FINAL REPORT

Regional Perinatal Review: Kootenay Boundary Health Service Area

Boundary Hospital
Trail Regional Hospital
Arrow Lakes District Hospital
Kootenay Lake District Hospital

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I. INTRODUCTION AND PROCESS

> *"Regionalisation of maternal and newborn care brings together a comprehensive organisation of services to provide optimal care for women, babies and families. Central to the concept of regionalisation is risk assessment, combined with referral to risk-appropriate services. The regional system is defined by geography, environment and the culture of the region, as well as by it's political, financial and legal circumstances…….Given the differences in geography and population densities, and in the distribution of providers and their services, regions can vary in size and capacity. Moreover, regions defined for maternal/newborn care may include several (sub) "regions" organised for other purposes."*
>
> The National Guidelines for Family-Centered Maternity and Newborn Care, Health Canada. 2000, (page 2.6).

The British Columbia Reproductive Care Program was invited to visit the Kootenay Boundary Health Service Area (KBHSA) to consult on issues surrounding the provision of Perinatal services and to prepare a report for the CEO and (Interior) Regional Health Authority. Requests were received from several sources, including the CEO's office (Murray Ramsden), the Mayor and Town Council of Nelson and the College of Midwives of British Columbia (Appendix A).

A contract was drawn up between the Interior Health Authority (IHA) and the BCRCP (Appendix B) and it was agreed that a series of site visits would be conducted at each of the facilities to determine both the site-specific and Health Service Area issues and concerns. Specifically, the IHA asked the review team to address the following issues:

- To assess the new organisation of Perinatal services within the entire KBHSA for the hospital sites listed in the proposal and evaluate whether or not the changes currently being implemented are consistent with the (BCRCP) Rural Consensus Report*

- To consider and comment on ambulance transport for newborns and women in difficult labor, within the scope of the review

- To determine whether the placement and location of obstetrical (and gynecological) services at Trail Regional Hospital and Kootenay Lake District Hospital meet the parameters within the (BCRCP) Consensus Report*

- To focus on Perinatal services, but with an understanding that many changes are currently occurring within Kootenay Boundary communities that fall outside the mandate of the IHA.

*Report on the Findings of a Consensus Conference on Obstetrical Services in Rural and Remote Communities. Published by the BCRCP, April 2000.

In preparation for this review of perinatal services, the BCRCP sent out a questionnaire four weeks prior to the site visit that was distributed to a cross-section of MD's, RN's, PHN's

and midwives at all four sites (Appendix C). This survey was completed anonymously (except where respondents chose to disclose their identity) and returned to the BCRCP for analysis (Chapter 11). These responses provided useful preliminary information about attitudes, practices and concerns of administration and staff in the hospitals' perinatal programs, as well as about relations with community care providers.

During the four-day area visit, which took place July 22nd to July 25th 2002, the BC Reproductive Care Program's consultants (Appendix B) toured each facility and met with a wide selection of individuals and groups. The purpose was to assess the *strengths* of the perinatal services being offered and to identify areas where some changes could be suggested to *facilitate* the provision of a safe and accessible care for mothers and infants. A full breakdown of all those persons who contributed to this process may be found in Appendix D. During the tours, time was spent observing care and conversing with the caregivers and consumers, cataloguing equipment and reviewing chart documentation for maternal and neonatal transports.

This report identifies the broad areas of concern that were repeatedly identified by the department heads, individual practitioners, RN groups and consumers interviewed by members of the review team. In addition, a more specific breakdown is addressed through separate analyses of the areas of Obstetrical practice, Neonatal/newborn care, Family Medicine, Nursing, Midwifery, Administration and committee structures and Community Health. Recommendations accompany each section with the exception of consumer feedback, where the recommendations are incorporated into the other areas of the report.

The conclusions at the end of the report consolidate the overall findings and consensus recommendations. The executive summary rounds out this regional perinatal review.

2. EXECUTIVE SUMMARY

> *"The regional maternal and newborn health care system is an open system of differing types and intensities of services, ranging from community-based care to acute hospital-based tertiary care. A variety of health professionals, support workers and parent groups provide services for the perinatal health care system."*
>
> National Guidelines for Family-Centered Maternity and Newborn Care. Health Canada. 2000, (page 2.7).

Care providers in the KBHSA are experiencing a turmoil common across BC, that of administrative reorganisation. This is difficult for all, since it brings about changes in local identity and a general unraveling of the *status quo.* It can be argued that many of the problems and anxieties expressed during this review are related to these changes and conditions. Care providers need to focus on the main issue at hand which is the provision of safe, effective, efficient perinatal health care within a regional framework (Appendix I).

There are many opportunities afforded to the KBHSA since the reorganisation of their health services earlier this year. However, there are also a few major limitations that must be addressed as the region moves forward to create its practical and desirable future. Each site within the KBHSA identified specific areas of concern; however there are significant similarities across the service area. For this summary document, the major issues are discussed from a Health Service Area perspective, as they are germane to all sites.

Planning for Safe Care

> *"Rural hospitals should, within a regionalized, integrated risk management system, offer maternity care to a low-risk population. The evidence suggests that a local, rural maternity service, even if limited in scope, offers better outcomes than no maternity service. ……In addition, C/S capability should be maintained where it exists and consideration given to adding this capability where appropriate and feasible within the context of a regional maternity care plan. The existence of local C/S capability can allow more women to receive appropriate care in or near their community and obviate some of the negative social effects of elective transfer."*
>
> BCRCP Report on the Findings of a Consensus Conference on Obstetrical Services in Rural or Remote Communities – April 2000.

The KBHSA contributes approximately 600 total deliveries of the province's 40,000 annual births. However it represents a significant percentage of the Province's territory. This land mass, along with its geographic remoteness, presents obvious hurdles to the provision of safe and accessible care. Road transport between sites is especially hazardous during the winter months and finding competent escort personnel is often a problem. Centralisation of all obstetric services therefore, is not desirable from these perspectives.

The present excellent obstetrics service provided at the Kootenay Lake District Hospital needs to be continued. The best "fit" for this model is to support a solo

obstetrician/gynecologist on an Alternate Payments Branch contract, with the back up of at least two family physicians with operative obstetrical skills. Without this, sustainability will be compromised and the Nelson/Kootenay Lake District will become an unsafe, high outflow community (Appendix Q).

In terms of human resources, it is entirely appropriate for a region with a population of approximately 85,000 to have three obstetrician/gynecologists – a ratio of .36/10,000 population (the BC average is approximately .30/10,000). The argument for providing a critical mass of three specialists at the Trail site could perhaps be offset by having the two (presently) Family Practitioners with cesarean section skills formally included in the on-call roster. At the same time, a mutually cooperative call rota for emergency gynecologic coverage could be worked out with the (new) obstetrician/gynecologist in Nelson. From a recruitment perspective, it is therefore necessary to consider coordination of all three obstetrician/gynecologists as a pre-requisite for hiring purposes.

If Trail hospital is to continue to function as the service area referral centre, the obstetrician/gynecologists in that community must make a greater effort to provide a truly regional service. This would include provision of outreach specialty clinics on at least a once-per-week basis and demonstrated leadership in providing education and opportunities for skills upgrading for family physicians and midwives attempting to maintain an obstetric practice. Increased communication and co-ordination of specialist services between Nelson and Trail must occur to allow the safest and most efficient coverage of both obstetric and gynecologic care for the Health Service Area (HSA).

The present ambulance service functions reasonably well but requires some upgrades, including the provision of more transport incubators for the Nelson –Trail – Castlegar corridor. Due to the emergent nature of many maternal/newborn transfers, more highly trained personnel are desirable. However it is unlikely that a significant increase in the present ambulance capacity would be able to meet the safety requirements that are an integral part of a centralisation process for obstetric care.

At the local level, community health services seem to be well integrated. Unfortunately, at the service area level, there seems to be a lack of acknowledgement that community services are part of the perinatal health care system. The community perinatal services currently provided in Nelson should be maintained or even expanded/duplicated in other areas of the HSA. Where community health practitioners exist, they should be utilized so that services are provided locally and so that their skill set remains intact.

Perinatal Programs Overview

It is clear that the HSA administration and some of the clinical leaders have embraced the regional concept. This is in marked contrast to many caregivers at the individual sites who are frustrated in their efforts to provide quality care at the local level with little or no input into the planning process. This contrast is epitomised in the Kootenay Lake District Hospital. What is also apparent is the understandable frustration on the part of the KBHSA leaders with the reluctance of site based physicians to "get on board". Much time and effort has been spent developing a service area administrative framework. This

initiative is threatened by the present almost dysfunctional status between Nelson and Trail. Regionalization formalises the existing collaboration and interdependence and has the potential to provide efficiencies. Nevertheless, for many it is a concept that is still viewed with suspicion, as not contributory to the provision of care. More time will need to be spent to enable caregivers at every site to appreciate the advantages for women and babies of a regional concept. This will continue to be a major challenge.

Specific initiatives that would support regionalisation are:

The HSA needs a multidisciplinary perinatal committee, representing all four sites, which is responsible for service area issues including resource allocation. This is in addition to each sites own multidisciplinary perinatal committee

- A Health Service Area MAC initiative is required with equal representation from the different sites and proportional voting authority. If this is not done, there will continue to be fragmented services and lack of effective communication.

- Service area integration of midwifery services, potentially in the form of an effective group practice of an increased number of midwives, would provide more women in the HSA with the option of midwifery.

- There is a need to develop uniform guidelines, standards and policies that, when possible, can be used throughout the HSA. This must include detailed emergency management and transport protocols. This would assist all maternal/newborn practitioners in being more confident in working at any site

Facilitating these options may also improve communication between sites. Major communication concerns exist between physicians at Nelson and Trail; however communication appears to be a strength at the individual sites where all team players report good relationships and mechanisms exist for effective problem-solving. Standardized methods of information transfer and reporting should be adopted to facilitate communication within the HSA (Appendix I).

Incremental change takes time and energy to effect; implementation of these (and other) recommendations will require a sustained effort on behalf of all stakeholders.

Human Resources

There is an overall attrition of primary care givers in the province of BC (Appendix H). This is exemplified in the KBHSA by increased demands for service, coupled with limited or reduced manpower resources. This same issue is faced by all maternity care providers in the smaller communities of this province, leading to further urbanisation of specialist practice and difficulty in recruiting solo specialists in more remote areas.

Nursing staffing levels were consistently identified as a major concern by all the disciplines surveyed and interviewed, especially in Nelson and Trail. Intermittent nursing staffing problems can lead to “diversion” of patients, and where lack of full time, on-site, obstetric

back-up occurs, variable and unpredictable levels of intervention are offered to women who wish to deliver in their home community. Facilities may wish to consider the feasibility of developing a service area casual pool in which nurses are assigned to the facility in which they are needed on a daily basis. The pool may also contain a specified number of full-time lines which would attract nurses, offset overtime and/or diversion cost and meet changing priorities in a flexible manner. Formally structuring service in this manner may provide needed support for the Kootenay Lakes District Hospital.

Consideration should be given to the recruitment of both family physicians with obstetric skills and midwives; HSA inventory and planning of this resource is needed.

Clinical Competency and Continuing Education

The ability to obtain and retain qualified maternity staff is a critical provincial concern. The KBHSA is fortunate to have many well-qualified and enthusiastic practitioners who maintain and upgrade their skills on a regular basis. However there are some local differences with respect to family physicians willing and able to provide cesarean section services.

The regular development and updating of maternal/newborn skills and procedures is critical to optimal clinical practice. With the exception of the *Nursing Competency Collaborative Practice Program* (which is a regional program of post-graduate obstetrical nursing education, offered in the Kootenays in 1999), continuing professional education is provided on a local rather than a service area basis; it would be enhanced through wider participation. Regional CME might draw larger numbers of family physicians and therefore would provide an opportunity to attract a broader range of speakers and learning opportunities. Consideration should be given to having an HSA standard of (multidisciplinary) education for providers. A mechanism should be developed within the service area which would allow timely notification of shared educational events.

Castlegar and District Hospital

This hospital recently downgraded to a Diagnostic and Treatment Centre, effectively shutting down its obstetrical facilities. Approximately 40 of the 60 deliveries per year at the Castlegar Hospital appear to have been repatriated to the Trail Hospital and the remaining one-third are referred to physicians servicing the Nelson community.

The facility at the Castlegar site is relatively new and actually represented the best of the facilities that the review team had the opportunity to visit. It was a distinct disappointment for all members of the review team to see these attractive facilities closed. However, it is clear that the present facilities at Castlegar Hospital would not have been able to accommodate the present obstetrical case load of both Trail Regional and Kootenay Lake District Hospitals without significant renovations and improvements. Although there is substantial support for the IHA plan to locate a new Service Area Hospital (to replace the current Trail, Nelson and Castlegar acute care sites) in Castlegar, this remains a long-term solution. Not only will it require the construction of a brand new hospital, it will also

necessitate the uprooting of a significant number of physicians and nursing staff. Given that none of the 3 family physicians practicing obstetrics in Castlegar prior to the closure have chosen to relocate their practice (a similar situation exists for nursing), this latter possibility becomes a daunting prospect.

Although centralisation of HSA obstetric services in Castlegar would appear to settle some of the rivalry issues between Nelson and Trail, it would still compromise service to the communities north of Nelson in the Slocan Valley and Kootenay Lakes (Kaslo) areas. Winter driving conditions remain problematic. There also remains the difficult issue of fusing (medical) cultures and resolving philosophical differences in care practices.

Conclusion

There are numerous issues identified at each site, some of which have been discussed in this narrative. None should detract from the fact that health care providers at every site should be congratulated. They are working under enormous pressures in difficult surroundings in an ever-changing environment, endeavoring to deliver quality maternal/new-born care.

3. POPULATION DEMOGRAPHICS IN THE KBHSA

Fundamental to the delivery of patient care is an understanding of the specific population demographics and health status indicators, including the pattern of births in the region and the resource implications for each facility. The IHA provided these data to the review team in the form of the "Health Service Redesign and Budget Management Plan" (submitted to the Ministries of Health Services and Health Planning in April 2002) and the "Acute Care Centres: Initial Review of Roles" (ibid). They will therefore not be repeated in this report, other than as they serve to illustrate a component of perinatal service delivery.

The following table from the Ministry of Health Services Health Data Warehouse provides the current population and expected population growth for the major centres of the KBHSA (it should be noted the Statscan data for the 2001 census show a net decline in population in all four LHA's when compared to the 1996 data).

Table 1: Population by (major) Local Health Area (LHA)

Local Health Area (LHA)	LHA population 2002	LHA population 2005	% growth
Grand Forks	9,287	9,608	3.5
Trail	20,877	21,142	1.3
Castlegar	14,020	14,309	2.1
Nelson	25,809	26,819	3.9

Source: PEOPLE 26 and the IHA "Acute Care Centres Review of Roles" Part 1, April 2002

The pattern of births in the Health Service Area has resource implications for each facility. The following tables from the Department of Vital Statistics provide data on some of the major categories of the perinatal service by facility; these will inform the discussion which follows and provide support for some of the facility-specific recommendations.

Total KBHSA births for the 2000/2001year (the last year for which complete data are available) are as follows:

Table 2: Total Births

Hospital	Total hospital births	% of KBSA total
Nelson	226	38.5%
Castlegar	63	11%
Arrow Lakes	3	0.5%
Trail	212	36%
Grand Forks	45	8%

There were a total of 38 home births in the KBHSA over the same time period, representing 6.2% of the total births.

Of relevance to these data is the referral out of significant numbers of patients to the Okanagan (from Grand Forks) and to Vernon or Kelowna (from Nakusp).

KBHSA Referral Patterns for Acute Obstetrical and Neonatal Services

Residents of the KBHSA have received high quality obstetric and pediatric services and have been able to access a high percentage of these within the region. Table 3 provides information about the proportion of acute care patients (including maternity) who live in and are treated in the local health area where their hospital is located.

Table 3: Utilisation Data for Specialist Services and Referrals, 2000/01.

Acute Care Facility Name	Distribution of cases -- GP	Distribution of cases – Spec.	% of referrals from LHA	% of referrals from HSA
Nelson	62%	38%	74%	95%
Castlegar	78%	22%	88%	96%
Arrow Lakes	100%	0%	92%	94%
Trail	40%	60%	58%	90%
Grand Forks	95%	5%	79%	95%

Source: Ministries of Health Planning and Health Services, Purrfect 7.0

The goal of achieving appropriate and timely access to health services depends not only on the availability of the service, but also on the client's ability to get to the service. Not surprisingly, in a service area where a relatively small population is spread out over a large geographic area, transportation represents an important component of a safe and accessible obstetric service. In the KBHSA, rugged terrain is complicated by inclement weather for a large proportion of the winter months.

Table 4: One-way Road Distances in Kilometers

	Nelson	Castlegar	Trail	Grand Forks	Nakusp
Nelson	---	41	72	135	109
Castlegar	41	---	27	96	150
Trail	72	27	---	108	170
Grand Forks	135	96	108	---	240
Nakusp	109	150	170	240	---

Source: IHA "Acute Care Centres Review of Roles" Part 1, Profiles & Background Information, April 2002

While the distances between the various communities are relatively short (for rural BC) there are a number of mountain passes to be negotiated *en route* from one community to another, excluding the Nelson-Castlegar-Trail corridor. All the groups we spoke with, identified the current lack of readily available and reliable transportation as an impediment to the provision of timely, high quality maternal/newborn care at a single site. Specific issues include:

- Limited availability of emergency air transportation due to restricted (daylight only) capacity of the Castlegar airport, complicated by weather-related closures
- Difficulties with land ambulance transportation due to dangerous driving conditions.

- Lack of convenient and reliable public transportation between communities for prenatal appointments, well-baby visits or community follow-up

Access to obstetrical services is not only about distance and transportation but also concerns the type of service available, the choice of service provider (including midwives) and options for both hospital and community care. Overall, recruitment of both generalist and specialist physicians is critical to the continued provision of quality maternity care in the KBHSA. Current concerns relate mainly to the potential recruitment of specialists to replace retiring practitioners and in some cases, to meet current/estimated service demands.

Increasing Demands on Resources

The next five years are expected to bring the same pressures that the region has experienced in the past decade. Not only is the population continuing to grow (projected 2.8% growth in three years), but traditional hospital referral patterns will continue to change as the Vancouver/ Okanagan Health Regions become increasingly unable to accept patients from outside their region who require secondary level care.

All of the perinatal health programs are affected by the changing population-demographics; programs are also affected by changing demands of consumers, as they become more sophisticated in their knowledge and expectations of health care. Additionally, perinatal programs are very much impacted by changes in perinatal care provider practice patterns and ability to recruit appropriate personnel. Collectively, these are all expected to have a significant impact on the health resources in the KBHSA.

4. OBSTETRICS & GYNECOLOGY: REVIEW OF SERVICES

Preamble

The perinatal care providers in the Kootenay Boundary Health Service Area are wrestling with the issues faced by all maternity care providers in the province and indeed in the country, namely, increased expectations, limited or reduced provider resources, medico-legal anxieties and concerns about maintenance of competence. This is particularly hard for physicians who have seen erosion of the traditional structures such as Medical Advisory Committees and a visible shift in decision making away from the medical staff. It can be argued that many of the problems and anxieties expressed at the facilities in the Kootenay Boundary Health Service Area are related to these changes and conditions.

Grand Forks

Boundary Hospital in Grand Forks is a small but well-integrated Level 1 facility, which handled 45 deliveries in 2000-01. Cesarean section capability is maintained by one of the family physicians, who has undertaken extended obstetrical training, including skills in both elective and emergency cesarean section. He maintains and improves his skill level by assisting in the Trail OR several times a month. One of the Family Practice anesthetists is able to provide an epidural service for both laboring patients and for operative deliveries. All the medical staff involved in providing obstetrical care at the Boundary Hospital is enthusiastic and committed to providing this service for patients on the western boundary of the KBHSA. Their overall obstetrical complication rate is low. If not enough medical manpower exists to provide safety in obstetrical care (i.e. the physicians critical to providing operative capability are away) prompt decisions are made to transfer the patient to Trail Regional Hospital, or to Kelowna.

There is a functioning Perinatal Care Committee with links to public health resources in the community. Most "difficulties" regarding care delivery are handled informally, however, given the small cadre of physicians and nurses working together.

The main concerns for this small, but efficient, obstetric unit centre around the safety of patient transfer during the winter months. The geography is such that an ambulance must traverse two mountain passes en route to Trail and patients often go to Kelowna by choice. The Boundary Hospital physicians expressed a belief that centralisation of Ob/Gyn services at Trail (with three practitioners) would assure them of 24/7 specialty consultation services.

In summary, Boundary Hospital functions as an excellent example of a small, rural obstetrical facility with operative backup from family physicians with advanced training in obstetrics. The staff is well coordinated and dedicated to the continuation of their obstetrical service.

Recommendations

Maintain current service delivery.

Trail

Trail Regional Hospital is the designated Service Area hospital for regional referrals from the West Kootenays. Given the temporary hiatus in obstetric and pediatric coverage in Cranbrook, they also have been sharing some of the specialty referral services required for the East Kootenays. The labor/delivery/postpartum facilities at Trail are operating close to capacity. It would be difficult for them to cope with a significantly increased number of obstetrical cases per year.

There are presently 2 obstetrician/gynecologists on staff; they estimate their workload as approximately 80% gynecology and 20% obstetrics. Other core specialty services are centralised in Trail, including general surgery, urology and internal medicine. There is a fully equipped Intensive Care Unit. One pediatrician provides fairly extensive coverage, backed up by two family physicians and the pediatrician in Nelson. Recent reductions in the numbers of family physicians providing primary obstetric care, as well as the closure of the Castlegar and District Hospital, have led to the formation of a primary care obstetric clinic. This is staffed by 5 general practitioners on a rotating 24/7 basis; facilities are provided by the hospital at no cost. Although the clinic has only been operative for a few months, comments from hospital staff were positive around the care provided by this dedicated group of family practitioners. Two of the group have extended obstetrical skills (with cesarean section capability) but appear to be providing back-up services only and have not been integrated into an on-call rota with the obstetrician/gynecologists.

There is a Perinatal Care Committee as well as a Community Perinatal Coordinating Committee. The efficiency of the Community Perinatal Coordinating Committee (which reports to the Perinatal Care Committee) is hampered by irregular attendance by the sole family physician representative.

The main concern for the obstetrician/gynecologists relates to the necessity of providing 24/7 coverage with only two practitioners. They believe that the addition of a third specialist would achieve a more satisfactory on-call schedule. This scenario sees Trail acting as the Health Service Area centre for all major and emergent gynecology procedures as well as the provision of elective cesarean section and high risk obstetrical coverage. Despite the recent facility upgrades,a number of concerns were expressed by other communities regarding the plan to centralise specialist coverage at the Trail Regional Hospital. These include:

- The specialist obstetrician/gynecologists at the Trail site have not fostered or facilitated a service area plan for care. Attempts to provide outreach in the form of specialist clinics and/or education to outlying communities have not occurred. In fact communication between the two obstetrician/gynecologists in Trail and the solo practitioner in Nelson, has broken down to the point that neither will speak to the other. This is not a good foundation on which to build a service area referral service.

- Repeated concerns were raised about the difficulty of obtaining urgent or emergency consultations through the Trail switchboard. There was also some concern about reaching specialist support with a reliable frequency. This may in part reflect the lack of

critical mass in terms of obstetrician/gynecologists and/or the fact that one of them is presently on an extended maternity leave-of-absence. It should be acknowledged that improvements to the system are well underway.

- Prompt resolution of non-emergency obstetric and gynecology referrals appears to be problematic. For example, a backlog of 2-3 months was reported, to get an office appointment, versus a significantly more efficient consultation process provided by the (solo) obstetrician/gynecologist in Nelson.

- The provision of obstetric and gynecology services at the Trail Hospital is adequate at present but would probably be improved by the addition of a third specialist to provide critical mass. Present workload data would suggest that this is unlikely unless *all* of Nelson's obstetric and gynecology programs were transferred to Trail (note: this has not been proposed by the IHA). It is questionable whether the facilities could handle this expansion, in which case costly upgrades will be required.

Recommendations

1. A viable alternative to the critical mass argument favoring a third practitioner is to integrate the 2 family physicians with advanced skills into an on-call roster. Additionally, administration should investigate ways of incorporating the three general surgeons into the coverage for obstetric and gynecology.

2. Consideration should be given to providing Health Service Area emergency gynecology coverage in association with the obstetrician/gynecologist in Nelson.

3. Opportunities for outreach in the form of specialist clinics and/or education to outlying communities should be developed and communications between centres improved.

4. The committee structure(s) could operate more efficiently by integrating the Perinatal Care Committee with the Community Perinatal Coordinating Committee and combining their functions into one.

Kootenay Lake District Hospital

Kootenay Lake District Hospital in Nelson services not only the local area (including Salmo, Kaslo and the village of Slocan) but also Arrow Lakes and the Upper Slocan Valley, including Nakusp, New Denver and Silverton. This gives it the largest catchment of any of the area hospitals and represents about 42% of the KBHSA total population. The flavor of the entire physician team, the midwives and nurses, the community-support services and even the consumers, is of a dedicated team with a passion for maternal and newborn care that is extraordinary in British Columbia.

Obstetric care is provided by 6 family physicians, 2 registered midwives and 1 obstetrician/gynecologist, who performs a consultative role as well as providing primary care for about 29% of the deliveries. Family physicians provide 58% of the total care with midwives accounting for the remaining 13 %. One practitioner provides the bulk of the care

for the FP group; although this individual possesses significant advanced skills, he is currently unwilling to provide cesarean section back up for the lone obstetrician due to safety concerns. Another family practitioner who performs outpatient D&C's for both spontaneous and therapeutic abortions, offered that he would not feel comfortable doing this without the immediate back-up of a skilled obstetrician/gynecologist.

Each of the family physicians and two midwives stated that the continuation of their practice would cease or be radically altered by the lack of obstetrician/gynecologist backup within the community. This would convert the community of Nelson into a "high outflow" community (Appendix Q), magnifying safety concerns and compounding transport issues. There appears to be a strong likelihood that home births by unregistered (and unsafe) midwives would increase (Appendix A, letter from the College of Midwives of BC). The lone obstetrician/gynecologist in the Nelson area has provided an excellent standard of care over many years, with 24/7 coverage for that community. However, vesting capacity in one individual 24/7 is not sustainable. The present incumbent is close to retirement, leaving the maternity care providers in a very vulnerable position, especially given the reluctance of the family physicians to undergo additional training to provide cesarean section back up This situation has the potential to further the creation of a high outflow community, eventually requiring the transfer of all obstetric patients out of the community (Appendix Q). This is the least desirable of all scenarios, from a safety perspective.

It would appear therefore, for reasons of volume of births, plus the geographic configuration of the Kootenay Valley, that a dedicated obstetrician/gynecologist is warranted in Nelson. The sustainability of 24/7 coverage, however, will require at least two (and preferably three) other physicians in the community with cesarean section and operative delivery skills to provide a critical mass. It would be ideal and appropriate for the family physicians to undertake this skills upgrade while the present obstetrician/gynecologist is still in practice and willing to mentor them.

Recruitment for a replacement obstetrician/gynecologist face several hurdles:

- The two obstetrician/gynecologists at Trail do not have a good working relationship with the solo practitioner in Nelson. Trail is actively recruiting a third obstetrician/gynecologist to assist with its own sustainability issues.

- With the recent reduction in surgical services at the Nelson Hospital, any obstetrician/gynecologist recruited will only be able to perform minor gynecology procedures at that site. Major surgery will have to be performed at the Trail site; this complicates the provision of 24/7 coverage for post-operative gynecologic patients.

- Without the ability to perform gynecologic surgery on site, fee-for service remuneration would not be sufficient compensation, even with the provision of a significant amount of primary care obstetrics.

Recommendations

1. It is imperative that obstetric services, including both elective and emergency cesarean section, continue to be offered in the Nelson community, due to the geographic remoteness of the Upper Kootenay Valley and the difficulties imposed by road transfer to Trail during the winter months.

2. The provision of such services will require the recruitment of an obstetrician/gynecologist. An Alternate Payments Branch contract had previously been approved for Nelson and should be renegotiated and offered as a recruitment incentive.

3. The obstetrician/gynecologist should continue to lend support to the fully integrated, midwifery care service model currently provided, which relies on specialist back up for both consultation and clinical intervention.

4. Increased communication and coordination of specialist services between Nelson and Trail must occur, to allow the optimum coverage of obstetric and gynecologic care for the KBHSA.

5. NEONATAL / NEWBORN CARE: REVIEW OF SERVICES

Preamble

There are 2 pediatricians in the Kootenay Boundary Service Area (KBHSA), for a ratio of 2.4 per 10,000 population. This is 50% below the BC average. However the pediatricians in the KBHSA, especially the pediatrician in Trail, do not believe that there is enough work for a third pediatrician at this time. Both pediatricians are young, energetic, well trained and well respected by their colleagues and communities. There is a UBC pediatric resident rotating through Trail Regional Hospital most months of the year.

Neonatal and pediatric specialty services in the KBHSA are available in both Nelson and Trail, with one pediatrician based in each of these communities. Grand Forks has Family Practitioner-based neonatal and pediatric services. The other communities in the area have Family Practitioner-based pediatric services, and some of these (eg. Castlegar) have pediatrician-based outreach clinics. Pediatricians are also involved in HSA-wide phone consultations to Family Practitioners, and receive patients from outside their communities. Overall, the working relationship between the pediatricians is very good. In addition, the working relationship of both pediatricians with the general practitioners, other health professionals and the public in both communities is very good.

There is a limited need for pediatric cross-coverage between the Trail and Nelson areas, but this is well provided by the two pediatricians when one of them is away. There are a small number of newborns and pediatric patients that are transferred in either direction between Trail and Nelson when the local pediatrician is away or if nursing resources are unavailable.

The weather and airport limitations of the region occasionally require that level III care beyond initial stabilization be provided in either community. In those cases, the infant transport team may have to land in the Okanagan and travel by road over two mountain passes. Both pediatricians indicated that level III neonatal and pediatric consultation with Children's and Women's Hospital in Vancouver meets the needs of the HSA well and so does the way in which neonatal level III transport to the three provincial level III neonatal centers is managed. There are concerns that level III beds in the province are always tight, requiring occasional out of province transports.

Grand Forks

There is a high level of self-sufficiency in this community. Rooming in of babies is extensively used. Almost all referrals out of Grand Forks are prior to labor and birth, based on maternal risk; of these approximately 50% or more choose to go to the Okanagan (Kelowna) and the rest to Trail. There appears to be more or less equal preference for either site, based on road conditions in the winter, and in which part of the Kettle Valley the patient is resident. There were only 3 maternal transfers and no neonatal transfers in 2001.

Newborn resuscitation facilities and training meet standards. There is one incubator and one transport incubator, but these are rarely used.

Trail

Trail's nursery is designated as level I (Appendix G), but geographic isolation requires that staff have and maintain level II and some level III skills. Babies are admitted that require transitional care, or level III cardio-respiratory stabilization including ventilation until they can be referred out. It also provides step down beds for level III convalescent babies coming back "closer to home".

There are 4 designated pediatric beds, but elasticity up to 6 beds. The nursery has 3 beds, 2 new incubators, and one new modular Hewlett Packard neonatal monitor. There is one neonatal ventilator in good working order, which is used for stabilization of level III babies prior until the arrival of the infant transport team from Vancouver. Equipment that needs to be put on a replacement schedule includes at least 1-2 level II incubators, 1-2 oximeters, and 2-3 micro-infusion intravenous pumps. There is no transport incubator in the Trail-Nelson corridor, and the occasional level I+ and II transfers to Nelson have been in mother's arms – which is unsafe practice.

The pediatrician in Trail has worked very hard to provide CME to the staff, and has developed a relationship with the UBC Pediatric Residency Program which has resulted in specialty residents rotating through Trail most months of the year. The rotation is very well received amongst the residents, who feel there are good learning opportunities and good teaching. A pediatric clinic is held monthly in Creston by the Trail pediatrician. Provision of early newborn follow up clinics in Castlegar has not yet been addressed.

The greatest challenge, when higher levels of care are needed and at peak times, is with the ability to staff the nursery, both in numbers and level of comfort (of the nurses) in their clinical competence. Consolidation of services in Trail would marginally increase the opportunities for exposure by staff to advanced neonatal stabilization prior to transport but would not meet those competency needs, due to the small population base of the KBHSA. The BCIT post-basic neonatal nursing education course is costly above and beyond the price paid for the course, as it requires practicums in the larger centers where the population base allows for adequate exposure of the trainees. There is some but not enough funding support for staff to take this course.

Nelson

Nelson's nursery is designated as level I, but like Trail, geographic isolation requires that staff has and maintain level II and some level III skills. It too admits babies that require transitional care, or level III cardio-respiratory stabilization including ventilation until they can be referred out. It also provides step down beds for level III convalescent babies coming back "closer to home".

There are 2 designated pediatric beds, but elasticity up to 4 beds. The nursery is small and has 2 beds, 2 incubators, 2 warmers, 2 cardio-respiratory monitors and 2 oximeters (1 new). There is one older-model neonatal ventilator in good working order, which is used for stabilization of level III babies prior until the arrival of the infant transport team from Vancouver. There is no transport incubator in Nelson.

Equipment that needs to be put on a replacement schedule includes at least 1-2 level II incubators, 1-2 oximeters, and 1-2 micro-infusion intravenous pumps.

The pediatrician feels well supported by 3 GPs, skilled in resuscitation and stabilization. She is firmly integrated into this community and has very strong working relationships with the GPs, midwives, nurses and other health professionals in the Nelson area. She provides a pediatric outreach clinic monthly at Arrow Lakes.

The nursing staff feels comfortable in handling level II and the occasional pre-transport level III baby. The greatest challenge, when higher levels of care are needed and at peak times, is the ability to adequately staff the nursery. Consolidation of services for level II babies in Trail would help to relieve staffing pressures, but at the expense of more and potentially hazardous transfers across the region.

Nakusp / New Denver

The population of the valley is dispersed and diverse; some of the highest risk populations live at its extreme end. The Arrow Lakes hospital is located at 2 hours of Nelson, 2 ½ hours of Trail, and 3+ hours of Vernon. Most births are referred out. Patients prefer to go primarily to Nelson and secondarily to Vernon. They like Nelson's integrated rural-obstetrics approach. However, patients that have been seen by the Trail pediatrician have been very satisfied and GPs report satisfaction with the medical communications received from the Trail pediatrician.

Regional Recommendations

1. A two-centre model of neonatal specialty care in Trail and Nelson is preferred over a one-centre model in Trail (or Nelson) -- the benefits of centralizing neonatal services in Trail do not appear to exceed the risks of doing so at this time. The population is too small for the development of a true level II neonatal center, even if all services were centralized in Trail.

2. Based on their population and availability of expert pediatric care on site, both Trail and Nelson should keep the neonatal ventilators they own. Consideration should be given to purchasing a new(er) model for the Nelson site.

3. The Castlegar site has some nursery equipment that could be used either in Trail or Nelson. Amongst this is a transport incubator, which is apparently in good working condition and could be used for transports in the Trail – Castlegar -- Nelson corridor (and beyond), with a "home station" in Nelson. This will stop the unsafe practice of transferring babies from site to site in their mothers' arms.

4. There appear to be some inefficiencies in the way postnatal care for Castlegar and Trail (mothers and) babies is provided in the first month which could be addressed by better coordination between the public health nurses, especially in Castlegar, and the Trail primary obstetric clinic and pediatrician.

5. Appropriate policies and systems need to be developed in collaboration with the BC Ambulance Service to support the safe transfer of infants from one facility to another within KBHSA.

6. In view of the geographic isolation of the KBHSA, the service area should develop a procurement process that would allow sharing of costs and utilization:
    a. for products with little utilization but of critical need such as a bovine surfactant product (eg. bLES, to replace the use of Exosurf), and prostaglandin E1.
    b. for equipment requiring replacement including 1 level II incubator, 1 oximeter and 1-2 micro-infusion intravenous pumps for Nelson and 1 level II incubator, 1 oximeter, and 1-2 micro-infusion intravenous pumps for Trail.

6. FAMILY MEDICINE: REVIEW OF SERVICES

Grand Forks

This community of 9300 (serving also the Kettle Valley District of 4000) has a 24 bed hospital with 5 family physicians (1 part-time Midway/Rock Creek, 1 in Greenwood) in attendance. Of these, 3 do the majority of the obstetrics. One practitioner has obtained advanced cesarean section surgical skills at Royal Columbian Hospital in New Westminster and another has recently acquired epidural anaesthetic skills. Last year they did 8 cesarean sections out of the 45 deliveries in the hospital.

Because of distance, Trail is the natural referral centre; however, by consumer choice, an estimated 50% of referrals go to Kelowna. Boundary Hospital has no visiting clinics from Trail; Dr. Merry works with the Trail OB's once a month to maintain his surgical skills. The relationship of the Family Practitioners to the community seems good but 40% of the expectant mothers elect to deliver elsewhere or are transferred out. Last year thirty-seven mothers delivered elsewhere: Kelowna (16), Trail (15), Castlegar (5) and Nelson (1).

With a small medical staff, committees are combined. The medical staff, as a committee of the whole, reviews morbidity/mortality and transfers. Chart review of transfers showed suitable criteria and good judgement.

The volume of work, the skill of the practitioners, and the hospital facilities form a safe and comfortable situation for maternity care. The obstetric outcomes are comparable to some of the best rural sites in the province.

Castlegar

This community of 14,000 has 13 family physicians, six of whom were doing the bulk of the obstetrical care and who are now in transition because the hospital has recently closed. Although they miss this part of their practice, they are valuing less interrupted schedules and it is unlikely they will ever return to doing full maternity care. None are doing deliveries in Trail, their closest hospital. Last year the hospital did 65 deliveries which will now be dispersed to the neighbouring hospitals of Nelson, 41 km to the east, and Trail, 27 km to the south.

Sixty percent of the patients are attending Trail either through the Family Practice Clinic for primary care or through the obstetricians in complicated cases. The Castlegar physicians have concerns as they do not feel they always have enough communication about the delivery. They also feel they can give excellent postpartum care to the mother and baby in co-operation with the public health nurses and that return visits to Trail to the Family Practice Clinic or the pediatrician are usually unnecessary. For antepartum problems, they find the obstetricians are not always easy to contact and expressed a desire for specialist consultation clinics in Castlegar. They are concerned that in the past a solo practitioner in Trail would see their referrals promptly, but they now face a 3-month waiting list for gynecology consultations.

Forty percent of the Castlegar maternity patients are going to Nelson for delivery of their babies. The prompt response of the Nelson obstetrician for consultation is valued by the Family Practitioners and the patients appreciate a designated physician for their prenatal and intrapartum care.

Trail

Trail has a 75-bed hospital serving a local population of 21,000. Trail is suitable for a Health Service Area hospital designation because it has good complement of specialists available for complicated cases and the principles of service quality, sustainability and cost effectiveness are met (Appendix F).

The town has 26 Family Physicians, with another 12 in the neighbouring communities of Rossland, Fruitvale and Riondel. Of these, only 5 now provide obstetric care and together they do about 40% of the deliveries. These 5 have organized themselves into a maternity service to provide primary care for expectant mothers. The hospital provides space and the physicians provide staffing for their clinic. Prenatal visits and intrapartum care are provided on rotation. Regular funding for call has been provided recently but this is unlikely to continue given the competition for call funds among all physicians in the region. If this funding cut occurs, even this small group may cease maternity care.

Two of the five Family Practitioners are trained to provide cesarean sections and are now doing about 6 each annually. This is a comfortable arrangement for them as they have back up from the 2 general surgeons and 2 obstetricians. They maintain competence by doing several of their elective cases under supervision of the obstetricians.

It seems that all the maternity health care providers in Trail have a reasonable working relationship. Chart review showed good management of cases transferred in or out; obstetrical outcomes can be reviewed in the Vital Statistics tables in Appendix T.

Nelson

Nelson has a 30-bed hospital providing general hospital services for a local population of 29,000. It is the largest town in the KBHSA, serving a large surrounding area both in geographical distance and in population (3900 in the Kaslo and Kooteney Lake region and 5400 in the Arrow Lakes/Slocan Valleys). Kooteney Lakes Hospital does marginally more deliveries annually than Trail. The obstetric outcomes are excellent and the principles of accessibility and acceptability are maintained (Appendix E).

The community has 30 Family Physicians; of these about 6 maintain obstetric practices, delivering 59% of the babies. The practitioner with the largest number of deliveries has had an additional 6 months in Calgary, doing specialized obstetric training including cesarean sections. From his experience, he feels family physician cesareans are not as safe as those provided by obstetricians and is not willing to provide them. No other family physicians in Nelson have the necessary surgical training to provide this service. Without on-site obstetric consultation support, the current family physicians are uncomfortable to continue deliveries in Nelson. They are caught in the unpleasant bind of wanting to continue to look after

pregnant women in their community but not wanting to give them less than the high standard of care they have been able to give in the past. They are also unwilling to drive to Trail to provide care, especially in the winter months.

The existing maternity services in Nelson are well coordinated with good relationships between the family physicians, the obstetrician, the hospital and community health nurses, the 2 licensed midwives and the community. This well coordinated service with skilled practitioners has some of the best obstetric outcomes in the KBHSA (Appendix T).

Even with licensed midwifery it is estimated that in the last year, 20 births occurred with no attendant or with an unlicensed midwife. A realistic concern is that this number will rise with less available and community compatible obstetric services are not available. In a context of good obstetric outcomes, a small change in this group could have a large effect on these outcomes.

Chart review of transfers in and out showed good medical management.

Arrow Lakes / Slocan Valley (Nakusp / New Denver)

Three Family Physicians in each site cover an area population of 5000. Fourty-nine mothers from the area had live births, 23 in Nelson, 15 in the Okanagan, 6 locally and 2 in Trail. Nakusp is 2 ½ hours from Nelson (130 km), 2 ¾ from Trail (170 km) – both over 1000m Summit Pass -- and 3 hours from Vernon – via daytime-only ferry access.

Only prenatal care is planned locally in spite of considerable obstetric experience in the past. The physicians value the excellent communication they receive from the maternity care providers in Nelson and the excellent feedback their patients provide about the Nelson hospital staff. The pediatrician from Nelson does travelling clinics for them in the Valley.

Regional Recommendations

1. The HSA Medical Director needs to expand the service area Medical Advisory Committee (MAC) to allow the communities that have lost services to feel they have a voice in decision making. Primary care physicians need to be strongly represented as they are more often the stable part of the medical community that continues to look after the patients as the more transient consulting community comes and goes. The service area MAC with a GP elected from Nakusp, from New Denver, from Grand Forks, from Castlegar, from Trail and from Nelson, (complemented by a specialist from Nelson and a surgical specialist and a medical specialist from Trail), would give the HSA physicians a sense of involvement in service area medical decisions. There needs to be clear terms of reference:

- to serve as a forum for development of an effective collaborative model for the KBHSA and

- to evaluate if a future facility in Castlegar would meet the needs of the KBHSA better than the two centre model.

2. There is a need to develop a Health Service Area Perinatal Committee, with community representation. This multidisciplinary committee should:

- develop, review and implement regional hospital guidelines for care, eg. there is a need to review local practice and guidelines for induction of labor;
- perform a quality improvement role including independent case review;
- perform regular mortality and morbidity review;
- identify hospital and community perinatal educational needs.

It would be important for this committee to collaborate with the HSA Medical Advisory Committee in areas of mutual concern.

3. In order for a regional obstetric system to work, the referral centre needs to work as a resource to the whole service area, providing back-up call services, easily accessible telephone advice, travelling clinic support and recognition of the needs of the referral base. This is critical to the continued support of family practice obstetrical care.

4. It is suggested in the literature that a shared-call, group system would result in the maintenance of primary obstetrical care in rural hospitals and an enhanced lifestyle for family physicians. This change can be made while maintaining, or even improving, patient satisfaction and obstetrical outcomes. A model is presented in Appendix S.

5. A minimum of two, (and preferably three), family physicians in Nelson need to develop cesarean section skills, to fit into a rotation with the solo practice obstetrician. The training needs sufficient financial support to make it feasible. Once trained, the family physicians need opportunities to work with the obstetrician to maintain their skills .

6. It is apparent that a coordinated process for the redistribution of birthing and neonatal equipment remaining on –site in Castlegar has not yet taken place. This requires service area organisation and planning to ensure the items go where they are most needed.

7. MIDWIFERY: REVIEW OF SERVICES

Preamble

This section describes midwifery services in the West Kootenay region and gives an assessment of the impact of the Health Services Restructuring Plan on the safety and sustainability of maternity services from a midwifery perspective. Observations of midwifery care/issues are described for each of the four sites visited or interviewed, followed by an overall regional assessment. The midwifery issues are somewhat unique in that although the registered midwives are based in Nelson, these midwives provide services in several areas throughout the KBHSA, crossing hospital catchment areas. Recommendations to protect and/or improve maternity services from a midwifery perspective conclude this report.

Grand Forks

Grand Forks provides community maternity care for 45 births per year. There is no midwifery service in Grand Forks and hospital staff describes midwifery as a side issue. Although there is no reported community demand for midwifery, hospital staff is aware of at least one woman who accessed midwifery care in their community.

The referral pattern is largely to Kelowna (by consumer choice) with Trail as a second choice due to its proximity to them. They do not refer to Nelson due to the unpredictable road conditions. Cesarean section capability exists which is provided by General Practitioner (GP) surgeons and GP anesthetists. This system works well for their small number of births.

Trail

Trail delivers 212 babies annually. The hospital has no midwives.

According to hospital staff interviews, there has been no community demand for midwifery and the perception is that the communities of Nelson and Trail are different in their desire for midwives. The medical staff indicated that there would be no barrier to midwifery integration into Trail but there has been no movement in that direction to date, despite midwifery care being sought out by some women from Rossland within Trail Hospital's catchment area. The obstetricians acknowledge that geography and time delay from some of the areas covered by midwives could potentially compromise outcomes.

The main issue from the obstetricians in Trail is the desire for recruitment of a third partner in order to provide reasonable on-call hours and to support a truly regional obstetrical service. Centralization of services is seen as a positive move, although nursing is concerned with the ramifications on their workload if Nelson's higher risk babies were transferred to Trail. The issues for midwifery if services were centralized in Trail have not been discussed at a local or Health Service Area level.

Nelson

Nelson delivers 226 babies annually. They have 2 Registered Midwives. Nelson acts as a referral center for Nakusp, New Denver, Kaslo and smaller communities to the north.

Midwifery is well integrated and provides care for an increasing number of women annually since licensing occurred in 1997. In 2000/2001 midwives provided primary care for a total of 74 clients, 50% delivering at home, and 50% delivering in hospital. However, the *planned* home birth/hospital birth ratio is 72% planned home birth/28% planned hospital birth, hence, 22% of planned home births actually occur in hospital. Midwifery care accounts for approximately 16% of the hospital births. The cesarean section rate for midwives is 6.4%.

Table 11: Midwifery Statistics 2000-2001

	Planned Hospital Birth	Planned Home Birth	Delivered at home	Transports	Total
Primipara	13	26	16	10	39
Multipara	8	27	22	5	35
Total	21	53	38	15	74

Midwifery clients are 50 % from Nelson and 50% out of town. The out of town births include the areas north (see below) as well as Vernon, Trail (Fruitvale and Rossland), Castlegar (Robson and Glade) and Creston. Although there is no current standard regarding length of time or distance from a hospital for planned home births, a "delivery house" is available close to the Nelson hospital for those women living at greater distance than 45 minutes from Nelson, who wish a home birth. Midwives are provided with excellent clinical support from the obstetrician, pediatrician, GPs and nurses. All report that they would hate to lose their midwifery service.

The main issue for Nelson midwives is the maintenance of obstetrical support in Nelson, which they feel is required due to their demographics. There is a major concern that their obstetrical service will erode with the deletion of the obstetrician. As a result they fear that women will choose not to access prenatal care either by choice or by necessity, through lack of income sufficient to support transport to care. There are currently approximately 20 births attended by unregistered midwives (as reported by the licensed midwives). The concern is that this number will grow if licensed midwifery is unable to safely practice. Collaboration between Nelson and Trail obstetrical providers is seen as a potential service area solution.

Areas North (Nakusp, New Denver, Kaslo)

These small communities refer maternity care to Nelson. There are no locally planned deliveries. Their total is approximately 25 deliveries of referred women Many of these women access midwifery care and choose Nelson due to the availability of midwives. The

continuity of care and physician rapport between Nelson and the communities is reported to be excellent. The experience with Trail is reported to not have been as good.

According to the interviewed health care providers, there will be a major impact on their communities if Nelson no longer provides maternity care at the current level. Unlicensed midwifery is reported to be focused in the Slocan/Winlaw area resulting in emergency transfers coming from farther north for assessment and then to Nelson, adding to the already significant transport time. They believe the practice of unlicensed midwifery will grow if registered midwives are no longer able to practice safely. If Nelson reduces services, Nakusp indicated that they would probably refer to Vernon if the (winter)road conditions make it possible.

Regional Assessment

The B. C. Ministry of Health Planning identifies three goals for 2002/03 (Appendix E). These goals are high quality patient centered care, improved health and wellness for British Columbia, and a sustainable, affordable public health system. These goals are applicable to all health services provision in the province and are used here as a framework within which to assess the midwifery services in the KBHSA.

1. High Quality Patient Centered Care

Midwifery offers a woman-centered model of care that provides continuity of care and caregiver for low risk women and their babies. The Nelson area is a model for well-integrated midwifery services and exemplifies high quality patient centered care. Medical professionals (obstetric and pediatric), hospital nursing, public health nursing, and consumers alike endorsed this sentiment. The quality of care may be significantly affected if women are required to travel, at considerable distance for some, to Trail for obstetrical consultation or emergency transfer. The additional hour of transport south for obstetrical consultation or transfer of care would be particularly problematic in time sensitive situations such as fetal compromise or postpartum hemorrhage. (See Appendix O for CMBC indications for discussion, consultation, and transfer of care).

Women choosing midwifery care value continuity of care from a familiar health care provider in a setting as close to home as possible. The birthing house location in Nelson was set up to retain an out-of-hospital birth environment for those women choosing to deliver at home but living at an unsafe distance from Nelson. This option will no longer maintain a safe alternative to hospital birth if hospital care with obstetrical backup is an hour away, in good weather. In addition, women in Nelson will have no access to care if the midwife is in Trail. Therefore, the continuation of obstetrical backup/consultation in Nelson is needed to maintain high quality patient centered care for women choosing midwifery care in the KBHSA.

2. Improved Health and Wellness

Team competency is an expectation of regional maternity care as indicated in the BCRCP Rural Consensus Report. Midwives are part of the professional team of caregivers providing maternity care in BC. They are a well-integrated and respected profession within the West Kootenay Service Area (although not yet at Trail). The successful integration of licensed midwifery into Kootenay Lake Hospital has taken time and work from all professionals. Midwifery is now highly respected and credited with improving health outcomes in the Nelson area. If Trail were to be identified as the Service Area Hospital with no obstetrician in Nelson, it will become very difficult for licensed midwives to continue to practice safely. It is unlikely that the culture of the population at Nelson and areas north will change and closer-to-home, low intervention midwifery care may well go underground, and the number of births attended by unregistered midwives will grow. This scenario, should it occur, has the potential to negatively impact health outcomes. As Klein *et.al* (Appendix Q) state, centralizing maternity care puts mothers and babies at risk and will commence a gradual eroding of safe maternity care in the region.

The patient safety concerns would exist even in a climate of inter-professional respect and where lines of communication were well established. Unfortunately, the profession of midwifery has not yet been integrated into maternity care at the Trail hospital. The obstetricians are unaware of the midwifery standards of care or the referral and consultation requirements for midwives. They acknowledge that geographical considerations may be a problem, should they be the sole obstetrical backup for midwives. If Trail is to become the HSA center for maternity care, regardless of whether obstetrical backup is maintained at Nelson, greater familiarity with midwifery care should be pursued and incorporation of registered midwives into the obstetrical services in Trail welcomed.

3. Sustainable, Affordable Public Health System

Increased transport needs, along with the lack of public transportation between Nelson and Trail, is likely to impact the number of emergency and non-emergency ambulance transports. In addition, the geography and the road conditions in winter further complicate transport and potentially compromise the safety of the woman, her baby and the midwife. Transport costs are likely to increase, reflecting the change in referral pattern.

It is acknowledged that maintaining obstetrical back up in both Nelson and Trail is not without its challenges. However, the benefits of improved access and quality of care outweigh the potential difficulties with sustainability. From a midwifery perspective, maintenance of specialists in both obstetrics and pediatrics in both sites is most likely to protect the high quality of midwifery care and improved health outcomes.

Recommendations

1. Maintain the obstetrical and pediatric specialty back-up in Nelson, which supports the current midwifery practice model.

2. Integrate registered midwifery throughout the KBHSA, in particular at the Trail Hospital. Developing hospital policies that address the role of the midwife in transfers of care of women from Rosslund accompanied by midwives could initially facilitate this integration.

3. Develop a Health Service Area Perinatal Care Committee (with midwifery representation) to improve collaboration of services and capitalize on best practices.

4. Monitor the number and cost of ambulance maternity transfers, including midwifery transports, for both emergency and non-emergency situations.

8. FACILITY NURSING: REVIEW OF SERVICES

Preamble

The Kootenay Boundary Health Service Area has nursing staff committed to high quality patient care. Each site within the HSA identified specific areas of concern regarding nursing care and practice, while other issues overlapped between sites. An overview of each issue is provided, then each site is discussed individually, with the recommendations being discussed at the end.

General Issues

I. Staffing

Nursing staffing levels are dependent on the number of births, the level of care provided, and standards or recommendations from professional organizations. There are several published recommendations from professional bodies that should be considered when identifying appropriate nursing staffing levels:

- The Intermediate Care Task Force Report, 1993 (Appendix G) identifies the suggested nursing resources required for each level of care. It makes recommendations as to appropriate numbers and qualifications for frontline caregivers and manager/clinician support.

- The Society of Obstetricians and Gynecologists of Canada (SOGC) 1995, 2002, has recommended 1:1 care in active labor for all women. Although this may not always be possible, it should be the goal.

- The Health Canada Family Centered Maternity Care National Guidelines (2000) indicates that "*minimal staffing requirements should be established based on the following recommendations: one-to-one registered nurse, or midwifery care, for women in active labour through the completion of fourth stage.*" (p. 2.20). For Postpartum Maternal/Newborn Care, "*minimal staffing requirements should be established based on the following recommendation: one registered nurse to four healthy mother/baby dyads, 24 hours per day*" (p. 2.21).

All sites within the HSA are currently identified as either Level I, or service area (Trail) facilities although the number of births differ somewhat. It is the expectation that any site providing maternity care will ensure that the number of deliveries and risk assessment determination are key components in determining nursing staffing levels.

II. Nursing Competency

The ability to obtain and retain qualified maternity staff is a critical provincial concern. Nurses require knowledge and skill in maternity above that currently provided in general training in order to competently provide care. This may be obtained through formal post

basic education, facilitated through extensive in-servicing, or learned on the job through a mentoring process if staffing permits. The increasing expectations have hampered educational institutions to meet rising standards, and decreasing staffing levels have resulted in few nurses being able to facilitate the mentoring of new learners. The result is that new graduates are not "job ready" in maternity, and hence the pool of qualified staff available to hire is diminishing.

The Health Service Delivery Plan of the West Kootenay Boundary Health Planning Committee (KPMG) outlined the challenges of maintaining nursing expertise in WKB hospitals:

"The difficulties in attracting nursing staff with specific expertise (eg. obstetric) are just beginning to be felt by WKB hospitals. This will become increasing problematic as the national nursing shortage worsens. Low patient volumes for some specialty areas make it difficult to retain specialized nurses and it is a challenge to help them maintain their skills. In most circumstances, one of the important factors in maintaining or improving competency has been shown to be adequate (high) patient volumes."

Note: it should be acknowledged that the KBHSA supported the 1999 Nursing Competency Collaborative Practice Program which was offered in partnership by the BCRCP, BC Institute of Technology (BCIT), and University of BC (UBC) School of Nursing.

III. Policies and Procedures

It is imperative that facilities providing obstetrical care have clearly identified policies and practices that are developed and followed by all care providers. Labor and delivery, in particular, is recognized as a highly litigious area and is often placed under scrutiny by the legal profession. A forum for the discussion of practice issues and approval of hospital protocols and standards is critical. Nursing should be consistently represented, with voting privileges, on a multidisciplinary Perinatal Care Committee that has current Terms of Reference and authority for decision-making in addressing policy and practice issues.

Grand Forks

The nursing staffing situation at Grand Forks appears to be adequate as portrayed during the interviews and from the survey results. Three of the four survey respondents from Grand Forks indicated that the facility was adequately and appropriately staffed for maternal / newborn care. The fourth respondent was "neutral" on the subject.

There are approximately ten nurses available who provide care for laboring patients, and the most "junior" nurse has 14-15 years experience. Base staffing is one RN and one LPN on days for approximately 12 patients, and two RN's on nights. When a laboring woman comes in then another RN is called in. If there is no casual with obstetrical skills available, then a regular RN from the floor is assigned to the obstetrical patient. This system seems to work effectively and efficiently. The nurses indicated that there is excellent team-work, not only amongst the nurses but between the nurses and medical staff. They also indicated that there is a very strong commitment to their community, which is evidenced by the longevity of nursing employment within the community with virtually no turn-over rate. While the

current staffing situation appears to be adequate, it is worthwhile for the community to implement some long-term "manpower" strategies, as nurses will inevitably retire.
The nurses at Grand Forks require skills and competency in all practice areas due to their rural geographic location. Most have ACLS and trauma training. In November 2001 the nurses had continuing education in breastfeeding and fetal health surveillance from the clinical instructor in Trail who had traveled to Grand Forks to provide education. The two NRP instructors at the facility have trained all the nurses in Neonatal Resuscitation. They attempt to have one large in-service per year at the facility, which seems to be more convenient (and less hazardous in the winter months) than having the nurses going to Trail for continuing education. The nurses feel that the most important issue for them is having ongoing education available in Grand Forks, at a reasonable cost. The nurses also feel that there are good educational opportunities in Grand Forks from an interdisciplinary perspective. An example of this is the education around the use of epidural analgesia in labor – the nurses received education and training and a policy was written prior to the service being initiated.

Grand Forks has maintained a local mechanism for addressing site specific issues via the Perinatal Committee. Nursing practice appears to follow written hospital policies and procedures for those instances where they are in place. For instance, when the hospital implemented the use of epidural catheters for laboring patients, policies and procedures were implemented prior to offering the service. There is however, need for expanded policies to address issues such as specific transfer criteria (for example there is an informal understanding that if there is not a GP anesthetist available, then the laboring patient will be transferred) and indications for non stress tests and electronic fetal monitoring. From a risk management perspective, it would also be prudent for patients to receive and sign an informed consent outlining the limitations of services in Grand Forks.

Trail

There was unanimous opinion that the greatest challenge currently for nursing is a lack of qualified nursing staff for both obstetrics and newborn care. For question 15 of the survey, ("I think that the facility is adequately and appropriately staffed for maternal care"), 67% of the 16 respondents disagreed or were neutral, while only 33% agreed. For question 16 referring to staffing levels for newborn care, 38% of the 16 respondents were either neutral or indicated that staffing was inadequate, while 62% indicated that they thought staffing levels were adequate and appropriate.

There are two nurses on each shift – one for each area. A third nurse is called in when women are admitted in labor in order to provide 1:1 care. The nurses indicated that time was taken away from providing direct patient care by doing non-nursing duties because of the absence of support staff. Non-nursing duties mentioned included cleaning, answering phones, and stocking carts. In the past nursing has had support staff including cleaners, access to a ward clerk, and a nursing aid.

Virtually all the nurses with whom we spoke work overtime shifts and are called for overtime at least 2-3 times/month. The nurses indicated that it is difficult to recruit, train, and maintain skill levels, given the low number of deliveries per year. The majority (9) of nursing

staff are not cross-trained, while 7 are crossed trained to work in both maternity and the nursery. There was also unanimous opinion that there is not enough financial resources allocated to the orientation and continuing education of nursing staff. It was felt that an HSA-wide obstetric service might facilitate solution to this problem, as the critical mass would enable nurses to gain exposure to a number of clinical scenarios and help maintain their skill level. This was seen as particularly useful if numbers warranted a second maternity nurse on duty, 24/7.

There seemed to be unanimous opinion that the relationships within nursing are collegial and supportive. The relationships with physicians are of support and mutual respect.

There are two new rural educator positions for the service area. It is expected that these will have a coordinating function to facilitate perinatal continuing education throughout the whole HSA.

Nelson

The Nelson nurses are competent to provide a high standard of maternal/newborn care. The nurses have a very strong sense of duty, collegiality, and loyalty amongst themselves. This is the only facility the BCRCP knows of in the province where nurses assume voluntary back-up call for their colleagues when they know their colleague has a difficult case. The team-work and support is truly exemplary. The excellent inter-professional relationships with the general practitioners, obstetrician, pediatrician, two registered midwives, and the community health nurses was apparent. The overall impression is a group of health care professionals truly dedicated to the mothers, babies, and families whom they serve.

The major issue facing the nursing community in Nelson is the lack of sufficient numbers of RNs to provide skilled care to both maternity patients and their newborns. For question 15 of the survey ("I think that the facility is adequately and appropriately staffed for maternal care"), 68% of the respondents from Nelson indicated that they strongly disagree, disagree, or are neutral. In terms of staffing for newborn care, 57% strongly disagreed, disagreed, or were neutral. Currently the two RNs cover both the maternity and surgical patients 24/7, and a nurse is called in when a laboring patient is admitted. They believe that 3 RNs 24/7 would provide a more suitable nurse: patient ratio so that neither the day surgery nor the maternity patients would receive compromised care.

Continuing education was a concern of the nurses. All have maintained NRP status, but would like more educational opportunities at a regional level.

Nursing Recommendations

1. 1.1 The base level staffing and available casual staff should be reviewed at all facilities. This should be reviewed with consideration given to:
    - meeting staffing standards as outlined in the documents and guidelines presented on page 8 – 1
    - the amount of overtime hours required to maintain staffing levels and the sustainability of such.

- the need to cover shifts or breaks with RNs who have no perinatal specialty education.
- time spent by nurses on non-nursing duties.

1.2 The region needs to actively recruit skilled and trained maternal-child nurses to alleviate the nursing shortfall.

1.3 Consideration should be given to the feasibility of cross training staff.

1.4 Consideration should be given to sharing human resources (casual pool) between sites.

2. Nursing support staff need to be available in both Trail and Nelson to relieve nurses from non-nursing functions such as cleaning, restocking, and answering telephones, so that they may focus on the provision of patient care.

3. Development and maintenance of nursing competency is an issue throughout the HSA. Given the highly litigious nature of the intrapartum period, it is mandatory that all nurses providing intrapartum care are skilled and competent in fetal health assessment, neonatal resuscitation, assessment and care of the intrapartum woman, and management and stabilization of women with obstetrical emergencies. All nurses should be current in both NRP certification and Fetal Health Surveillance, and educational funding should be designated to these programs.

4. Nursing orientation to maternal-child care should be reevaluated and resources should be available to provide lengthy orientation or supplementary education, should it be required. Given that nurses receive very little maternal-child experience in nursing school, provision within the work environment needs to be made to pick up this shortfall.

5. It is critical that the Rural Educators in Nelson and Trail coordinate the implementation of nursing education at the HSA level. Resources should be shared and utilized by all facilities so that education is available at a reasonable cost equitably throughout the service area. This should occur through a coordinated effort from all facilities.

6. All sites need to ensure the existence of a clear job description with qualifications and expectations outlined according to their level of care. The Report of the Intermediate Care Task Force (Appendix G) will be of assistance in this endeavor.

7. Given the longevity of nursing staff at Grand Forks, consideration may want to be given to future manpower issues upon nursing retirement/resignation. It is not unusual for a small community to lose many of its very experienced and senior nurses within a short period of time given these circumstances.

9. COMMUNITY HEALTH, REVIEW OF SERVICES

Preamble

Any change to hospital obstetrical services within the KBHSA has a profound affect on community health care services (eg. public health services, pregnancy outreach services) and the clients/families to whom these services are offered. None of the previous Kootenay Boundary health care planning reports (KPMG) provided to the BCRCP described the community health services available in the KBHSA and how these services play a role in the continuum of health services.

Public health nurses (PHN's) in smaller communities work in a generalist role with responsibility for many services and programs provided to all age groups. Maternal/child care represents a significant part of PHN's work particularly in the postpartum period. Pregnancy outreach programs traditionally provided services for clients at socio-economic and environmental risk in the prenatal period. They are now expanding to providing support to 6 months postpartum.

There is a broad array of community health services provided in West Kootenay communities with several of these services focused on providing perinatal care. Table 12 outlines the community perinatal services provided in each of the communities involved in the review.

Table 12 Community Perinatal Services Available in the KBHSA

	Grand Forks	**Trail**	**Castlegar**	**Nelson**	**North of Nelson**
Population 2002	9,287	20,877	14,020	25,809	Nakusp=5407 Kaslo=3809
Public health nursing -FTE's prior to redesign	Grand Forks=1.5 Greenwood=1.0	4.2	3.6	4.8	Nakusp=1.0 Kaslo=1.0
-FTE's after redesign	Grand Forks=1.5 Greenwood=0.9	3.1	3.3	4.3 (0.5 cut, but ? 0.5 FTE from BCNU funds)	Nakusp=1.0 Kaslo=0.9
Community Nutritionist				0.9 FTE services the region	
Prenatal Classes **-administered via Selkirk College for entire KB region**	7 classes for $77.00 -offered in May and September	4 classes lasting 2-2.5 hours -also an early bird class	7 classes lasting 2.5 hours each -$90/series	7 week series, 1 postpartum class -2 hours long, offered every two months -$80/series	-Slocan Valley: classes 2X/year. Usually have prenatal in a day over 2 half days. # of classes are based on need.

Prenatal Classes (contd)					-Nakusp: 6 classes offered 2X/year. Require 3 couples. $60/series Kaslo: offer prenatal in a day – 2 sessions each 4 hours for $48.00
Pregnancy Outreach Program	Yes -initiated 1997 -prenatal to 6 months postpartum	Yes -initiated 1995/96 -prenatal period to one year postpartum	No, but a proposal has gone forward for CPNP funding	Yes -initiated 1992/93 -prenatal period to 3 to 6 months postpartum (can attend groups longer)	-Nakusp: CAPC program offers parenting support for 0-6 years old. -Kaslo:. Outreach worker 10 h/wk part of Nelson POPS program
Lactation Consultant	one voluntary	two voluntary	none	part-time paid position attached to the early maternity discharge program -coverage 7d/week	Nakusp: have breastfeeding expertise in the community via one nurse who is a LDR nurse, CAPC worker, and prenatal instructor
Perinatal Committee	Yes	Yes	Yes	Yes	Nakusp - Yes Kaslo - Yes
Postpartum Follow-up/ Support	-PHN (weekdays) -POPS	-EMD nurse (hospital based) - weekend coverage for early discharges -PHN (weekdays) -POPS	PHN (weekdays)	-EMD nurse -weekend coverage available. -Life After Birth Program -PHN (weekdays)	Nakusp: via breastfeeding counselor -weekend coverage -PHN (weekdays) -CAPC program Kaslo: PHN(weekdays) -POPS

Grand Forks

Community services appear well integrated into the overall perinatal services in Grand Forks. There is a community perinatal committee that meets four times per year consisting of the prenatal instructor, hospital nursing, public health nursing, pregnancy outreach worker, a representative from Selkirk College and a consumer. There is informal medical representation with one medical staff reviewing and sharing the information generated by the perinatal committee. Perinatal health care providers have been creative in meeting the needs of women in their community. For example, one of the GP's offers a 'medical interventions' class as part of the series of prenatal classes.

Public health nursing offers postpartum follow-up during the weekdays. There is no weekend and statutory holiday coverage for this service, but Boundary Hospital has the ability to keep mothers/newborns over the weekend if needed. Home visits are offered to all postpartum clients and usually are provided within 24-48 hours of hospital discharge. There is one breastfeeding support group offered and a Young Parents Program in the community. Public health nurses meet regionally twice per year for in-service.

The pregnancy outreach program (POPS) was initiated in 1997 and is offered to mothers during the antenatal period and up to 6 months postpartum. It was noted by one of the interviewees that there has been a noticeable increase in breastfeeding rates and attendance at prenatal classes since the POPS was initiated.

There is one lactation consultant in the community who works in a voluntary capacity. Therefore, this service is not offered universally to clients. The public health nurse in Grand Forks and the pregnancy outreach worker have taken additional breastfeeding courses.

Although the community services representatives in Grand Forks felt that their services would not be affected by the Nelson-Trail decision as to where high-risk obstetrical services should reside, there were some concerns identified. Increasingly more births from Grand Forks are delivered in hospitals outside of the area (eg. Trail, Kelowna). There was also a concern identified that pubic health is not receiving timely postpartum notification of these, and also midwifery attended births. There appears to be no mechanism in place for this to occur.

Recommendations

1. The mechanism for timely, accurate and comprehensive postpartum referral from Trail, Kelowna and midwifery services to public health nursing should be streamlined.

2. Addition of a paid lactation consultant for the Grand Forks community would be beneficial.

3. The regional public health nursing in-service education should be supported as this provides an excellent opportunity for information sharing, education and networking. This also concurs with a regional model of resource sharing.

Trail

Community services appear well integrated into the overall perinatal services in Trail. There is an active Perinatal Coordinating Committee that meets quarterly. This committee is comprised of public health nursing, hospital nursing, the Ministry of Child and Family Development, the Infant Development Program, the pregnancy outreach program, prenatal education, a lactation consultant, a general practitioner and two consumers. The committee is well organized with yearly goals established and met. There was a concern identified regarding the difficulty in obtaining regular family practice attendance.

There is an early maternity discharge program at Trail Regional Hospital for discharges under 48hrs. This program includes a hospital visit by the mother in the 3rd trimester. Public health nursing offers postpartum follow-up for hospital discharges over 48 hours although this service is only provided on weekdays. Public health nurses collect the postpartum liaison forms from Trail Regional Hospital three times per week and then fax the information to the respective health units. One hundred percent of babies are reportedly receiving a well-baby visit. The relationship between PHN's and hospital nurses appears to be excellent.

A few concerns were addressed by community services. There is a lack of funded lactation consultant support in the community. The Perinatal Coordinating Committee has been focusing on strategies to increase both breastfeeding and postpartum support. A lack of consistency in the prenatal education curriculum and the need for ongoing education for prenatal educators was identified. Some mothers in the community have verbalized to health care providers that the continuity of care via the Family Obstetrical Clinic in Trail is compromised as mothers may see more than one GP throughout their pregnancy and postpartum period. This seems to have been improved by scheduling the same GP's on the same days each week. Several practitioners disagreed with the practice of keeping all newborns in hospital until 48 hours or more so that weight gain is established, reportedly a practice favored by the local pediatrician.

Recommendations

1. A funded lactation consultant position for the community would provide a referral service for difficult breastfeeding cases (which often consume a large amount of time). This would help with the nurse staffing issues in both hospital and community.

2. Access available resources to improve the consistency of prenatal education. For example, "Growing Babies… Growing Parents…An Evidence-Based Perinatal Education Resource". is a resource developed in the Lower Mainland with a variety of stakeholders and provides excellent, up-to-date content and resources for all perinatal providers.

3. There is no evidence to support keeping healthy, newborns for over 48 hours post-delivery in order to ensure weight gain. It appears that Trail has a comprehensive postpartum follow-up program with nurses with several years of experience and

expertise. This service should be the mechanism utilized for healthy newborn and postpartum follow-up, including weight monitoring.

4. The Perinatal Coordinating Committee would benefit from regular GP attendance and input particularly in light of the recent changes to the GP obstetrical service. It could receive feedback on the services provided in order that improvements can be made.

Castlegar

Public health nursing offers postpartum follow-up services during the weekdays. There is no weekend and statutory holiday coverage for this service. Since the closure of obstetrical services at Castlegar, the majority of deliveries are going to Trail with a portion going to Nelson. The public health nurses from Trail/Nelson fax the postpartum liaison form to the Castlegar public health nurses. The local Castlegar GP's generally see their clients at 6 weeks postpartum. There is no lactation consultant support in the community.

In the past, Castlegar had a perinatal committee education but membership on the committee has declined since the closure of Castlegar hospital and the future of the committee is uncertain.

The largest issue expressed by community services in Castlegar is the lack of recognition by Trail practitioners regarding the perinatal services still available in Castlegar. The postpartum follow-up visits to the Trail Family Obstetrics Clinic (at one week) and Trail pediatrician (at two-to-three weeks) is seen to be excessive, particularly when there is local expertise to provide this service. Clients have to make several trips to Trail in order to receive their care, when this service is available locally. This is disruptive and costly for new families.

Recommendations

1. There seems to be a lack of awareness from Trail perinatal providers regarding the services available in Castlegar. Closure of the local hospital does not mean that there are no perinatal services in that community. Due to the referral patterns that have been established since the closure of Castlegar Hospital, public health nursing should provide input into the Trail Perinatal Coordinating Committee. This would ensure a mechanism in which to problem-solve service delivery issues.

2. Castlegar public health nurses and GP's have a pool of expertise to provide postpartum follow-up services for healthy mothers and newborns. This service should be supported in the local community. Routine examination of apparently healthy newborns by a paediatrician has been classified by the World Health Organization (1998) as a practice that is ineffective.

Nelson

Community services appear very well integrated into the overall perinatal services in Nelson. They have an active voice/role on the Perinatal Committee and work closely with all perinatal providers in Nelson. The Perinatal Committee is inclusive comprised of GP's, hospital nursing, public health nursing, early maternity discharge/Lactation Consultant nurse, pregnancy outreach program, and midwifery.

There is a postpartum follow-up program in Nelson comprised of public health nursing, an early maternity discharge nurse/lactation consultant and the Life After Birth Program (provides support to postpartum families). Although public health nursing provides only a weekday service, the early maternity discharge/lactation consultant will provide service on weekends, if needed. Nelson has been creative in funding their comprehensive service. This service is mostly provided to families within the Nelson area; however, consultation services also extend to the northern areas of the region. There appears to be an excellent relationship and collegiality between all postpartum care providers.

Community service personnel raised several concerns in regards to the proposed changes to Nelson's obstetrical capacity. These concerns included the loss of continuity of perinatal support for local mothers delivering in Trail – particularly for families living in the northern region. There were questions regarding who would provide postpartum follow-up (particularly in light of recent public health nursing cutbacks), and the flow of communication between Nelson and Trail care providers. Community services feel that there has been a lack of consultation on the proposed changes.

Recommendation

The postpartum follow-up service in Nelson is exemplary. The service should be retained and utilized as a model for postpartum follow-up services. Nelson is one of the few communities in the KBHSA that has 7 day/week postpartum follow-up coverage. Furthermore, the professionals providing this service provide consultation services to other sites within the service area. It is interesting to note some of the outcomes of postpartum care at each of the hospitals – KLDH, Trail and Boundary (Table 10, page 46). Both Boundary Hospital and Kootenay Lake Hospital have shorter postpartum and newborn hospital lengths of stay for vaginal deliveries, as well as lower newborn readmission rates.

North of Nelson

There is a local perinatal committee in Nakusp comprised of public health, physicians, hospital nurses, a prenatal instructor and CAPC worker. The CAPC worker is a registered nurse who also teaches prenatal classes, provides postpartum support and is a breastfeeding counselor. There is a close working relationship between the perinatal providers in Nakusp. There is a local perinatal advisory committee in Kaslo that has input to the Nelson perinatal committee if issues in maternity care arise. The part-time PHN in Kaslo is not always able to provide early maternity discharge visits to all clients, but phone support is provided.

The issues for community services north of Nelson revolve around the lack of service to this area and the distances to travel to Nelson. There was a grave concern expressed that the distance to Trail is too far for high-risk obstetrical cases and that many women from their areas may choose no prenatal care at all. The health care providers in the North appear to have developed much stronger relationships with Nelson providers than Trail. As one provider commented, "Nelson has an attitude of responsibility to the North, which as not happened in Trail" and "Nelson understands the remoteness of the North".

Recommendation

It is understood that the Interior Health Authority, Ministry of Child and Family Development, and Health Canada are working in partnership to ensure the services that are individually funded are integrated at the service delivery level. However, it is our opinion that it is critical that the community services delivery model remains functionally intact in Nelson. Community health providers have developed a strong relationship with perinatal care providers in Nelson. Nelson acts in a consultative manner, which is a critical link for the isolated areas to the North.

Regional Assessment

The IHA has documented four principles and several guidelines in its health service documents on role reviews (Appendix F). Those guidelines which are particularly relevant to community services include:

- A sufficient number of client cases is required for the safe delivery of care and professional growth (of care givers).
- Patients/clients should be treated locally within their Health Service Delivery Area.
- Employees from Interior Health are highly valued and many employees have unique and specialized skills that are needed to deliver health services.

Several health care providers in Trail stated that if they were to become the high-risk centre, then patients would be expatriated back to their home communities as quickly as possible. This may entail higher-risk clients being discharged home and the need for more intensive follow-up by community services. This movement of all high-risk obstetrics to Trail would have a significant rebound effect on community services and the clients that they serve. A higher acuity of clients in the community would entail a higher degree of training for public health nurses and most likely, a requirement for more staff. Currently, the average public health nursing ratio within the Interior Health Region is 1 PHN/5000 population.

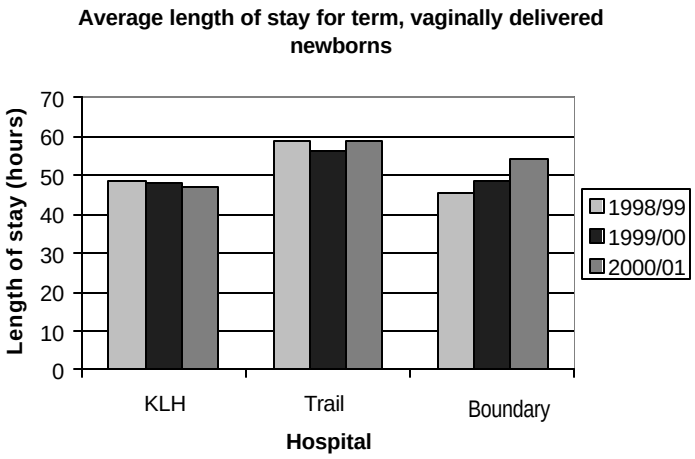
Recommendations

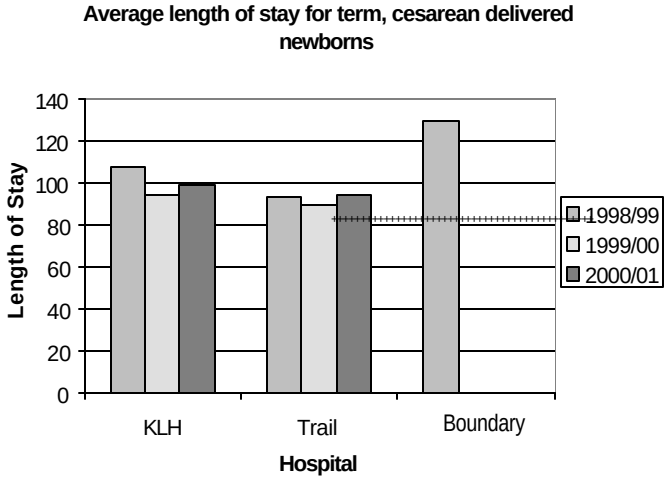
1. Consideration should be given to 7-day/week postpartum follow-up coverage in the whole of the KBHSA, particularly for breastfeeding support. The SOGC/CPS joint policy statement on 'Early Discharge and Length of Stay for Term Birth' (Appendix M) recommends that when hospital discharge occurs before 48 hours after birth, this must be part of a program that ensures appropriate ongoing assessment of the mother and baby.

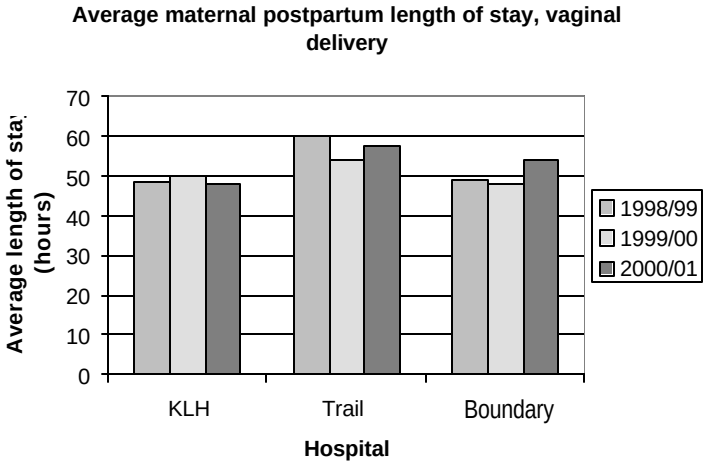
The policy also states that there should be availability of postpartum follow-up on weekends.

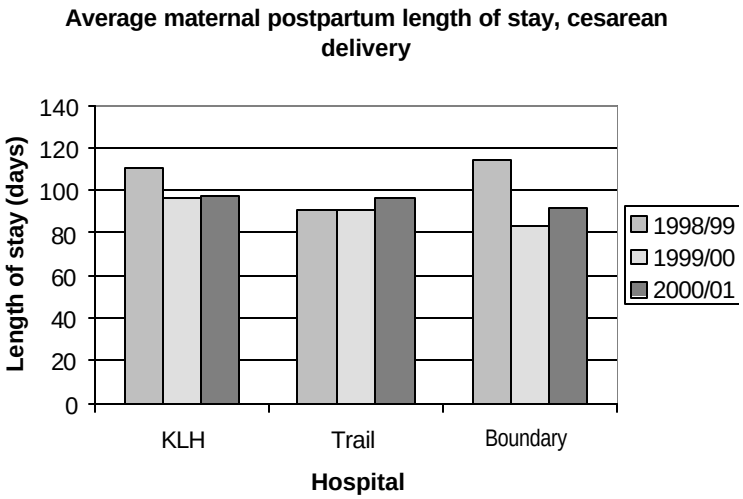
2. Efforts should be made to provide multidisciplinary education and professional development via the newly hired Rural Educator. Community services should comprise an integral part of educational opportunities.

Table 10: Lengths of Newborn and Maternal Postpartum Hospital Stay (Hours)
Source: BC Perinatal Database Registry









10. MANAGEMENT AND FACILITIES OVERVIEW

Preamble

The Kootenay Boundary Health Service Area (of the Interior Health Authority) is in the advantageous position of having both Level I facilities and a larger Service Area facility within relatively close proximity of each other (with the obvious *caveat* of winter driving conditions). This allows the provision of efficient service to the entire region by providing discriminating levels of service in each facility rather than providing all levels of care in all facilities. In perinatal care this works particularly well, always bearing in mind the following:

> *"It is recommended that the regionalization of maternal and newborn services should have as an overall, planned outcome: that all women and their families have access to appropriate care that is responsive to their needs and as close to home as possible (Iglesias et al, 1998)."*

From the National Guidelines for Family-Centred Maternity and Newborn Care, Health Canada 2000, page 2.6

Previous chapters have addressed discipline-specific issues; this section of the review addresses facility and perinatal management issues which cross disciplines.

Transport

The provision of family-centered care is particularly challenging when a woman and/or her baby are removed from either the original or the anticipated environment. On the one hand, the woman and her family understand that they will be cared for in a place with resources to provide optimum care. On the other hand, it is an anxiety provoking experience for a woman to be transferred from her community hospital – where she is familiar with her surroundings and the physician/midwife who has looked after her antenatally – to another centre (that may be in a larger community) to be cared for by people she has never met. Furthermore her partner may be unable to accompany her, or unable to visit frequently, due to distance or family and work commitments. Where possible therefore, transport should be limited to those women who require high levels of obstetrical intervention and/or after birth support for her infant. Maternal transport with the baby *in utero* is preferable to neonatal transport and should be the primary goal.

Ambulance services are a key part of a regional obstetric service. The stations and staffing in the KBHSA are:

- Trail: 5 FTE, 2 cars(+1spare)
- Nelson: 6 FTE, 3 cars
- Castlegar: 2FTE, 2 cars
- Grand Forks, Fruitvale, Salmo, New Denver, Winlaw, and Kaslo each have one car manned by volunteers.

Dispatch is from Kamloops via the RCMP. The volunteer crews are all Occupational First Aid certified and the regular staff, Provider I. They have no NRP training and minimal knowledge of the transport incubator. Anecdotally, it is reported that obstetrical transport is not an area of comfort for the KBHSA ambulance attendants.

The road conditions are reported to be unsafe in winter, and the airports are all available only in daylight hours. The airport at Nakusp is too short for emergency aircraft landing and would need to be lengthened to make air evacuation possible from Arrow Lakes.

Recommendation

A balance must be struck between transferring many patients to a centralised obstetric service at Trail, at the expense of decreased maternal/newborn safety.

Grand Forks

For women from the Grand Forks area, the Boundary Hospital is able to provide an opportunity to labor and deliver in a low volume, low risk, maternity unit which is close to her home and "within the supportive circle of her family and friends" (Joint Position on Rural Maternity Care, SOGC, No.72, April 1998)(Appendix N).

Supportive environments enable professionals and families to work together more easily; the nursing staff at Grand Forks is generally enthusiastic about providing maternity services. The opinion expressed was: 'come and have your baby here, we're really good!' Maintenance of local maternity services will allow those willing local family practitioners and nurses to provide more comprehensive care for low risk women and their families and help maintain a range of options for birth.

Boundary Hospital is able to provide normal obstetrics and full term infant care, with the appropriate policies in place and staff members who are competent to manage unexpected obstetrical and neonatal emergencies eg. emergency cesarean section, neonatal resuscitation and maternal stabilisation and transport.

Current renovations have enabled staff to accommodate two labor-birth, recovery and postpartum rooms (LBRP). There are no dedicated postpartum beds. To accommodate "overflow" needs, a postpartum woman may have to be moved from an LBRP to a different location. The use of the palliative care suites for this purpose is to be commended as it facilitates safe, efficient, family-centered care. However this places the infants in a relatively isolated area of the hospital, potentially compromising infant safety. Infants requiring observation are housed in a separate nursery adjacent to the nursing station, thereby optimising both newborn security and quality of care.

Recommendations

1. The current excellent and largely self-sufficient low-risk obstetric service at the Boundary Hospital should be supported to continue.

2. The lone general surgeon in Grand Forks is getting close to retirement age and is scaling down. To continue to provide support to the General Practitioner surgeons (who do the cesarean sections), as well as to the surgical service, consideration should be given to developing a long-term plan for maintenance of competence.

3. The hospital should consider trying to repatriate the (reported) 50% of elective transfers that go to Kelowna, in order to support the regional services in KBHSA. The availability of epidural anesthesia and elective cesarean section at the Boundary Hospital should go a long way to meeting the needs of the laboring mothers in that community.

Nelson

Kootenay Lake District Hospital appears to have a cohesive, well-organized and administered comprehensive perinatal service that is able to provide most of the maternity care needed for their community. The staff is proud of their patient centered focus and their belief that they offer an alternative "low intervention" environment for family centered care. There appears to be excellent working relationships between nursing staff, the local family physicians and on-site specialist physicians. The apparent high level of staff satisfaction with the perinatal service is at least partly due to these well-developed inter-professional relationships and communications.

However, Nelson finds itself in a difficult position. It has for long functioned in a satisfactory manner as a quasi-Level II institution providing good care with good obstetrical support to a seemingly committed group of family physicians. Pediatric support has been variable until the arrival of the present incumbent. In spite of that, they have been able to look after infants at 36 weeks gestation (and beyond) at all times, and 34 weeks gestation (and beyond) with a pediatric presence, unless there were other complications. There has been little involvement or communication with Trail and all caregivers are concerned about the regionalisation initiative.

There is only one pediatrician who, understandably, can not provide full time specialist coverage and is supported by General Practitioners and the pediatrician in Trail. From an administrative perspective, the concern is that with reduced numbers of deliveries at Nelson (226 last year) any loss of pediatric services may further negatively impact their obstetrical care and result in more cases being diverted to Trail.

The situation in Nelson has been exacerbated by the major reorganisation in the delivery of health care. This dissatisfaction is shared by specialist physicians, family doctors, and nurses. Some practitioners are dissatisfied with the lack of opportunity for input regarding changes in hospital designations. Their perspective is that communication from the IHA has left them little opportunity to voice their views.

While proud of their overall service, caregivers expressed dissatisfaction with the present appearance and layout of the maternity area. This can be summarized in the small rooms, the general aesthetics of the unit and the distance to the operating room. The facility includes 2 labor rooms with no availability of bath and only one shower. Only one of the rooms has delivery capacity; in the other, the patient must be moved to a separate room for

delivery. There is no patient/family lounge. However, it is possible in facilities with dated physical environments to incorporate changes that support family-centered care. Staff expresses a keen interest in renovations to allow for improved patient care areas.

The newborn nursery is at some distance from the maternity wards and therefore inconvenient to both staff and parents. As well as "geographic" problems, the Nursery is small and poorly equipped. This poses nursing resource issues when, from time to time, an infant may need an elevated level of observation, or other minor treatments. In addition, its remote location necessitates dedicated staffing thereby diluting an already inadequate pool of nurses. Perhaps the biggest issue relates to the fact that the nursery is being managed as a de facto level 2 nursery, in spite of the fact that the designated HSA referral centre is at Trail. Funding for level 2 care is not available for either site, resulting in significant expense to the program in Nelson, in providing both staffing and equipment to that standard.

Nursing staffing levels are at a critically low level. Patient care and management options such as induction of labor and epidural analgesia are frequently limited by the availability of nursing staff.

Recommendations

1. There is an immediate need for increased casual and on-call perinatal nursing staff during periods of peak activity. From a risk management perspective and in the interests of safety and optimising staff-to-patient ratios, the hospital management should regard this as the number one priority.

2. Support for the continued presence of an Obstetrician/Gynecologist in Nelson is founded on the need to provide prompt obstetrical care *where* the patient needs the service, when lives may be saved or harm prevented by timely (emergency) intervention. There is no doubt that the caseload in the KBHSA warrants a third OB/Gyn specialist; however, focus on the safety of the mother and child favors the Nelson site.

   "Where adequate human and physical resources are present, each woman who can anticipate a safe birth in a rural community should be supported by physicians, midwives and nurses with local access to advanced maternity skills, including Cesarean Section. Existing hospitals with Cesarean Section capability should work to sustain this service."
   "Report on the Findings of a Consensus Conference on Obstetrical Services in Rural or Remote Communities", published by the BCRCP in April 2000.

3. Centralization of the resource-intensive components of level 2 care (such as ventilation) to a single NICU (Trail) would optimize the use of nursing resources and equipment. However maintenance of the current standard of newborn care at the Kootenay Lake District Hospital is essential to support the core obstetrical practice in the northern Health Service Delivery area (including Kaslo, Nakusp, New Denver, etc).
   The equipment is old but serviceable – community support should be solicited for necessary upgrades.

4. Kootenay Lake District Hospital is in urgent need of a physical renovation. Labor and delivery rooms need to be upgraded so that there is a bathroom in every room and a large soaker tub available on the unit. It may be worth while to consider turning a majority of the maternity area into single room LBRP's*

- There are marked deficiencies in the current caseroom area; there is a need for improved lighting in the delivery rooms
- There is no treatment or antepartum assessment room in the maternity area, therefore non-stress tests are done in a hallway, with no privacy.

5. Efficiencies in the delivery of care could probably be achieved if all the babies requiring nursery care and/or observation could be located next to the family-centered maternity unit.

   * reference:
   i) "Caring for Children and Families: Guidelines for Hospitals" by Johnson et al., Association for the Care of Children's Health, Bethesda Md. 1992
   ii) "The Mother-friendly Childbirth Initiative" from The Coalition for Improving Maternity Services, Washington, DC 1996.

Trail

Trail is the newly-designated Service Area Hospital with continuous obstetric and pediatric coverage and a Level 1 nursery. It also has infrastructure support to offer a range of services including medical imaging, laboratory, respiratory therapy and social services. There is a referral system among the Family Physicians to offer maternity care for women whose primary care givers do not provide obstetrical services.

The physical facilities at Trail are the largest in the region and do much to enhance the delivery of family-centered care. Physicians and nurses are pleased with the newly remodeled operating suite. The major negative factor in the delivery of care in Trail is the "railway car corridor" layout of the obstetrical care area. The nursing station is tucked away in a remodeled side room with no sight lines to the wards on either side. This poses issues of infant safety and does not invite easy access for patients and their families. There are no private areas provided for patient/family consultation or for breastfeeding mothers.

Nurses are hampered in their care by non-nursing duties such as answering the telephone and performing clerical duties. Of concern, is the fact that the closure of Castlegar hospital did not result in recruitment of (Family Practitioner or) nursing personnel to Trail to meet the ubiquitous shortage of skilled practitioners.

Recommendations

1. Regionalization of perinatal services in the KBHSA has formalised the existing collaboration and interdependence of the individual programs and has the potential to provide efficiencies. Nevertheless, for many it is a concept that is still viewed with suspicion, as not contributory to the provision of care. Supportive environments enable professionals and families to work together more easily; specific initiatives that would support this at the Trail site are:

- Outreach -- it is reasonable to expect increased mobility by the Ob/Gyn specialists in Trail (in cooperation with the Ob/Gyn in Nelson), to provide secondary level care to people in rural areas. Activities such as regional Grand Rounds and shared educational activities would go a long way to consolidating care practices.
- Trail and Nelson should have a reciprocal relationship of mutual support for obstetric and pediatric coverage to create a co-operative regional plan, which reflects the demographic and geographic realities of the KBHSA.
- An utilization management process should be established to standardise best practices across sites.
- A cohesive program management structure is needed to consolidate the activities of support services operating out of Trail, eg. a social worker has responsibility for the perinatal service at Trail *only* -- there is no service area program. There are active programs for perinatal quality assurance in Trail that could be extrapolated to the KBHSA as a whole.

2. Regionalisation is distinct from centralisation. Regionalisation is the rational organisation of services among facilities, recognising the contributions of all levels to the care and support of patients, practitioners and communities (Appendix Q). More time will need to be spent to bring caregivers at *every* site to appreciate the advantages for women and babies of a collaborative concept.

3. The Trail proposal for a third Obstetrician/Gynecologist at that site should be revisited. While the SOGC Policy Statement calls for group practices of "usually three or more" to support a 24-hour call schedule, it must be remembered that this policy (1995) predates the current crisis in maternity care – "The Great Canadian Rural Obstetric Meltdown". The footnote on this policy (Appendix R) reads:
"This information should not be construed as dictating an exclusive course…….Local institutions can dictate amendments to these opinions."

4. The nursing station needs to be made more secure by the creation of a private area for clinical discussion, so conversations between care providers can be held confidentially without women and families overhearing. Despite the plans for a new hospital in the next few years some money will need to be spent immediately to keep this unit viable.

5. The present large distance between the case rooms and the operating room is inconvenient and is perceived as a risk to patient care. It would be advantageous to have

a small operating room close to the labor and delivery suite rather than travelling through the hospital for a caesarian section.

6. Nursing workload could be ameliorated by the transfer of non-nursing, clerical duties to a ward clerk. Clerical support could be provided within the reallocation of personnel from the Castlegar site and should proceed immediately.

Castlegar and District Hospital

The Health Services Planning reports done by KPMG in 1993 and 1999 both recommend a regional center in the West Kootenays, the 1999 report clearly indicating the obvious choice of location to be the Castlegar site. The recommendation of a new HSA center at Castlegar (to replace Trail, Nelson and Castlegar acute care sites) continues to be a goal in the current long term planning for IHA. It is likely that centralizing services in Castlegar has the potential to most successfully address the long-term regionalization vision of the KBHSA, however, it would not be without its difficulties.

The Castlegar community hospital was recently downgraded to a Diagnostic and Treatment Center, effectively closing down its obstetrical facilities. Approximately 40 of the 60 deliveries per year have been repatriated to Trail Hospital (their closest site) and the remaining third to Nelson. None of the three family physicians have chosen to continue their maternity practice at either the Trail or the Nelson site. The same unfortunate trend exists for nurses, in that only one of the maternity nurses from Castlegar chose to continue providing maternity care, taking a position in Nelson.

On the positive side, Castlegar is a geographically central location, which would make accessibility of services from Nelson and Trail less arduous than in either Trail or Nelson. It is also an easier ride to Castlegar than to Trail from Grand Forks (only one mountain pass) and shorter to Castlegar from areas North than to Trail. From an obstetrical perspective, the physical plant at Castlegar actually represented the best of the facilities that the review team had the opportunity to visit; it was a distinct disappointment to see the relatively new facilities at Castlegar hospital closed. However, it would still require some renovation to accommodate the case-loads of both Trail and Nelson. Locating the service area site at Castlegar would alleviate the critical mass and competency issues, particularly for nursing. Both Nelson and Trail nurses indicated that they would work in Castlegar if the regional site was there but would not repatriate to either Trail or Nelson. In the short term, the historic rivalry between the two communities of Trail and Nelson is likely to preclude the possibility of achieving the goals of regionalization of services at the Trail site. It was apparent from the sites we visited or talked to that locating the service area hospital at Castlegar would be seen as politically acceptable to both Trail and Nelson.

Although centralization of HSA obstetrical services at Castlegar appears to settle some of the political rivalry issues between Nelson and Trail, it would still serve as a compromise for regionalization of obstetrical care over such a broad geographic area. In addition, centralization could not occur in Castlegar without the transfer of other specialist support and ICU services presently located in Trail. It is not clear that medical or midwifery health

professionals would move to Castlegar if services were centralized there. This might pose problems with staffing for emergency services, such as neonatal resuscitation.

Effective regionalization is not synonymous with centralization. Regionalization of services in the West Kootenays should be possible through collaboration of available expertise and best practices between the four sites, particularly Trail and Nelson. For this particular geographical area, a cooperative service area plan will best meet the needs of the population. If it becomes necessary to centralize services in one site, however, a new service area hospital at Castlegar would seem to best meet the obstetrical needs of the KBHSA. In addition, the neutral location will be most likely to facilitate the resolution of the philosophical differences in maternity care between Trail and Nelson. The human resource challenges, however, are not insignificant. It is recommended that an open process of consultation and evaluation of the pros and cons with all health care providers and consumers throughout the KBHSA should precede any decision to implement the long term plan of centralizing services in Castlegar, or elsewhere.

11. PERINATAL SERVICES SURVEY RESULTS

In preparation for the Clinical Operational Review of Perinatal Services of the Kootenay Boundary HSA, a survey (Appendix C) was distributed to health care providers in the region and completed surveys were faxed to the BCRCP. The quantitative survey results have been compiled using simple frequency distribution (SPSS) and are presented in this report. In questions where there are missing responses (N < 53), the frequency response is given as valid percentage - the percent out of those who responded to that particular question.

The qualitative narrative was used by the review team to prepare this report. However all results have been kept confidential, so that individual participants can not be identified.

Part I: Demographic Information

Sixty eight surveys were distributed and fifty seven were returned to the BCRCP for a response rate of 84%. Fifty three surveys were complete and four were incomplete and not included in the quantitative analysis. The N = 53. The classification of respondents is as follows:

RN	32	(60%)	
MD	16	(30%)	
LPN	1	(2%)	
CHN	3	(6%)	Note: CHNs combined responses from several nurses onto individual surveys, and therefore are counted as one.
Admin	1	(2%)	

All of the MDs indicated that they are in private practice, and the majority of RNs (66%) work full-time. The rest work either part time or casual.

Eighty three percent of the respondents indicated that they have been associated with their facility for 5-10 years, and many longer than 10 years. The specific community affiliations of the respondents is as follows:

Grand Forks	4	(8%)
Castlegar	1	(2%)
Nelson	20	(37%)
Trail	17	(32%)
Nakusp	7	(13%)
Kaslo & area	3	(6%)
HSDA	1	(2%)

Part II: Quantitative Questions and Results

1. There is a great deal of co-operation and teamwork between various levels of **Medical Personnel**:

Strongly disagree	1	(2%)
Disagree	3	(6%)
Neutral	5	(10%)
Agree	18	(36%)
Strongly agree	23	(46%)
Missing	3	

There is a great deal of co-operation and teamwork between various levels of **Nursing Personnel**:

Strongly disagree	0	
Disagree	0	
Neutral	4	(8%)
Agree	17	(32%)
Strongly agree	31	(60%)
Missing	1	

There is a great deal of co-operation and teamwork between various levels of **Medical and Nursing Personnel**:

Strongly disagree	0	
Disagree	2	(4%)
Neutral	6	(12%)
Agree	16	(31%)
Strongly agree	27	(53%)
Missing	2	

There is a great deal of co-operation and teamwork between various levels of **Administration and Medical Personnel**:

Strongly disagree	1	(2%)
Disagree	10	(23%)
Neutral	16	(38%)
Agree	10	(23%)
Strongly agree	6	(14%)
Missing	10	

There is a great deal of co-operation and teamwork between various levels of **Administration and Nursing Personnel**:

Strongly disagree	2	(4%)
Disagree	9	(19%)
Neutral	17	(35%)
Agree	13	(27%)
Strongly agree	7	(15%)
Missing	5	

2. There is a great deal of co-operation and teamwork between the personnel practicing obstetrics/working in perinatology in this HSDA:

Strongly disagree	3	(7%)
Disagree	5	(11%)
Neutral	6	(13%)
Agree	14	(31%)
Strongly agree	17	(38%)
Missing	5	

3. I am aware of and familiar with the standards, policies and procedures for perinatal care at this facility:

Strongly disagree	0	
Disagree	2	(4%)
Neutral	5	(9%)
Agree	18	(35%)
Strongly agree	27	(52%)
Missing	1	

4. The standards, policies and procedures (written or unwritten) of this facility are understood and followed by medical/nursing personnel:

Strongly disagree	1	(2%)
Disagree	4	(8%)
Neutral	6	(11%)
Agree	25	(47%)
Strongly agree	17	(32%)

5. I am satisfied with the nursing administration of the maternal/child programs and feel that I have a voice in the delivery of nursing care:

Strongly disagree	0	
Disagree	2	(4%)
Neutral	12	(24%)
Agree	24	(48%)
Strongly agree	12	(24%)
Missing	3	

6. I am satisfied with the medical administration of the maternal/child programmes and feel that I have a voice in the delivery of medical care:

Strongly disagree	1	(2%)
Disagree	4	(8%)
Neutral	11	(22%)
Agree	20	(41%)
Strongly agree	13	(27%)
Missing	4	

7. I feel conflict is dealt with in a timely and appropriate manner:

	All Respondents (N = 53)	**MDs (N = 16)**	**RNs (N = 32)**
Strongly disagree	2 (4%)	1 (6%)	1 (3%)
Disagree	6 (11%)	4 (25%)	2 (6%)
Neutral	17 (33%)	5 (31%)	9 (29%)
Agree	23 (44%)	5 (31%)	16 (52%)
Strongly agree	4 (8%)	1 (6%)	3 (10%)
Missing	1		1

8. I feel I am an important and necessary part of the Maternal/Child Team:

	All Respondents (N = 53)	**MDs (N = 16)**	**RNs (N = 32)**
Strongly disagree	0	0	0
Disagree	1 (2%)	1 (7%)	0
Neutral	4 (8%)	3 (20%)	1 (3%)
Agree	23 (44%)	1 (7%)	18 (56%)
Strongly agree	24 (46%)	10 (66%)	13 (41%)
Missing	1	1	

9. The newborn's family receives appropriate and safe care, and education:

Strongly disagree	0	
Disagree	5	(10%)
Neutral	0	
Agree	23	(46%)
Strongly agree	22	(44%)
Missing	3	

10. Families comment positively on the care their infants receive:

Strongly disagree	0	
Disagree	1	(2%)
Neutral	1	(2%)
Agree	27	(52%)
Strongly agree	23	(44%)
Missing	1	

11. If I have a clinical or professional concern relating to maternal/child care, I am able to express it:

Strongly disagree	0	
Disagree	0	
Neutral	4	(8%)
Agree	26	(49%)
Strongly agree	23	(43%)

12. I will receive feedback if problem solving is required:

Strongly disagree	1	(2%)
Disagree	2	(4%)
Neutral	8	(15%)
Agree	21	(40%)
Strongly agree	20	(39%)
Missing	1	

13. I think that this facility is adequately and appropriately stocked with essential supplies and equipment, and the provided space is adequate:

	All Respondents (N = 50)	**Grand Forks (N = 4)**	**Nelson (N = 18)**	**Trail (N = 16)**	**Nakusp (N = 7)**
Strongly disagree	1 (2%)	0	0	1 (6%)	0
Disagree	7 (14%)	0	3 (17%)	4 (25%)	0
Neutral	9 (18%)	0	2 (11%)	5 (32%)	1(14%)
Agree	18 (36%)	1 25%)	7 (39%)	4 (25%)	3(43%)
Strongly agree	15 (30%)	3 (75%)	6 (33%)	2 (12%)	3(43%)
Missing	3		2	1	

14. I think the hospital provides a safe environment for laboring, and for new mothers and babies:

	All Respondents (N = 52)	**Grand Forks (N = 4)**	**Nelson (N = 20)**	**Trail (N = 16)**	**Nakusp (N = 7)**
Strongly disagree	1 (2%)	0	0	0	1 (14%)
Disagree	4 (8%)	0	2 (10%)	0	2 (28%)
Neutral	1 (2%)	0	1 (5%)	0	0
Agree	23 (44%)	2 (50%)	11 (55%)	6 (37%)	1 (14%)
Strongly agree	23 (44%)	2 (50%)	6 (30%)	10 (63%)	3 (44%)
Missing	1			1	

15. I think that the facility is adequately and appropriately staffed for maternal care:

	All Respondents (Total = 50)	**Grand Forks (Total = 4)**	**Nelson (Total = 19)**	**Trail (Total = 15)**	**Nakusp (Total = 7)**
Strongly disagree	4 (8%)	0	2 (10%)	1 (7%)	1 (14%)
Disagree	13 (26%)	0	8 (42%)	4 (27%)	1 (14%)
Neutral	12 (24%)	1 (25%)	3 (16%)	5 (33%)	1 (14%)
Agree	16 (32%)	2 (50%)	6 (32%)	3 (20%)	2 (29%)
Strongly agree	5 (10%)	1 (25%)	0	2 (13%)	2 (29%)
Missing	3		1	2	

16. I think that the facility is adequately and appropriately staffed for newborn care:

	All Respondents (Total = 51)	**Grand Forks (Total = 4)**	**Nelson (Total = 19)**	**Trail (Total = 16)**	**Nakusp (Total = 7)**
Strongly disagree	3 (6%)	0	1 (5%)	1 (6%)	1 (14%)
Disagree	7 (13%)	0	5 (26%)	2 (13%)	0
Neutral	10 (20%)	1 (25%)	5 (26%)	3 (19%)	0
Agree	25 (49%)	2 (50%)	7 (38%)	9 (56%)	4 (57%)
Strongly agree	6 (12%)	1 (25%)	1 (5%)	1 (6%)	2 (29%)
Missing	2		1	1	

19. Do you feel supported and encouraged by management/administration in your efforts towards safe practice, professional development and continuing education?

	All Respondents Total All = 50 MD = 16 RN = 30 Other = 4	**Grand Forks Total MD= 1 RN=3**	**Nelson Total MD=6 RN=12**	**Trail Total MD = 6 RN = 8**	**Nakusp Total MD = 2 RN = 5**
Not at all	All 3 (6%) MD 1 (6%) RN 2 (7%)		MD 1(17%) RN 1 (8%)	RN 1 (12%)	
Very little	All 14 (28%) MD 5 (32%) RN 11 (36%)		MD 4 (66%) RN 4 (33%)	MD 1 (17%) RN 2 (25%)	RN 1 (20%)
Some	All 7 (14%) MD 2 (12%) RN 5 (17%)		MD 0 RN 2 (17%)	MD 1 (17%) RN 2 (25%)	
Almost always	All 18 (36%) MD 5 (32%) RN 9 (30%)	RN 1 (33%)	MD 1 (17%) RN 5 (42%)	MD 4 (66%) RN 2 (25%)	RN 3 (60%)
Always	All 8 (16%) MD 3 (18%) RN 3 (10%)	MD 1 (100%) RN 2 (67%)		RN 1 (12%)	MD2 (100%) RN 1 (20%)

20. Please indicate your level of job satisfaction (as it relates to Maternal/Child care):

	All Respondents Total All = 51 MD = 16 RN = 30 Other = 4	**Grand Forks Total MD= 1 RN=3**	**Nelson (Total MD=5 RN=12**	**Trail Total MD = 6 RN = 10**	**Nakusp Total MD = 2 RN = 5**
Very low	All 3 (6%) RN 3 (10%)		MD 1 (20%) RN 1 (8%)	RN 1 (10%)	
Low	All 3 (6%) RN 2 (7%)		MD 1 (20%)		
Moderate	All 9 (17%) MD 4 (25%) RN 4 (13%)		MD 1 (20%) RN 3 (25%)	MD 1 (17%) RN 1 (10%)	RN 3 (60%)
High	All 18 (36%) MD 8 (50%) RN 9 (30%)	RN 2 (66%)	MD 1 (20%) RN 2 (17%)	MD 3 (50%) RN 4 (40%)	MD 2(100%) RN 2 (40%)
Very high	All 18 (16%) MD 4 (25%) RN 12 (40%)	MD 1 (100%) RN 1 (34%)	MD 1 (20%) RN 6 (50%)	MD 2 (33%) RN 4 (40%)	

21. Do you agree with the IHA plan for the restructuring of perinatal care delivery between Nelson and Trail?

	All Respondents (Total = 53)	Grand Forks (Total = 2)	Nelson (Total = 20)	Trail (Total = 14)	Nakusp (Total = 6)
Yes	16 (34%)	1 (50%)	0	14 (100%)	0
No	31 (66%)	1 (50%)	20 (100%)	0	6 (100%)

Part III: Qualitative Overview

The Clinical Operational Review of Perinatal Services survey included qualitative questions for narrative data. Because of the confidential nature of the survey, it is not possible to include narrative data in this summary.

12. RECOMMENDATIONS

1. Facility and Role Definitions

1.1 It is recommended that the existing levels of perinatal care at both the Trail and Nelson sites be maintained, with Trail as the designated Health Service Area referral centre.

1.2 Boundary Hospital should be supported as a Level I facility, caring for low risk pregnant women and their healthy term infants.

1.3 Types of services and roles played by each professional at each site needs to be determined as soon as possible based on nationally accepted guidelines that have been adopted by BC. (Health Canada's " *National Guidelines for Family-centered and Newborn Care*" 2000).

1.4 It is recommended that an open process of consultation and evaluation of the pros and cons with all health care providers and consumers throughout the HSA should precede any decision to implement the long term plan of centralizing services in Castlegar, or elsewhere.

2. Perinatal Care Management

2.1 The continued provision of obstetric services at the Kootenay Lake District Hospital, including both elective and emergency cesarean section, will require the recruitment of a third obstetrician/gynecologist to the KBHSA, to be located at the Nelson site.

2.2 A minimum of two, (and preferably three), family physicians in Nelson need to develop cesarean section skills to fit into a rotation with the solo practice obstetrician. The education needs sufficient financial support to make it feasible.

2.3 Clear criteria need to be established for gynecological consultation and emergency care throughout the HSA. This should be possible with innovative planning and clear delineation of expected services.

2.4 It is recommended that full integration of Registered Midwives be facilitated throughout the HSA. An effective group practice of an increased number of midwives would provide more women in the service area with the option of midwifery. Consultation and teamwork with specialist services at both Nelson and Trail is required to support this integrated midwifery service.

2.5 Community-based programs, which provide antenatal and post-partum follow-up, should have service area coordination. Standardized methods of information

transfer and reporting should be adopted to facilitate communication between maternal/newborn caregivers.

3. Perinatal Standards of Care, Planning and Evaluation

3.1 The HSA Medical Advisory Committee should be expanded, to include representatives of all the separate communities of the KBHSA. It should take responsibility for service areal issues and the allocation of resources; also

- promote consistent perinatal standards of care, policies and procedures;
- review the quality of care delivered in the KBHSA;
- promote shared perinatal rounds and other educational activities.

3.2 A multidisciplinary, HSA Perinatal Care Committee should be constituted, with responsibility for:

- development, review and evaluation of the standards of perinatal care;
- regular maternal and Perinatal Mortality and Morbidity Review;
- identification of strategies aimed at improving care;
- networking and the development of sound perinatal care practices.

3.2 Standardised guidelines and policies need to be developed that, where appropriate, can be used throughout the HSA. These should apply to medicine, midwifery and nursing, as well as all perinatal support services.

4. Risk Management

4.1 A comprehensive perinatal risk management strategy should be developed for each community in the KBHSA. This should include:

- written disclosure of the advantages and limitations of local maternity services;
- discussion of anticipated risk and options for transport;
- detailed emergency management and transport protocols;
- open communication and collaboration with referral centres;
- ongoing audit and quality improvement programs.

4.2 A service area perinatal quality improvement (CQI) initiative could develop site-specific programs to feed back into the HSA Perinatal Care Committee for information sharing and continuity of care delivery.

4.3 Monitor the number and cost of ambulance maternity transfers, for both emergency and non-energency situations.

5. Neonatal Issues and Transport

5.1 Based on their population and availability of expert pediatric care on site, both Trail and Nelson should keep the neonatal ventilators they own. The Castlegar site has some nursery equipment that could be used either in Trail or Nelson. Amongst this

is a transport incubator, which is apparently in good working condition and could be used for transports in the Trail – Castlegar --Nelson corridor and beyond.

5.2 Appropriate policies and systems need to be developed in collaboration with the BC Ambulance Service to support the safe transfer of infants from one facility to another within KBHSA.

5.3 Improved coordination and communication between all the health care professionals would alleviate some inefficiencies in the way postnatal care for Castlegar and Trail (mothers and) babies is provided in the first month. This is particularly needed between the public health nurses and family physicians in Castlegar and the Trail primary obstetric clinic and pediatrician.

6. Physical Resources

6.1 Upgrade of the facilities for labor and delivery at the Kootenay Lake District Hospital is warranted in order to provide optimal care for laboring women. Despite the plans for the building of a new hospital in Castlegar within the next few years, some money needs to be spent immediately to improve the unit in Nelson.

6.2 Optimal obstetric care at Trail Regional Hospital requires the relocation of one of the OR's to a site more conducive to emergency access. Consideration should be given to examining the feasibility of this change.

6.3 In view of the geographic isolation of the KBHSA, the region should develop a procurement process that would allow sharing of costs and utilization:

- for products with little utilization but of critical need such as a bovine surfactant product (eg. bLES, to replace the use of Exosurf), and prostaglandin E1;
- for equipment requiring replacement including 1 level II incubator, 1 oximeter and 1-2 micro-infusion intravenous pumps for Nelson and 1 level II incubator, 1 oximeter, and 1-2 micro-infusion intravenous pumps for Trail.

7. Human Resources

7.1 The BCRCP recommends that the Ministry of Health Planning establish a perinatal task force to examine the critical manpower issues facing the province of British Columbia over the next ten years. Issues to be addressed include the feasibility of no-fault insurance, sustainability of perinatal services and the perinatal educational issues contributing to the shortage of skilled medical and nursing practitioners. Given that the province is already in the midst of a perinatal manpower crisis, these issues should be addressed urgently.

7.2 Nursing staffing levels are inadequate and were consistently identified as a major concern by all the disciplines surveyed and interviewed. The KBHSA needs to continue to support local initiatives for skills enhancement, to alleviate this shortfall.

7.3 Facilities may wish to consider developing a service area casual pool in which nurses are assigned on a daily basis to the facility in which they are needed. In addition, consideration should possibly be given to the feasibility of cross training staff.

8. Education

8.1 HSA-wide continuing education might provide an opportunity to attract a broader range of speakers and learning opportunities, to supplement the educational initiatives for providers at all sites,

8.2 Regular multidisciplinary Perinatal Rounds should be instituted to ensure current best practices are followed in all aspects of clinical and management activities.

8.3 It is mandatory that all nurses providing intrapartum care are skilled and competent in fetal health assessment, neonatal resuscitation, the assessment and care of the intrapartum woman, and management and stabilization of women with obstetrical emergencies. All nurses should be current in both NRP certification, and Fetal Health Surveillance, and educational funding should be designated to these programs.

8.4 Nursing orientation to maternal-child care should be re-evaluated and resources should be available to provide lengthy orientation or supplementary education, should it be required.

8.5 It is critical that the Rural Educators in Nelson and Trail coordinate the implementation of nursing education at the HSA level. Resources should be shared and utilized by all nurses so that education is available at a reasonable cost equitably throughout the KBHSA.

8.6 The pediatric residency placement at Trail should be encouraged because of its important educational "role-modeling" where students gain experience that includes primary newborn and pediatric care