians interviewed for this study stated that they possessed a sense of adventure, and enjoyed the outdoors and the challenge of independent practice. Thus our findings suggest physician recruiters should focus on doctors with personality features similar to those described above to increase their chances of successful recruitment and retention.

LIMITATIONS

There were a number of limitations to this study. Drawing conclusions is hampered by the small sample size. The lack of response from our targeted subjects may be due in part to the busy nature of the life of family physicians — they often simply lack the time to participate in anything other than work related to their practices. Further, the research was conducted through summer months and some physicians may have been on holiday. Finally, we were unable to locate and interview IMGs.

CONCLUSION

The different types of physicians who ventured north reveal that there is no ideal physician demographic: every group has its own benefits and drawbacks. There are, however, several strategies that might improve the quality of physicians being recruited and the chance that some physicians

might stay for longer periods of time. To some extent, it is true that the government of the NWT is taking any physician it can recruit; the young physicians who are fresh out of residency may lack the experience required to work as a solo physician, while the foreign graduates may not be licensed to work in Canada and, though generally good physicians, there is no guarantee that they have the skills possessed by Canadian graduates. Physicians at the end of their careers provide a wealth of experience but are sometimes only putting in time until they can start their retired life elsewhere.

The key to successful recruitment in the remote Canadian North seems to be locating individuals within each of the demographics who enjoy working with Aboriginal people, who enjoy the challenge and adventure of remote medicine and who take pleasure in the outdoors. Finally, guaranteeing locum coverage for CME and vacations, and providing accommodation for permanent physicians might improve recruitment and retention. Liidlii Kue/Fort Simpson's new designation as a 2-physician community will likely have a large and beneficial impact on recruitment.

If one views the recruitment and retention problems of Liidlii Kue/Fort Simpson as being similar to those found elsewhere in Canada and, indeed, the world, then it is likely that system-wide reforms are needed. Rourke⁷ suggested several strategies for making rural practice a more popular choice for practitioners: promoting medicine to rural high school students, exposing undergraduate medical students to rural practice, increasing financial support for rural doctors to attend CME, updating hospital equipment at small rural hospitals and increasing locum support for rural doctors who are burdened by unreasonable on-call schedules. Though he proposed these remedies in 1993, the majority of them were never implemented to the extent that they actually made a difference.

Based on current data and an examination of 156 years of physician recruitment and retention, the dream of having full-time resident physicians in a community like Liidlii Kue/Fort Simpson may be just that — a dream — unless the current challenges can be addressed.

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PODIUM: DOCTORS SPEAK OUT LA PAROLE AUX MÉDICINS

Developing a rural research project

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For a chosen few, a facility and interest in research accompanies them into and out of medical school and beyond. For the rest of us it is a developmental process. The first 5–7 years of our professional lives are spent establishing a practice, a workable continuing medical education strategy and a balance with our selves, family and friends. By then we are in a rural practice. We have questions that arise from our patients, their treatment and what the medical literature does and does not tell us. How can we move these questions forward into a research project?

We may not develop into full-fledged researchers (i.e., don't give up your day and night job) but we are likely capable of very worthwhile contributions. After a career in rural medicine, most observers would consider us experts at being generalists. Some of us may take further training in research or simply partner with those who have.

Though not cast in stone, below are: the 1 undivided truth involved in developing a successful rural research project, the 2 paths to enlightenment, the 3 virtues, the 10 commandments and the 7 deadly sins.

THE 1 UNDIVIDED TRUTH

Research defines a discipline.¹ Highlighting specific rural issues that have an impact on patient care and outcomes is invaluable. Rural research can shed light on how patient care is provided in circumstances beyond urban centres, where most research presently originates.

THE 2 PATHS TO ENLIGHTENMENT

1. *Quantitative research*

Surveys, small trials, case reports, chart reviews, data set analysis. The scope need not be large for many office-based inquiries. Or one may initiate or participate in a larger, multivillage trial.

2. *Qualitative research*

Interviews, focus groups. This type of research has more to it than it appears, but with appropriate collaboration it is a good fit for family physicians. It often tries to get at patients' experiential thoughts and feelings.

THE 3 VIRTUES

1. *Increased confidence*

You are a scientist as well as a teacher and clinician. Why else do you think the way you do? Working on this aspect of your career broadens your sense of your professionalism.

2. *Increased professional/academic standing*

There are many ways of contributing to the profession; research is one way. This may be an area for you to explore.

3. *Less untilled fertile ground*

If medical writing or research is something you always wanted to do, then take some steps to accomplish it. Like

those many other things we want to see harvested in our life, this may be worth pursuing.

THE 10 COMMANDMENTS

1. *Curiosity*

Trust your gut. A question arises. You generally keep up with the relevant literature for your practice. If you do not know the answer, it likely hasn't been answered. So go ahead. Trust that instinct, as your type of practice may not be reflected in the general literature.

2. *Topic/question*

The type of question you ask determines the methodology needed to answer it. Many questions can be answered with relatively small sample sizes ($n = 100$); interesting case reports need only 1 patient. Try to define the question most succinctly. Talk to colleagues about it.

3. *Literature search*

A simple search may tell you if the question has already been answered. Medical librarians can often do that for you; if you continue, they can do a thorough search for relevant articles and send them to you. You may do a quick Medline search or even Google the question.

4. *Write the title*

This is harder than you might think. It is best to kick it around with several colleagues to get the correct wording. From this exercise you can clarify exactly what it is you want to zero in on. Since brevity is required in a title, it forces you to hone down the question of interest.

5. *Collaborate appropriately*

We are asked at times for access to our data or patient population, but are not really a part of a research team — this is not collaboration. If this occurs, consider asking for full participation in the project, if you want it. Otherwise, when deciding on how to proceed with your own project, find colleagues you trust who can bring energy, skills and perspectives you do not possess. Involving a medical student or other learner adds a lot of energy and can be a great boon to getting a project started — it

also gives you some incentive to complete it, as you will not want to see their labour go for naught. Always offer participation in authorship to colleagues who are willing to help you out. See the “Vancouver rules” for correct authorship attribution.² Collaboration may even take the form of joining or creating a network of similar-minded colleagues to address the question.

6. *Ethics*

You need to have ethics approval for almost all research projects. You may apply to ethics/research committees at hospitals, universities and even provincial colleges. Ethics approval needs to be in place before gathering any data. This is not a bad place to get help from someone who has gone through this before. Consider it a necessary evil and get it done. Research in Aboriginal topics has additional parameters outlined by the National Aboriginal Health Organization (NAHO) and the Canadian Institute for Health Research (CIHR).^{3,4}

7. *Data gathering*

Sounds like gardening, but much less colourful. In a small town, there is a power differential involving the physician and patient which may preclude certain topics or patients from research involvement. Your clinic staff can be invaluable in handing out surveys or collecting chart data for you. Electronic medical records open new doors.

8. *Analysis*

Using the correct statistics will require help from a professional who will be best served by being offered a participation in authorship. Always consult the chosen statistician before collecting data. If you collect data in widgets and their computer program counts digits, there will be issues, big issues. If statistical analysis will be needed, always find out what data will be required and in what form it needs to be collected and recorded.

9. *Write-up*

Always begin by choosing the journal you think is most appropriate and going to their website and downloading their instructions for authors. Do not write a “tome” in the Russian tradition and expect yourself, a friend or a busy journal editor to chop it down to size for you. Stick to the length and headings

they suggest. It will help to keep the paper organized, even if you ultimately submit it elsewhere.

10. Rewrite, resubmit

It got rejected by the journal. This is where collaborators are useful. You are disappointed and somewhat sick of the topic by now. Let others help to edit and change the paper. Every rejection will contain valuable suggestions from editors and reviewers who are experts in medical writing. Use that to improve on the work, even if you decide to submit the revision to another journal.

THE 7 DEADLY SINS

1. Not protecting time

You just have to choose an afternoon or morning that you will protect. No one will do this for you. Also, try working a bit when on call, if it is not too hectic. If you cannot put aside any protected time, then put the research off until later. Paid time off? Unlikely, but get it if you can.

2. Not asking for help

Ask for assistance, where you need it, early on, before you start hitting your head against the wall. Research is like any skill; you may come by it naturally, or more likely you will need some help along the way.

3. Not listening

More experienced researchers will often point out that you have bitten off more than you can chew and that the scope needs to be reduced. Listen to them. There may also be limitations imposed by the proposed methodology, patient access or geography. This may be a bit deflating, but being realistic early on is good.

4. Thinking the research is not important

Stay the course. If you thought it was a good project, it still is, even though you have met some hurdles.

You may decide that the project is worthwhile but not for you once you have a sense of what it involves, or you may find you need assistance.

5. Thinking you are not up to it

With a busy practice and a busy life, expect the project to sit and gather dust at times. This is unfortunate, but common; it is harder to get back into it once you have left it for a while. Major roadblocks may be not having enough time or needing more collaboration.

6. Trying to cover too much

What will it take to prove or elaborate your point? Would a well-written letter to the editor suffice where a research project may not be feasible?

7. NOT FINISHING

Dust it off, get help. Choose some time when you can take another run at it. Pare it down, go into salvage mode if you have to: does the literature review component have enough interest to stand alone as a submission?

If you follow these 10 commandments, avoid these 7 deadly sins, profit from these 3 virtues and wisely choose your path to enlightenment, we may all reap the benefits of the undivided truth.

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So many databases, such little clarity

Searching the literature for the topic *aboriginal*

Len Kelly MD MClSci CCFP FCFP Natalie St Pierre-Hansen

ABSTRACT

OBJECTIVE To describe the scope, content, and organization of commonly used medical databases and search strategies, using a search of the topic *aboriginal* to illustrate the various ways the topic is covered in each of the databases.

DESIGN Comparison of literature searches.

METHOD Seven common medical databases were searched using all the MeSH terms that are permutations of *aboriginal*. A secondary analysis using the “remove duplicates” function in Ovid was done to identify articles specific to each database.

MAIN OUTCOME MEASURES Number of articles found by each search.

RESULTS Searching by MeSH terms often produces very different information from that found when searching by text word. A unique term, such as *Ojibway*, is best found with a text word search. A more general term, such as *Aborigines*, is best searched by subject using a MeSH term. Many databases can be searched through Ovid and might all use different MeSH terms for the same reference. PubMed default searches that use MeSH terms and text words simultaneously often produce very large numbers of articles. In searching for *North American aboriginal* using MeSH terms, MEDLINE and PubMed produced the most references, followed by Healthstar. Calculating distinct “all aboriginal” references in EMBASE, Healthstar, and PsycINFO indicated that MEDLINE produced nearly all the articles found in Healthstar. In fact, MEDLINE alone produced 88% of the articles found in MEDLINE and EMBASE and 79% of the articles found in MEDLINE and PsycINFO.

CONCLUSION Although several researchers and medical librarians have noted that MEDLINE and EMBASE are quite distinct databases, suggesting both need to be searched for a complete search, we did not find that to be the case for the topic *aboriginal*. The results of this study demonstrate that using MEDLINE produces the most extensive coverage of literature on the topic *aboriginal*. To fully capture the complete body of available literature on other subjects might require searches of many databases, depending on the topic.

EDITOR'S KEY POINTS

- Are all medical databases the same? The authors looked at how 7 major databases differed in the number of articles covered. Using MeSH term and text word search strategies for the topic *aboriginal*, they found that MEDLINE had the most extensive coverage. Of the 3 databases used in combination with MEDLINE, PsycINFO was the most distinct from MEDLINE, and Healthstar was the least distinct.
- The authors also found that searching using MeSH terms and text words simultaneously, as with a PubMed default search, produced an unmanageable number of articles. Searching general terms was best done by subject using a MeSH term; a unique term was best found using a text word search.
- The authors concluded that databases treat their articles in unique ways. Awareness of available databases and of the scope and organization of MeSH terms in these databases will help researchers choose the best ways to define search parameters that will adequately cover the desired topic. Creating search strategies specific to each database and its organization of MeSH terms will lead to more comprehensive results.

Full text is available in English at www.cfp.ca.

This article has been peer reviewed.

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Tant de bases de données, si peu de clarté

Revue de littérature sur le sujet « *aboriginal* »

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RÉSUMÉ

OBJECTIF Décrire l'étendue, le contenu et l'organisation des bases de données et des stratégies de recherche couramment utilisées en médecine, au moyen d'une recherche sur le sujet *aboriginal* (en anglais), afin de montrer les façons différentes de couvrir ce sujet dans chaque base de données.

TYPE D'ÉTUDE Comparaison de revues de littérature.

MÉTHODE On a consulté 7 bases de données médicales courantes en utilisant tous les équivalents du terme MeSH *aboriginal*. Une analyse secondaire a été effectuée à l'aide de la fonction « éliminer les doubles » dans Ovid afin d'identifier les articles spécifiques à chaque base de données.

PRINCIPAL PARAMÈTRE MESURÉ Nombre d'articles identifiés par chaque recherche.

RÉSULTATS Une recherche par termes MeSH produit souvent des résultats très différents de ceux résultant d'une recherche par mots courants. Avec un mot unique comme *Ojibway*, il est préférable d'utiliser un mot courant. Avec un mot plus général comme *aboriginal*, une recherche par sujet avec des termes MeSH est préférable. Ovid permet une recherche dans plusieurs bases de données, lesquelles peuvent toutes utiliser des termes MeSH différents pour la même recherche. Les recherches PubMed par défaut qui utilisent simultanément des termes MeSH et des termes courants produisent souvent un très grand nombre d'articles. Dans une recherche sur *North American aboriginal* avec des termes MeSH, MEDLINE et PubMed ont produit le plus grand nombre de références, suivis par Healthstar. Le décompte des références distinctes pour « *all aboriginal* » obtenues avec EMBASE, Healthstar et PsycINFO indique que MEDLINE a produit la presque totalité des articles repérés par Healthstar. En fait, à lui seul, MEDLINE a produit 88% de tous les articles repérés par MEDLINE et EMBASE, et 79% de ceux repérés par MEDLINE et PsycINFO.

CONCLUSION Bien que plusieurs chercheurs et bibliothécaires soutiennent que MEDLINE et EMBASE sont des bases de données relativement distinctes, suggérant donc qu'il faut les utiliser toutes deux pour une recherche complète, ce n'est pas ce que nous avons observé avec le sujet *aboriginal*. Les résultats de cette étude montrent que MEDLINE fournit la couverture la plus étendue du sujet *aboriginal*. D'autres sujets pourraient nécessiter l'utilisation de plusieurs bases de données.

POINTS DE REPÈRE DU RÉDACTEUR

- Les bases de données sont-elles toutes semblables? Les auteurs ont vérifié les différences entre les nombres d'articles repérés par 7 bases de données majeures. Utilisant des stratégies de recherche à la fois par termes MeSH et par mots courants pour le sujet *aboriginal*, ils ont observé que MEDLINE fournissait la plus large couverture. Des 3 bases de données utilisées en combinaison avec MEDLINE, PsycINFO était la plus différente et Healthstar la moins différente.
- Les auteurs ont aussi observé qu'en utilisant simultanément des termes MeSH et des mots courants, comme dans une recherche PubMed par défaut, on obtenait un nombre ingérable d'articles. Une recherche sur des termes généraux était préférablement effectuée par sujet, à l'aide de termes MeSH; pour un terme unique, un mot courant était préférable.
- Les auteurs concluent que chaque base de données traite ses articles d'une façon qui lui est propre. Une bonne connaissance des bases de données disponibles, et de l'étendue et de l'organisation de leurs termes MeSH, aidera le chercheur à choisir la meilleure façon de définir les paramètres de recherche devant couvrir adéquatement le sujet désiré. La création de stratégies de recherche spécifiques à chaque base de données et à l'organisation de ses termes MeSH procurera des résultats plus complets.

*Le texte intégral est accessible en anglais à www.cfp.ca.

Cet article a fait l'objet d'une révision par des pairs.

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While the virtual hallways of the electronic medical library are not as dusty as those we inhabited during medical training, they can at times appear just as confusing and dimly lit. Electronic searches can be both fun and frustrating for busy clinicians and primary care researchers. They can be fun when the information is instantly at our fingertips and frustrating because we have to navigate by foreign maps and sometimes we either cannot find what we want or find too much of what we want.

While many of us have developed search strategies that meet our current needs, comprehensive literature reviews often require more complicated strategies. Literature searching is like many medical skills: the more practised we are, the more we can appreciate subtleties in presentation. In the process of researching the topic *aboriginal*, we learned some lessons we would like to pass along to readers.

Aboriginal and First Nations

Researchers searching the topic *aboriginal* are faced with current evolving political and cultural terminology. The terminology we use today is not the same as that used by librarians in the 1960s and around which the databases were organized.

According to the Canadian Constitution, the term *aboriginal* refers to the indigenous inhabitants of Canada. This comprises 3 distinct groups: First Nations, Inuit, and Metis.¹ *First Nations* is, therefore, a subset of *aboriginal* and has replaced the term *North American Indians* in contemporary discussion. MeSH terms, on the other hand, do not comply with current accepted terminology and instead often use uncommon descriptions, such as *American native continental ancestry group* or *American Indian*, for First Nations designations.² In addition, some databases do not allow for a distinction between North American natives and native groups in Central and South America, as we found all groups were sometimes categorized under the term *American Indian*.

Ovid and PubMed

Ovid and PubMed are common ways to search the literature and they differ in interesting ways. Ovid, which is a search engine, can access many common databases including MEDLINE and EMBASE. Although Ovid-accessible databases share the same search interface, they have their own unique MeSH terms. MeSH terms are descriptors developed by librarians to organize and categorize topics.^{3,4} Fortunately, the Ovid search engine takes you to these terms by default, as they are usually not obvious. For example, *aboriginal* is not a MeSH term, but if you enter it into Ovid, a map of terms such as *Indians*, *North American* will be produced instead. The alternative to a MeSH term search is a text word search. A text word search finds articles that

contain the given word anywhere in the title, abstract, or text of the article.⁵ Depending on how common the word is, an unwieldy number of articles can be produced. For example, entering *Native* into PubMed brings up more than 100 000 publications. One advantage to searching by text word is that such a search can find specific and infrequently used words. Entering *Ojibway*, which is not a MeSH term, will uncover a manageable 32 articles, even though *Ojibway* might not be the main focus of these articles.

PubMed is a database that uses a search engine called Entrez. MEDLINE, the most common database accessed through Ovid,⁶ essentially produces the same articles as PubMed with a few exceptions. PubMed is slightly larger than MEDLINE as its scope is marginally broader, and new references are added to PubMed more quickly than they are to MEDLINE.

The difference in entering a term into Ovid MEDLINE and entering a term into PubMed is that PubMed's default setting will search by text word and MeSH term simultaneously. Therefore, if you do not specify MeSH term only, PubMed will likely retrieve a large number of articles because it has combined a reasonable number of MeSH references with a large number of text word references. An Ovid search will retrieve articles by MeSH term only. A PubMed search that is limited to MeSH terms will be similar in scope to an Ovid MEDLINE search.

METHODS

We searched 7 common medical databases using all the MeSH terms for *aboriginal* (both for Canada's First Nations people and foreign aboriginal peoples): Ovid MEDLINE, EMBASE, PubMed, CINAHL, Healthstar, PsycINFO, and EBM Reviews. We searched the topics of interest using subject (MeSH term) and text word strategies in Ovid and PubMed databases.

We conducted a secondary analysis to identify the distinct references to *aboriginal* in EMBASE, Healthstar, and PsycINFO and compared them with those in MEDLINE. Using the Ovid interface, we searched using 2 databases simultaneously. All relevant MeSH terms for the 2 databases were used and combined with the Boolean operator *OR*. The "remove duplicates" function in Ovid was used to discover the number of articles distinct to each database.

Ovid databases searched

- MEDLINE contains more than 15 million articles published in more than 4600 biomedical journals from 1950 to the present.⁷
- CINAHL (Cumulative Index to Nursing and Allied Health Literature) is the database of nursing and allied health literature and contains articles from 1982 to the present.

- Healthstar comprises data from MEDLINE, the hospital literature index, and selected journals; focuses on clinical and nonclinical aspects of health care delivery; and includes journal articles, technical reports, government documents, and newspaper articles from 1975 to the present.
- PsycINFO contains literature on psychology from more than 2200 periodicals from 1872 to the present. It was previously known as PsycLIT.⁸
- EMBASE is a biomedical and pharmaceutical database with more than 18 million records from 1974 to the present.⁹ It includes more European articles than MEDLINE does.¹⁰
- EBM Reviews contains evidence-based medicine records from 1948 to the present from the American College of Physicians Journal Club, the Cochrane Controlled Trials Register, the Cochrane Database of Systematic Reviews, and the Database of Abstracts of Reviews of Effects.

Other databases searched

- PubMed contains more than 17 million articles¹¹ from MEDLINE and other life sciences journals that might be beyond the scope of MEDLINE (eg, Astrophysics) from 1950 to the present.¹²
- The Native Health Database includes literature, documents, reports, and surveys relating to the health of American Indians, Alaska Natives, and Canadian First Nations peoples from 1966 to the present.

RESULTS

Search terms

Databases treat their articles in unique ways. Australian aboriginal literature, for example, is identified as such in Healthstar, MEDLINE, and PubMed using *Oceanic ancestry group* as a MeSH term. In EMBASE, Australian aboriginal literature might be indexed under *indigenous people* or *Aborigines*.

Articles on North American First Nations people, previously referred to as *North American Indians*, can be searched in MEDLINE under *Indians*, *North American*, and in EMBASE under *American Indians*, but the latter

includes literature on South and Central American Natives as well. Owing to the way EMBASE organizes its MeSH terms, we were unable to specifically identify unique EMBASE contributions on this topic, but we did ascertain that the number of articles in EMBASE was much smaller than the number in MEDLINE.

Text word searches for broad terms produce unmanageably large numbers of articles but might be helpful for searching for articles on specific tribes (Table 1).

Comparison of databases

The total number of distinct articles shown in Table 2 for each database provides an initial overview of the comprehensiveness of each database. Combining all articles on the topic *aboriginal* was possible methodologically and provided a useful way to compare databases. These numbers will be of less interest to researchers who are focusing on a specific aboriginal group. Our results illustrate that MEDLINE provides the most extensive coverage of the topic *aboriginal* when a search is done using MeSH terms.

For those who wish to search more than 1 database, our secondary analysis will help them decide which combination of databases will provide the most comprehensive search results. Once we eliminated the overlap between databases, we were able to see their distinctiveness. Of the 3 databases used in combination with MEDLINE for searching the topic *aboriginal*, PsycINFO is the most distinct from MEDLINE and Healthstar the least (Figures 1-3).

DISCUSSION

The distinctiveness of each MeSH term and the variations in the way terms are organized in the various databases highlight the importance of selecting each of the terms to be used in the search. Rosser and colleagues examined the difference between terms used by British physicians and those used by Canadian physicians. They pointed out that the use of *general practice*, *family medicine*, or *family practice* as key words yielded substantially different results depending on the interface used.¹³ We believe that mapping search terms to the database to be

Table 1. Number of articles found through searches using text words for the topic *aboriginal*

TEXT WORDS	NUMBER OF ARTICLES						
	HEALTHSTAR 1975-JULY 2007	OID MEDLINE 1950-JULY 2007	PUBMED MEDLINE 1950-JULY 2007	EBM REVIEWS 1948-JULY 2007	CINAHL 1982- JULY 2007	EMBASE 1974- JULY 2007	PSYCINFO 1872- JULY 2007
<i>Native</i>	22 728	96 703	100 375	797	4038	77 217	10 260
<i>Indian</i>	12 660	21 301	31 980	618	1638	17 946	8876
<i>Aboriginal</i>	2531	3022	3282	55	713	2186	1056
<i>First Nation</i> [*]	1175	1270	924	26	431	938	355
<i>Ojibway</i>	24	32	32	9	0	20	21

*Truncation for First Nation and First Nations.

Table 2. Number of articles found through searches using various MeSH terms for the topic *aboriginal*

MESH TERMS	NUMBER OF ARTICLES						
	HEALTHSTAR 1975-JULY 2007	OID MEDLINE 1950-JULY 2007	PUBMED MEDLINE 1950-JULY 2007*	EBM REVIEWS 1948-JULY 2007	CINAHL 1982- JULY 2007	EMBASE 1974-JULY 2007	PSYCINFO 1872-JULY 2007
First Nations, North American							
<i>Indigenous populations</i>							980
<i>Indigenous people</i>					319	321	
<i>Aborigines</i>				0	884	2059	
<i>Tribes</i>							651
<i>American native continental ancestry group</i>	135	159	12924				
<i>Native Americans</i>					2877		
<i>Indians, North American</i>	7112	8822	8736	102			
<i>American Indian</i>						2343	3949
<i>Alaska Natives</i>							222
Other aboriginal							
<i>Indians, South American</i>	1546	2384	2358	7			
<i>Indians, Central American</i>	189	318	318				
<i>Eskimo</i>					202	355	
<i>Inuit</i>	2110	2408	2399				299
<i>Maori</i>					223	228	
<i>Pacific islander</i>						288	155
<i>Oceanic ancestry group</i>	3386	4033	4014				
Total distinct articles found using all MeSH terms combined with Boolean OR	12 135	16 993	16 834	109	4356	5294	5367

*PubMed search using MeSH-only strategy.

Figure 1. Results of a MeSH term search for the topic *North American aboriginal: Ovid MEDLINE vs Healthstar.*

Indians, North American

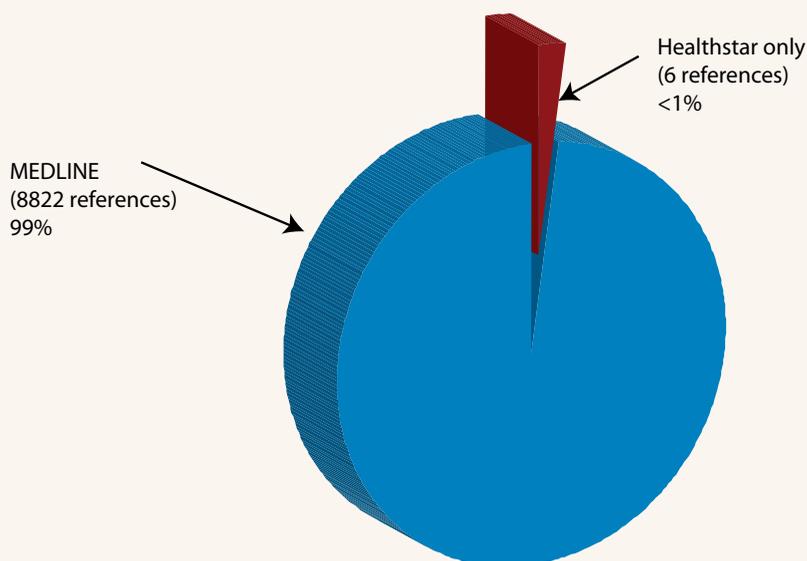


Figure 2. Results of a MeSH term search for North American and international articles on the topic *aboriginal*: Ovid MEDLINE vs EMBASE.

All *aboriginal*

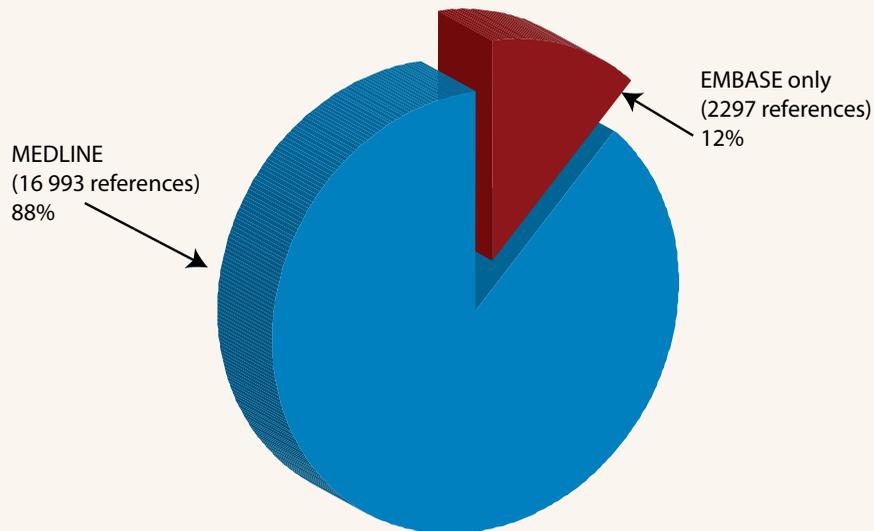
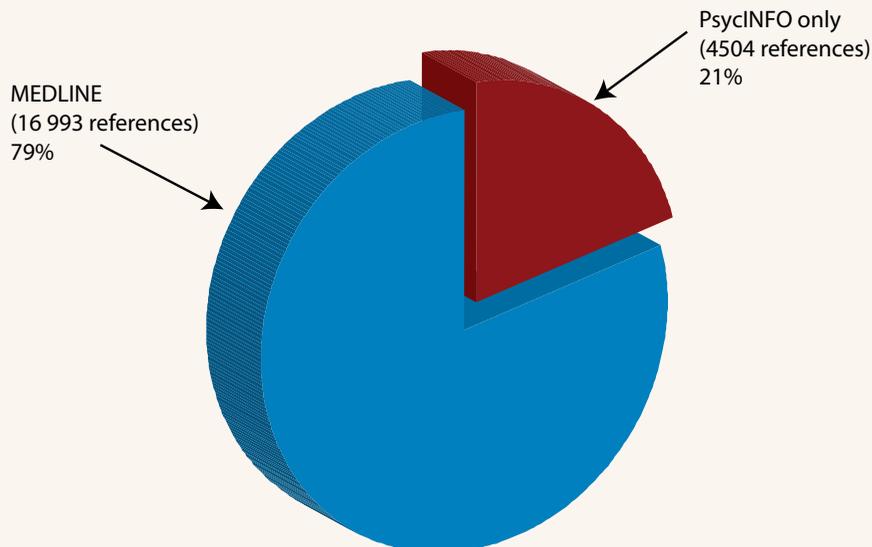


Figure 3. Results of a MeSH term search for North American and international articles on the topic *aboriginal*: Ovid MEDLINE vs PsycINFO.

All *aboriginal*



used and creating a search strategy specific to that database and its organization of MeSH terms will lead to more comprehensive results.

The decision about which databases to search to get thorough reviews of the literature will likely vary by topic.¹⁴⁻¹⁶ Several researchers and librarians recommend combining MEDLINE and EMBASE for a complete review,^{17,18} as these 2 databases often have been found to contain quite distinct listings for primary care

topics. Wilkins searched 15 family medicine topics in these 2 databases and found EMBASE yielded significantly more articles than MEDLINE did ($P = .0005$).¹⁶ The fact that EMBASE references more European literature than the other databases do, might explain why it seemed to be a less useful resource for our example search of literature on *North American First Nations*. For the topic *aboriginal*, we found MEDLINE to be sufficiently complete.

Limitations

Since EMBASE did not have a specific category for North American First Nations, we could not identify its unique contributions to that topic. We used the “remove duplicates” feature on Ovid, but this feature was limited to 6000 entries. We therefore broke the data sets down chronologically to below 6000 entries to allow the feature to remove duplicate entries. We found small inaccuracies in the “remove duplicates” function in Ovid, but we are confident that our results adequately describe the differences in coverage of the various databases.

Conclusion

An awareness of available databases and of the scope and organization of MeSH terms in these databases can assist researchers in choosing the best ways to define search parameters that will adequately cover the desired topic. For the topic *aboriginal*, a search of MEDLINE appeared to produce a sufficiently complete listing of articles. Searching PsycINFO also might have produced additional relevant articles. Other topics might require researchers to select different databases and use different search strategies. ❁

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Contributors

Dr Kelly and **Ms St Pierre-Hansen** contributed to concept and design of the study; data gathering, analysis, and interpretation; and preparing the article for submission.

Competing interests

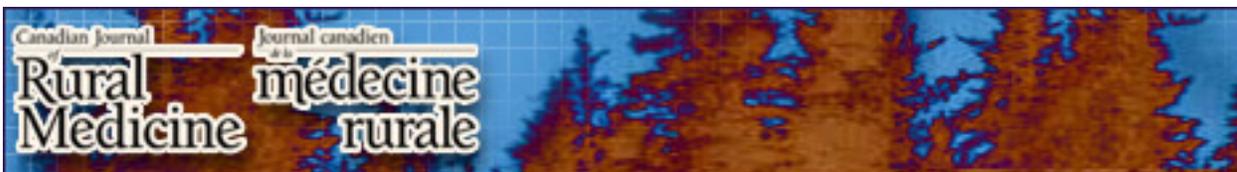
None declared

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Researching rural: research interns in northern Ontario

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Introduction

Canada's newest medical school has developed an interesting way to promote community-based research and rural professional development. The Northern Ontario School of Medicine (NOSM) welcomed its charter class of 56 students in 2005. In 2006, the school initiated a community-based research internship program by partnering with government agencies.

Program description

Twelve recent university graduates have been placed in rural communities across northern Ontario through a partnership with FedNor (Industry Canada's economic development initiative for Northern Ontario)¹ and the Northern Ontario Heritage Fund Corporation (a provincial agency mandated to foster job creation in northern Ontario).²

The year-long internship is designed to provide the interns with valuable work experience and to help them develop relevant research skills applicable to their region. Many NOSM research interns had previously left the north to pursue a university education. This internship facilitated a return to the rural northern Ontario communities for these researchers, opening the door to a rich and diverse research experience valuable to future career development.

NOSM espouses interdisciplinary cooperation, community partnerships and an emphasis on the cultures and characteristics of northern Ontario.³ A variety of projects from qualitative to clinical research involve a cross-section of health care workers and use community-driven approaches. Application of the CIHR Guidelines for Health Research Involving Aboriginal People⁴ and collaboration with community leaders and First Nation organizations lead to research processes that are truly community owned. The spinoff for local research initiatives can — and does — affect program development at local hospitals. Issues as focused as throat swabs and as in-depth as palliative care and obstetrical services can

inform local and regional centres that face similar issues.

Cross-cultural and rural issues are often underrepresented in research funding. Rural physicians often lack the time, funding and expertise to examine questions that raise curiosity in clinical challenges. Previous summer-long research internships have had documented success in stimulating rural clinicians to increase scholarly activity.⁵

The presence of continuous, year-long research support in rural communities is both novel and exciting. In one community, more than 10 local physicians with limited prior research experience are working on a variety of meaningful projects. Their research intern has been able to participate in relevant workshops and report back to physicians unable to attend. Both the clinician and the local hospital have benefitted by looking at challenges in a more systematic manner: elaborate the question, perform a literature search, systematically gather the data, collaborate with the stakeholders and proceed toward solutions, including funding applications for further research.

Discussion

Other successful initiatives enabling community-based research are occurring at the University of British Columbia, where the Department of Family Medicine recognized it was "an unrealistic expectation that family practitioners could devote themselves to research without pay while maintaining a clinical practice."⁶ They subsequently developed several 1- to 3-year clinical investigator programs with funding, in addition to program support for research coordination and statistical expertise. The 3-year Community-Based Clinician Investigator program has had over 20 graduates since 2000 and the R3 research clinical investigator positions support re-entry for experienced clinicians to develop research projects. Additionally, British Columbia's newly minted Centre for Rural Health Research has focused on rural maternity care, combining research with networking with policy-makers and with patients and caregivers from 20 rural communities. With these multifaceted endeavours, a culture of primary care research is developing in rural areas.

There are research institutes in various provinces that are involved in primary care studies.⁷⁻¹⁰ Their challenge is to reach out in a distributed fashion to the communities they study and to encourage healthy, supported nodes of excellence in community-based research. Some programs support family doctors by protecting 50% of their time and salary support to engage in research.

Performing literature searches is one of a rural researcher's earliest tasks. As disparate as the definitions of "rural" that currently exist, so too are the medical subject headings (MeSH) terms and databases available for searching rural topics. [Table 1](#) and [Table 2](#) may be of use to others interested in rural research.

Conclusion

Resourcefulness and creativity are key components of successful research and scholarly activity. These essential ingredients can lead to quality community-driven research through sustainable networks and partnerships. Resources for rural researchers are much like the database tools: an understanding of how to access and use them to their full capacity can lead to rewarding outcomes. The much-needed infrastructure is just developing, and rural doors are being opened for meaningful research opportunities. Several key funding components for the clinician investigator and infrastructure support are needed to sustainably "research rural."

Table 1. Medical subject headings term searches for rural references

MeSH terms* for rural	No. of references						
	HealthStar	MEDLINE	PubMed Central	EBMR	CINAHL	EMBASE	PsycINFO
Hospitals, rural	2928	3023	3016	13	745		
Rural area					5748	12 955	
Rural health	16 009	17 420	17 393	268	1793		
Rural health care						2898	
Rural health centres					40		
Rural health nursing					1150	5	
Rural health personnel					219		
Rural health services	4809	4900	4889	101	1893		
Rural population	23 429	25 239	25 103	364		4168	
Rural hygiene						110	
Urban rural difference						1588	
Rural environments							7062
Total distinct references (all MeSH terms combined with Boolean "OR")	45 547	48 937	48 790	729	10 205	20 540	7062

CINAHL = Cumulative Index to Nursing and Allied Health Literature; EBMR = Evidence-Based Medicine Reviews; MeSH = medical subject headings.

*The various databases have their own unique MeSH terms. Multiple MeSH within a database exist for a single term, yet each MeSH is distinct from others, therefore all relevant terms should be selected. For example, on MEDLINE there were 17 420 references found under the term "rural health" and 25 239 found under "rural population"; only 220 references were indexed under both MeSH terms.

Table 2. Keyword search for rural references

Text word*	No. of references						
	HealthStar	MEDLINE	PubMed Central	EBMR	CINAHL	EMBASE	PsycINFO
Rural	61 407	68 086	75 834	1783	13 440	34 729	16 327

CINAHL = Cumulative Index to Nursing and Allied Health Literature; EBMR = Evidence-Based Medicine Reviews.

*A text word search retrieves articles that contain the word anywhere in the available text of the reference (title, abstract or main body).

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Short Report: Can mouth swabs replace throat swabs?

Cross-sectional survey of the effectiveness of rapid streptococcal swabs of the buccal mucosa

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Streptococcal sore throat—group A β -hemolytic streptococcal pharyngitis—accounts for 5% to 24% of patients complaining of sore throats, a frequent presentation in primary care.¹ Several strategies for assessment of sore throat exist, including examination by a physician,^{1,2} sore throat scores,^{3,4} rapid antigen detection tests (RADTs),^{5,6} criterion standard culture and sensitivity swabs, and various combinations of the above.⁷

One of the difficulties with throat swabs of any type is that they often trigger patients' gag reflexes and are therefore difficult to perform in children. I wondered if results of swabs of the buccal mucosa would correlate well with results of pharyngeal swabs.

No such study had ever been done. Since RADTs were used regularly in the family medicine clinic where the study was conducted, they were chosen for testing, even though they were designed for pharyngeal use.

Most rapid antigen detection assays use enzyme immunoassays and generally have a sensitivity of 80% to 90%, with a specificity of 70% to 80%.⁷ This limited specificity leads most authors and many clinicians to "cover" a negative RADT result with a traditional criterion standard culture and sensitivity swab to eliminate false negatives.⁷

The study was undertaken in Sioux Lookout, a town of 7000 in northwest Ontario, with a catchment area of 27000. The study was conducted in the Hugh Allen Clinic.

Sixty-four consecutive pharyngitis patients attending the clinic in the winter of 2005 had 2 swabs done. One swab was of the pharynx and the other was of the buccal mucosa. Patients were included in the study if their primary complaint was sore throat. Two clinic physicians participated; no patients declined.

The SureStep Strep A (II) Test by Applied Biotech was used according to the manufacturer's instructions, with the exception that 1 of the 2 swabs was taken of the

buccal mucosa. This was done by applying the second swab to the right buccal mucosa alongside the lower dentition. Both swabs were processed for 5 minutes, according to the manufacturer's instructions. The swabs were taken by clinic physicians and processed by nurses with several years' experience with the SureStep test. Written informed consent was obtained for each participant. The power of the study was designed to note if the buccal swabs would be at least 80% as effective as the throat swabs ($\alpha=.05$ and $\beta=.2$). The results were tabulated and the sensitivity and specificity calculated using the on-line statistics calculator from the Centre for Evidence-Based Medicine (www.cebm.net). Ethics approval was granted by the Lakehead University Research Ethics Board.

The 64 participants included 30 male patients and 34 female patients between the ages of 1 and 79. The average age was 31.1 years. The prevalence of RADT throat swabs positive for streptococci was 12.5%. No buccal swabs were positive (sensitivity of only 5.6%).

The most effective management of a sore throat would identify and treat only those patients with proven streptococcal pharyngitis. Even among these patients, a 2006 Cochrane Review notes a "relative benefit" of treatment to lessen suppurative (abscess) and non-suppurative

EDITOR'S KEY POINTS

- Throat swabs often trigger patients' gag reflexes and are difficult to perform in children. The author wondered if results of swabs of the buccal mucosa would correlate well with results of pharyngeal swabs.
- Swabbing the buccal mucosa using a rapid antigen detection test was found to be ineffective.

POINTS DE REPÈRE DU RÉDACTEUR

- Le frottis pharyngé déclenche souvent un réflexe nauséux et est difficile à effectuer chez l'enfant. Les auteurs voulaient savoir si les résultats des frottis buccaux concordent avec ceux des frottis pharyngés.
- Les frottis de la muqueuse buccale utilisant un test rapide de détection d'antigènes se sont montrés inefficaces.

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(glomerulonephritis and rheumatic fever) complications.⁸ Despite an annual incidence of only 1 per million population,¹ we saw 2 patients with rheumatic heart disease last year in our emergency department, which serves a largely aboriginal population of 27000. The prevalence of streptococcal infection in our study was 12.5%, which is at the low end of rates seen in similar studies. Our study was limited by the use of a convenience sample of 64 consecutive patients at one point in the year. It was thought this would be sufficient to identify any usefulness of this unique application of RADTs for streptococcal sore throat.

Of the many potential simplifications of screening for and diagnosing streptococcal pharyngitis, swabbing the buccal mucosa using RADTs was found to be ineffective. 

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Competing interests

None declared

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Invasive *Haemophilus influenzae* Disease Caused by Non-Type b Strains in Northwestern Ontario, Canada, 2002–2008

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A high incidence of invasive non-type b *Haemophilus influenzae* disease was found in Northwestern Ontario, Canada; *H. influenzae* type a was the most prevalent serotype (42%). Clinical and demographic analyses indicate that aboriginal children aged <5 years and adults with predisposing medical conditions are the most affected by invasive *H. influenzae* disease in the post-*H. influenzae* vaccine era.

Haemophilus influenzae can cause severe invasive diseases, such as meningitis, epiglottitis, septic arthritis, and septicemia [1]. On the basis of the antigenic properties of *H. influenzae* capsular polysaccharides, 6 serotypes (a, b, c, d, e, and f) have been identified [2]. Before the late 1980s, *H. influenzae* type b (Hib) was the most common cause of bacterial meningitis in children. Introduction of Hib conjugate vaccines in the early 1990s dramatically decreased the incidence of invasive Hib disease among children in many industrialized countries [1]. Since 1991, the Hib conjugate vaccine has been a part of the routine childhood immunization schedule in Canada; after the introduction of the vaccine, the incidence of invasive Hib disease decreased from 1.89 cases per 100,000 persons in 1989 to 0.3 cases per 100,000 persons in 2004 [3].

Although the Hib conjugate vaccines are highly effective in preventing invasive Hib disease, there is concern that *H. in-*

fluenzae strains may undergo capsule switching or replacement to fill the ecological niche previously occupied by Hib [4]. The emergence of invasive non-type b *H. influenzae* disease has been reported in several countries [5–8]. Recent reports suggest an increased incidence of invasive *H. influenzae* type a (Hia) disease among indigenous people of North America [9–11]. The objective of this study was to analyze invasive *H. influenzae* disease that occurred during the past 7 years in Northwestern Ontario, a large region of Canada with a substantial aboriginal population.

Methods. Cases of invasive *H. influenzae* disease were defined according to the Centers for Disease Control and Prevention criteria [12]: a clinically compatible case that is laboratory confirmed (isolation of *H. influenzae* from a normally sterile site, that is, blood, cerebrospinal fluid or, less commonly, joint, pleural, or pericardial fluid). Data were collected from Thunder Bay Regional, Sioux Lookout, and Kenora health centers in Northwestern Ontario. Identification of *H. influenzae* was performed using standard methods [7] and confirmed by 16S ribosomal RNA sequencing [13]. All invasive *H. influenzae* isolates were forwarded to reference laboratories, where serotyping was performed using both a bacterial agglutination test and a polymerase chain reaction assay [7]. The hospital charts were retrospectively reviewed for demographic and clinical information.

Incidence rates were calculated by dividing the number of cases of invasive *H. influenzae* disease per year in a specific age group by the total population for this age group in Northwestern Ontario (per 100,000 persons), by means of the most recent census data (2006) [14]. The Public Health Agency of Canada's Notifiable Diseases age groupings were used [3]; for the analysis, some groups were combined because of the small numbers of cases. Statistical analysis was conducted using MA2x2.EXE [15]. This study was approved by the research ethics boards of all involved institutions.

Results. From January 2002 to December 2008, 38 cases of invasive *H. influenzae* disease were identified in Northwestern Ontario. The age of patients ranged from 0 (newborn) to 89 years; 19 (50%) of the cases were children (0–9 years old). Nine patients were ≥ 60 years old. Among children aged <5 years, male patients were prevalent (10 [62.5%] of 16; $P < .05$; Fisher exact test). For 15 patients, the ethnic background was not recorded, but 20 (52.6%) of the 38 patients were identified as aboriginal, including all infants <1 year old (6 infants) and 8 (61.5%) of the 13 children >1 year old (Table 1).

The majority of *H. influenzae* isolates (34 [89.5%]) were from

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Table 1. Age, Sex, and Aboriginal Heritage among 38 Patients with Invasive *Haemophilus influenzae* Disease

Age group, years	No. of patients (% of total)	No. of patients (% of age group)		Aboriginal heritage
		Males	Females	
<1	6 (15.8)	4 (66.7)	2 (33.3)	6 (100)
1–4	10 (26.3)	6 (60.0)	4 (40.0)	6 (60)
5–9	3 (7.9)	1 (33.3)	2 (66.7)	2 (66.7)
10–24	1 (2.6)	0 (0.0)	1 (100)	0 (0.0)
25–59	9 (23.7)	1 (11.1)	8 (88.9)	3 (33.3)
≥60	9 (23.7)	4 (44.4)	5 (55.6)	3 (33.3)
Any	38 (100)	16 (42.1)	22 (57.9)	20 (52.6)

blood, 1 was from pleural fluid, and 3 were from other normally sterile sites. Of the 38 isolates, 31 (81.6%) were serotyped; 13 were *H. influenzae* type a (Hia; 41.9%), 9 were nontypeable (NTHi; 29.0%), 8 were type f (Hif; 25.8%), and 1 was type e (Hie; 3.2%). No cases of invasive Hib disease were observed (Table 2).

Detailed clinical information was available for 28 cases. The most common clinical presentation was sepsis (in 9 cases [32.1%]), followed by pneumonia (in 8 [28.6%]) and epiglottitis (in 3 [10.7%]). Most of the patients fully recovered, but 3 patients died: 2 had severe underlying medical conditions and 1 was an extremely premature newborn baby. The majority of patients had some potentially predisposing factors to invasive *H. influenzae* disease. All of the infants <1 year old either experienced prenatal exposure to toxic substances or had congenital defects. Of the 15 adult patients with available detailed clinical information, 10 (67%) had underlying diseases, such as malignancies, diabetes mellitus, Crohn disease, chronic obstructive pulmonary disease, chronic renal failure, etc (Table 2).

The number of cases of invasive *H. influenzae* disease varied from year to year: 3 in 2002; 4 in 2003; 7 in 2004; 6 in 2005; 7 in 2006; 7 in 2007; and 4 in 2008. Accordingly, the annual incidence rates varied from 1.28 cases per 100,000 persons in 2002 to 2.98 cases per 100,000 persons in 2004, 2006, and 2007 ($P > .05$; meta-analysis test for heterogeneity). For comparison, the incidence of invasive Hib disease for the entire province of Ontario before the introduction of the Hib conjugate vaccine (1989) was 1.42 cases per 100,000 persons; this decreased steadily to 0.07 cases per 100,000 persons in 2004 [3].

The highest incidence rates of invasive *H. influenzae* disease in Northwestern Ontario were found in children aged <5 years, that is, 15.5 cases per 100,000 persons in 2002, 30.9 cases per 100,000 persons in 2004, and 38.7 cases per 100,000 persons in 2006. For the same age group, the incidence of invasive Hia disease reached 7.7 cases per 100,000 persons in 2002, 2003, and 2008; 15.5 cases per 100,000 persons in 2006; and 23.2 cases per 100,000 persons in 2004. In comparison, in Ontario,

the incidence rates of invasive Hib disease for children aged <1 year were 1.55 cases per 100,000 persons in 2002 and 0.78 cases per 100,000 persons in 2004, and for children aged 1–4 years they were 0.18 cases per 100,000 persons in 2002 and 0.37 cases per 100,000 persons in 2004 [3]. Hence, during 2002–2004, the incidence of invasive *H. influenzae* disease, including Hia, among young children in Northwestern Ontario was much higher than the officially recorded incidence of Hib in the whole province.

Discussion. To our knowledge, the incidence of invasive *H. influenzae* disease in Northwestern Ontario, a large region with a substantial aboriginal population, has not been previously investigated. Tsang et al [7] identified 122 cases of invasive *H. influenzae* disease in Manitoba, Canada, in 2000–2006, with an increase in non-Hib strains: 69 (57%) were NTHi and 36 (29%) were Hia; the incidence of invasive *H. influenzae* disease nearly matched the rate of invasive Hib disease in the prevaccine era. In the United States, Dworkin et al [16] observed an increase in the incidence of invasive *H. influenzae* disease in adults ≥65 years old during 1996–2004; 283 (54.2%) of 522 isolates were NTHi, and 87 (18.3%) of 475 isolates were Hif. In contrast, we found a greater prevalence of encapsulated strains (71% [22 of 31 cases with determined serotype]), especially Hia (42% [13 of 31 cases with determined serotype]), compared with the prevalence of NTHi. In Ontario, before the introduction of vaccine, the most common strains were NTHi and Hib. Since 2000, the most commonly observed *H. influenzae* isolates are NTHi and Hif (Adam H et al, unpublished data).

Recently, Bruce et al [9] found a high incidence of invasive Hia disease among indigenous people in the North American Arctic, with the highest rate detected among indigenous children <2 years of age, that is, 52.6 cases per 100,000 persons. Compared with other reports of increased incidence rates of Hia disease in regions with a substantial proportion of aboriginal populations [9–11], our report identifies the highest prevalence of Hia disease in an area outside the circumpolar region.

Before the introduction of the Hib conjugate vaccine, the highest incidence of invasive Hib disease in the world was reported among indigenous people in North America and Australia [17–19]. Despite the vaccination, some aboriginal populations remain highly susceptible to Hib [20]. Our study demonstrated an increased prevalence of invasive non-type b *H. influenzae* disease among aboriginal children; that is, 14 (73.7%) of all 19 pediatric cases involved aboriginal children, including all infants <1 year of age. Overall, aboriginal patients accounted for 20 (52.6%) of all 38 cases. Given that the proportion of all people in Northwestern Ontario who are aboriginal is 19.6% [14], our findings imply that this group is disproportionately affected by invasive *H. influenzae* disease. The reason for this is currently unclear and deserves further study. It is possible that some genetic factors determine an increased susceptibility to this

Table 2. Clinical Characteristics of 38 Patients with Invasive *Haemophilus influenzae* Disease

Age group, years	No. of patients	Isolation site	Serotype	Clinical presentation	Disease outcome	Underlying conditions ^a
<1	6	Blood 5/6; synovial fluid 1/6 ^b ; pleural 1/6	Hif 2/6; NTHi 2/6; not determined 2/6	Sepsis 3/6; pneumonia 1/6; septic arthritis 1/6; data not available 1/6	Infection cleared 4/6; long-term antibiotic therapy 1/6; death 1/6	Extreme prematurity 1/6; congenital heart defect 1/6; prenatal exposure to toxic substances (alcohol, tobacco, solvents) 4/6
1–4	10	Blood 10/10	Hia 8/10; Hie 1/10; NTHi 1/10	Sepsis 2/10; pneumonia 1/10; urinary tract infection 1/10; pharyngitis 1/10; data not available 5/10	Infection cleared 4/10; transferred to another hospital 1/10; data not available 5/10	Anemia 1/10; systemic lupus erythematosus in mother during pregnancy 1/10; none 3/10; data not available 5/10
5–9	3	Blood 2/3; retro-orbital cavity 1/3	Hia 2/3; not determined 1/3	Tonsillitis 1/3; periocular cellulitis 1/3; data not available 1/3	Infection cleared 2/3; data not available 1/3	Anemia 1/3; none 1/3; data not available 1/3
10–24	1	Blood 1/1	NTHi 1/1	Data not available 1/1	Data not available 1/1	Data not available 1/1
25–59	9	Blood 8/9; abdominal cavity 1/9	Hia 2/9; Hif 2/9; NTHi 2/9; not determined 3/9	Sepsis 2/9; pneumonia 2/9; epiglottitis 2/9; urinary tract infection 1/9; abdominal abscess 1/9; data not available 1/9	Infection cleared 6/9; death 2/9; data not available 1/9	Malignancy ^c 2/9; diabetes mellitus 2/9; cardiomyopathy 1/9; Crohn disease 1/9; alcoholism 1/9; none 3/9; data not available 1/9
≥60	9	Blood 8/9; pleural fluid 1/9	Hia 1/9; Hif 4/9; NTHi 3/9; not determined 1/9	Sepsis 1/9; meningitis 1/9; pneumonia 3/9; empyema 1/9; epiglottitis 1/9; data not available 2/9	Infection cleared 5/9; transferred to another hospital 1/9; data not available 3/9	Malignancy ^c 3/9; tuberculosis 1/9; COPD 2/9; chronic renal failure 1/9; none 2/9; data not available 2/9

NOTE. COPD, chronic obstructive pulmonary disease.

^a Patients with multiple underlying conditions are listed more than once.

^b *Haemophilus influenzae* was isolated from both blood and synovial fluid.

^c Cases of malignancy included lymphoma, 1; breast cancer, 1; lung cancer, 1; and multiple myeloma, 2.

disease. An allelic polymorphism in the *V_κA2* gene that encodes the predominant antibody to Hib capsular polysaccharide was detected in Navajos [21]. It remains to be determined whether specific genetic factors in indigenous populations may account for insufficient immune defense against non-type b *H. influenzae* disease.

Although no cases of Hib disease were detected in our study, we cannot completely rule out the presence of Hib disease in Northwestern Ontario. Because only 31 (81.5%) of the 38 isolates were serotyped, it is possible that some cases of Hib disease were missed.

Our findings indicate that invasive *H. influenzae* disease in the post-Hib vaccine era affects young children (16 [42%] of 38 patients were <5 years of age), with sepsis and pneumonia being the major clinical presentations. Among adult cases, there was a large prevalence of underlying conditions that could predispose to invasive *H. influenzae* disease by compromising the immune system, such as malignancies, diabetes mellitus, or chronic renal failure.

Despite the widespread use of the Hib conjugate vaccine, invasive *H. influenzae* disease remains an important concern. Aboriginal children and adults with underlying conditions that affect the immune defense may have an increased susceptibility to this infection. Our findings point to the changing epidemiology of invasive *H. influenzae* disease and emphasize the importance of disease surveillance for all serotypes of this pathogen and continued vigilance against invasive *H. influenzae* disease in the post-Hib vaccine era.

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