System Review of Tertiary Obstetric Services at the Victoria General Hospital

A report commissioned by the Vancouver Island Health Authority

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List of Abbreviations

BCAS	British Columbia Anesthesiologists' Society
BCMA	British Columbia Medical Association
BMI	Body Mass Index
CFAU	Child and Family Assessment Unit
CMO	Chief Medical Officer
CQC	Combined Quality Council
DOBA	Dedicated Obstetrical Anesthesiology
EFM	Electronic Fetal Monitor
FMEA	Failure Modes and Effects Analysis
LDR	Labour and Delivery Room
MFHP	Maternal – Fetal Healthcare Program
MOCAP	Medical On-Call Availability Program
NICU	Neonatal Intensive Care Unit
OR	Operating Room
PHSA	Provincial Health Services Authority
PSBC	Perinatal Services British Columbia
SIMAC	South Island Medical Staff Committee
SOGC	Society of Obstetricians and Gynaecologists of Canada
SSA	Systematic Systems Analysis
UBC	University of British Columbia
VGH	Victoria General Hospital
VIHA	Vancouver Island Health Authority

Background

In August, 2011 a patient presented to the Labour and Delivery Room (LDR) at the Victoria General Hospital (VGH) in active labour, a few days past her expected delivery date. Several hours later, when the fetus showed sudden signs of severe distress an Obstetrician was called urgently and there were attempts to deliver the infant, first with the use of vacuum suction and then with forceps. However, the infant could not be delivered so a stat Cesarean Section (C-Section) was called. The patient was urgently transferred to the Main Operating Room but unfortunately on delivery the infant had no spontaneous respirations, cardiac activity or movement. Attempts at resuscitating the stillborn baby were not successful.

One week later, the media reported the story and interviewed a VGH staff Anesthesiologist. There were additional media stories with allegations made by several individuals, including a family member, about the issues surrounding this particular case and tertiary level obstetric care at VGH. Vancouver Island Health Authority (VIHA) Senior Executives elected to ask an external review team to evaluate the issues surrounding obstetric care at VGH.

There have been past concerns about the Level 3 (Tertiary) Obstetric Service at Victoria General Hospital (VGH); much of the focus has been on the adequacy of anesthesiology coverage. There has been past media coverage on the dispute between Victoria Anesthesiologists and VIHA regarding fees, recruitment of Anesthesiologists and the safe provision of care. This issue has been looked at previously both prospectively (Failure Modes and Effects Analysis) as well as retrospectively. Five incidents were reviewed, all of which involved a single Anesthesiologist having to care for an anesthetized surgical patient in one of the Main Operating Rooms and an obstetric patient requiring an immediate C-Section in a second, adjacent Operating Room.

Because of these long-standing issues surrounding the delivery of tertiary level Obstetric services, a two-part review was commissioned. The first part was a detailed case analysis completed under Section 51 of the BC Evidence Act (described in a separate report) and the second part was intended to be a system level review of those services at VGH, which is the focus of this report.

Terms of Reference - Deliverables

A system-focused review of tertiary level Obstetrical service at the Victoria General Hospital to identify and understand the issues to determine contributing factors and to identify system or process areas for improvement. The review is to be conducted without Section 51 protection by an External Review Team constituted under the VIHA Combined Quality Council.

Scope

The review is to examine all relevant aspects of the arrangements for delivering the service, and include consideration of the following specific issues:

- Provision of RCPSC-Certified obstetrician, Family Practice obstetrician, and Midwife delivery of the tertiary and general obstetric services and supporting perinatal service.
- Provision of anesthesiologist support to the obstetric service, including the provision of a dedicated obstetrical anesthesiologist
- Provision of nursing and other clinical support in LDR and OR where relevant.
- Whether resources, particularly anesthesiologists designated to provide cover for emergencies, are being used to cover "urgent" cases, which would be more appropriately and safely scheduled during normal working hours.
- Structural considerations influencing the obstetric and anesthetic services, including program configuration and leadership arrangements.

A report was to be provided to VIHA's Combined Quality Council (CQC) Executive via the CQC Secretariat and thence to Executive Management and HAMAC, and thus to the Board of Directors.

Introduction

When a case review takes place it provides an opportunity to analyze the entire system of care. One view of this system is gained by interviewing the patient (and family members) and the personnel involved with the events as they unfolded. Another view of the system is gained by speaking with experienced personnel who have roles in the provision of patient care. Direct care providers, support personnel, managers, directors, senior executive, and a board member were interviewed and all freely provided their unique perspective. The goal of the review of the VGH stillbirth case and tertiary obstetric care at the VGH was to gain all of these perspectives and do three things: 1) to determine the facts which could be used to clarify any misperceptions that had developed about the case; 2) to identify system deficiencies that could impact the safety and quality of care experienced by maternity patients at VGH; and 3) generate recommendations that would address some or all of these issues. This Quality Assurance review was done in two parts: the first part was a detailed review of the case that was conducted under Section 51 of the BC Evidence Act; the second part was not conducted under Section 51, rather its focus was identifying weaknesses in systems of care that if addressed would improve the quality and safety of care provided. This report represents the system analysis of the review team (non-Section 51). Although the focus of this report is the system analysis, the review team thought it was important to share facts about the case at the centre of this review; these are described below. The remainder of this report will identify system factors, which if addressed, could improve the provision of tertiary obstetric care at VGH. The factors identified in this report may or may not have contributed to the stillbirth outcome. However, the fact that the review team has chosen to highlight one or more issues in this report should not be misconstrued that any or all of these issues were necessarily important contributing factors to the outcome of the case in question.

Finally, neither the patient-focused review nor this system-focused review were conducted with the purpose of evaluating the performance of any of the healthcare providers or administrators; to do so would be inappropriate and not in accordance with the philosophy of systems analysis. Any decisions about conducting performance reviews are left with VIHA. Furthermore, this review will make no comment on whether or not any type of performance review is necessary.

Methodology

The review team followed a systematic approach for examining the case and for reviewing system factors that may have contributed to the outcome for this patient. The approach, called Systematic Systems Analysis (SSA),[1] has been used in patient safety reviews in Alberta both by the Health Quality Council of Alberta[1] and, using a slightly modified approach, by the former Calgary Health Region. The methodology was also used in the Manitoba Pediatric Cardiac Surgery Inquiry[2] and the Inquest into the Death of Ettie Jean Morris.[3]
The theoretical model that forms the basis for SSA is the Winnipeg model[4,5] (named for its use in the Manitoba Pediatric Cardiac Surgery Inquiry), is an adaptation for healthcare of Reason's accident causation model,[6] and includes Donabedian's categorization of any healthcare system as to its three basic components: structure, process, and outcome.[7] The SSA methodology helps reviewers address three fundamental questions: 'What happened?' (Outcome); 'How did it happen?' (Process); and 'Why did it happen?' (Structure). The SSA methodology intentionally avoids the use of the word 'cause'; rather, the focus of SSA is factors that likely or could have contributed to what happened or nearly happened to the patient (that is, a 'close call'). This is an important distinction for three reasons. First, determining a 'cause', or even a number of causes, is complicated by hindsight bias since "cause is something you construct" after the fact.[8] Indeed, when referring to 'hindsight bias', Reason has stated: "There is a universal tendency to perceive past events as somehow more foreseeable and more avoidable than they actually were. Our knowledge of the outcome unconsciously colours our ideas of how and why it occurred." [9] Second, because healthcare delivery is complex, it is presumptuous to believe that a *single* identified cause, by itself, could have led to a patient suffering harm. Third, the language of causation becomes problematic: at minimum it requires judgment and at maximum it implies fault and blame.

SSA is an iterative process that has three major phases:

1) Gathering information from multiple sources and then, where relevant, structuring the information into a detailed chronology of events (a 30 page timeline was completed for the patient-focused review);
2) Organizing what is known and understood about the system by evaluating the structures, processes, and outcome for five basic components of the 'system':
    i) patient(s)
    ii) personnel
    iii) environment / equipment
    iv) the organization
    v) regulatory agencies.

    Information is placed into a 15 cell SAFER (Systems Analysis and Factor Evaluation Review) Matrix. Information structured in this way provides the opportunity to view

[1] A guide for using SSA is currently undergoing final pre-publication revisions.

relationships between multiple structural / process factors and outcomes (a 15 page SAFER Matrix was completed for the patient-focused review). A summary of system factors is presented in this report.

3) Recommending improvements that are focused on addressing structural system deficiencies and that have the potential for benefiting the maximum number of patients within the organization.

This review was initiated as a consequence of a stillbirth at VGH described below in the Chronology of Events section of this report. To complete this report a detailed chart review was completed. Interviews were held with the patient and family members, personnel who work at VGH helping to deliver obstetrical care including physicians, nurses and allied health staff, VIHA administrators and executive, a VIHA board member, as well as representatives from the regulatory agencies. Site visits were paid to the LDR, including the two LDR operating theatres, the Antepartum and Postpartum units, as well as the Main Operating Room (OR), which is located adjacent to the LDR. Information from the medical literature and published guidelines and other documents were also used for this review.

Recommendations in this review are structured according to a model developed by two of the reviewers (WF / JD) that addresses the patient safety conundrum – how can healthcare systems be made safer? The Healthcare Encounter Safety and Quality Model addresses this question by structuring such an approach around three major functions and two major supports. The three functions are: (1) designing optimal care; (2) delivering the optimally designed care; and (3) responding when outcomes, and the design and delivery of care were not optimal. The two supportive factors are (1) providing leadership (at all levels of healthcare delivery) and (2) operating and making decisions based on principles that support the highest quality and safest possible care.[10,11]

Because the review was carried out in a very short time frame, the opportunity for in-depth review at a micro-level was not possible. Instead the review focused on larger macro system issues that surfaced during interviews, as well as a review of internal and external correspondence. More focused evaluations of the VIHA system may be required in the future; areas in which the reviewers thought that this might be helpful are highlighted in the Recommendations section of this report.

Stillbirth at VGH - Chronology of Events

In August 2011, a patient in active labour presented and was admitted to the Labour and Delivery Room (LDR) at the Victoria General Hospital. Initially labour progressed as expected by the family physician who was responsible for the patient's care. The fetal heart rate (FHR) was monitored continuously by using an electrode attached to the baby's scalp. During the course of labour the FHR showed some signs of fetal stress; therefore an obstetrician was consulted. A decision was made to continue to monitor the patient and the FHR closely. Awhile later the FHR demonstrated a slow heart beat, a sign of severe fetal distress. The obstetrician was called urgently and attended the patient without delay. Assisted attempts for vaginal delivery were not successful; a stat C-Section was called. The patient was quickly transferred a short distance to the Main Operating Room, which is adjacent to the LDR, where another operation was in progress. The FHR could not be monitored while the patient was being transferred to the main OR. Because the C-Section took place at shift change there were additional OR staff available who quickly prepared the Operating Room adjacent to the room where the anesthesiologist was providing care to another patient. A second anesthesiologist and obstetrician were phoned at home and asked to come to the hospital urgently, which they did. However, their presence was not required for the C-Section to start because the onsite anesthesiologist could attend to the patient.

Upon arrival in the Operating Room the patient was met by the onsite anesthesiologist and a fully prepared OR staff. The other surgical patient was monitored by nursing staff from the Recovery Unit, who remained in visual and auditory contact with the anesthesiologist. The C-Section began approximately twenty minutes from the time that the obstetrician first called for it. Because the fetal heart rate could not be monitored while the patient was being transferred from the LDR to the main OR the resuscitation team was not sure whether or not the baby would have a heart beat when delivered. Shortly thereafter the baby was passed to a waiting resuscitation team that included an experienced pediatrician. The second anesthesiologist arrived just after the baby was delivered and took over the anesthetic care of the mother. (The first anesthesiologist returned to the surgical patient and completed that operation without incident.) Resuscitation of the baby was performed but was not successful. Because a heartbeat could not be confirmed when the baby was delivered, the delivery was classified as a stillbirth. Immediate steps were taken by the medical team to speak with the patient and family of the news.

System Factors

The following factors and vulnerabilities were identified in this review. These have been categorized according to which system component they represent.

1. Patient
   a. **Definition of 'high-risk' patient**. The review team could not identify a working definition for what constitutes a high-risk pregnancy within VIHA or Perinatal BC (not identified on their website). There is consideration in the LDR of the high-risks engendered by patients' social situations but not particularly their medical considerations. A key strategy for improving the quality and safety of care is to standardize care, where it makes sense, especially for higher risk patients; however it is not possible to adequately standardize care and optimally manage the risks of a population of patients until that population can be defined. Patients with class III obesity should be included in any classification of high-risk pregnancies.
   b. **Patients with class III obesity (BMI > 40)**. Obesity is a well-recognized factor that has consequences for pregnant patients.[12] There is an increased probability that an obese patient will suffer from gestational diabetes, hypertension, and sleep apnea. There is also an increased probability of spontaneous abortion and stillbirth. There is a higher rate of macrosomia and shoulder dystocia; macrosomia can be detected by ultrasound, however ultrasound is less accurate for estimating fetal weight in obese patients. Complications from C-Sections occur much more frequently in obese patients.
   c. **Sleep apnea**. This disorder which is more common and more severe in obese patients[13] can expose the fetus to severe hypoxemia. Although access to sleep centres to obtain a diagnosis can be limited, it is possible to test patients who are thought to have this disorder using relatively simple ambulatory monitors. Treatment is very effective.

2. **Personnel**
   a. **Family physicians:** In Victoria family physicians provide primary care to all obstetric patients. They are organized into call groups and their volume of deliveries is high, therefore most physicians have extensive experience. When family physicians take vacation they will commonly ask another physician with obstetric privileges to do a locum for them. Family physician locums may not have the same level of experience. Formal training in the management of high-risk pregnancies is not provided in family practice residency programs.
   b. **Anesthesiologists:** Anesthesiologists provide onsite, on-call 24/7; in addition a second anesthesiologist is on-call from home for situations where two anesthesiologists are required at the same time. At night the onsite on-call anesthesiologist will provide support for patients in the LDR and urgent surgical patients. For several years the anesthesiologists provided a third dedicated service for the VGH that was in addition to staffing the Main ORs for the scheduled surgical slates during the day. This third service provided consultation and treatment for

patients with pain as well as daytime service for the LDR. This allowed for routine C-Sections to be scheduled and carried out in the mornings, and for timely epidural analgesia to be provided. This service was supported in part by payments from VIHA to the Department of Anesthesia; payments like these to physician groups are not uncommon and are intended to provide partial support for physicians who make themselves available to provide a service that is intermittently required. Following a disagreement about reductions to this fee, the Department of Anesthesia, after an appropriate notification period, withdrew this voluntary service and reorganized the schedule for anesthesiologists. Despite VIHA's offer to restore the payments to the previous level the Department of Anesthesia declined to reinstitute the service just like it had been previously structured. Instead they continued discussions with VIHA for a contract that would provide funding for a dedicated obstetric anesthesiologist (DOBA). To date VIHA and the Department have been unable to reach an agreement. VIHA has offered funding that would be consistent with what the BC Medical Association (BCMA) has negotiated with the Ministry of Health as part of the Physician Master Agreement. The Department of Anesthesia is attempting to negotiate a contract that would reimburse their members at a rate similar to what some anesthesiologists elsewhere in this province receive who provide DOBA coverage. The Department would have to recruit additional members to provide DOBA 24/7.

Since the third anesthesia service at VGH was cancelled, patients requiring C-Sections are scheduled as part of the regular surgical slate, at the end of one OR's list of cases. Although nominally scheduled for 15:30 hours, most cases are delayed. If the case is then delayed beyond a time when there are sufficient day OR staff, the C-Section is added to the list of emergency operations, known as the "add list". Emergencies are dealt with by the most available anesthesiologist. Sometimes an elective C-Section is 'bumped' by more urgent cases, with the result that an expectant mother might fast before the 'scheduled' C-Section, be bumped, and then fast again for the new time.

Since this change in service, the quality of care experienced by maternity patients has suffered. This is particularly evident for those patients who require epidural analgesia or an elective C-Section: these patients are now dependent on the provision of resources (anesthesiologist and OR nurses) from the main OR. The provision of such anesthetic care is not always timely and the inability to proactively manage the variable demand for service has resulted in LDR patients and staff, attending family physicians, anesthesiologists, the main OR staff, surgical patients and surgeons all being affected. There has been a tremendous negative impact on patients' experiences and relationships between the different departments involved.

c. **Obstetricians:** Obstetrician / Gynecologists are in private practice and provide 24/7 on-site on-call for VGH. There is a second obstetrician on call who is at home in the evenings and at nights unless called in for an emergency. One of the obstetricians in Victoria is also a trained perinatologist. Obstetricians provide consultation service only; they do not provide primary care to any obstetric patient,

even for those patients referred from another specialist obstetrician elsewhere in the province. Although there is a shared model of care between obstetricians and family physicians for some high-risk patients, some other high-risk patients are managed only by a family physician.

d. **LDR nurses.** The LDR nurses at VGH are very experienced and receive training in fetal health surveillance; however, they are not trained as surgical assistants and therefore when C-Sections are required, nurses from the OR are needed to perform this vital function. Thus LDR is dependent on the main OR for *both* anesthesiology and nursing support.

e. **Teamwork and communication.**

Management of high-risk patients

If a family physician is looking after a high-risk maternity patient and believes that a patient requires an obstetrical consult during the antennal period, then this is accomplished quite easily by having the patient attend the Child and Family Assessment Unit (CFAU) at VGH. Consultation with endocrinologists and anesthesiologists can be accomplished similarly. Consults are available on a patient's electronic medical record at VGH. Patients can also be referred to the CFAU for antenatal fetal monitoring. Usually the responsibility to coordinate the care recommended by specialists would fall to a patient's primary care physician. There may not be a mechanism for team conferences to take place to discuss management options and plans for some high-risk patients. This does not allow for optimal, proactive management of high-risk patients through their antepartum and intrapartum periods.

Communication between OR and LDR

There is a lack of timely, on-going communication between two inextricably linked units, the LDR and the OR, which at times need to draw on the same, but very limited resources: anesthesiologists and OR nurses. Proactive planning for these vital, limited resources is currently dependent on individual personnel in the LDR and the OR each trying to understand and become informed as to what might be happening at any particular time in the other unit. Some anesthesiologists deliberately try to stay informed about the status of patients in LDR who may require OR resources and some LDR charge nurses try to stay informed about the status of the OR and pending cases. However, this vital information is often not up-to-date and creates substantial challenges when the OR resources are urgently required for a stat C-Section and are not immediately available.

3. **Environment / Equipment**

Environment

a. **LDR**.

LDR OR walls are painted dark blue, a colour which may reduce individuals' ability to visually detect if a patient is hypoxemic and cyanotic (when her oxygen saturation is not being electronically monitored).

LDR doors (into individual patient rooms and the ORs) are currently wide enough for standard beds. But if a morbidly obese patient requires a larger bed, then being able to move the wider bed in and out of a room or one of the ORs might become an issue.

b. **LDR Hallway.** As with most hospital units, medical equipment that is required on a periodic basis is stored in hallways. The location of this equipment in hallways can interfere with the timely transfer of patients to the Main OR. Just as important, hallway equipment represents an important hazard to staff who are moving a patient quickly and may become injured by coming into contact with this equipment.

Equipment

a. **LDR**

The equipment used to facilitate sample of fetal scalp blood for arterial blood gas analysis is an eight-inch long cone. This piece of equipment may be too short for use in a morbidly obese parturient.

4. **Organization**

a. **Department of Family Practice.** (1) The department has brought forward its concerns for patients and for it members regarding the discontinuation of the 'pain service' to the South Island Medical Staff Committee (SIMAC). This service included the availability of an anesthesiologist to provide dedicated attention to the LDR between the hours of 08:00 and 16:00 hours, thus facilitating the provision of booked elective C-Sections and timely placement of an epidural catheter for labour analgesia. The Department of Family Medicine was unable to effect change with respect to the discontinuation of the service, despite communication with the Chief Medical Officer and the SIMAC. (2) The Department grants obstetrical privileges on the basis of an applicant having: completed his / her two year residency program, provided letters of reference, a review of his/her previous obstetrical experience and completion of Advanced Life Support in Obstetrics and the Neonatal Resuscitation Program. The privileging does not distinguish between management of low-risk and high-risk patients; this would be difficult to do in the absence of an accepted, working definition of 'high-risk'.

b. **Department of Anesthesia.** The Department has had a challenging relationship with VIHA senior administration about several contentious issues over many years

that has resulted in: the resignation of a respected Department Head, changes to the pattern of services provided, letters of complaint from VIHA about several members of the department that were sent to the BC College of Physicians and Surgeons, and public allegations about VIHA that have had a negative impact on VIHA staff and patients. Although many of these issues have more recently been framed as grievances about fees paid for contracted services, it would seem that more importantly the relationships have suffered due to erosion of respect and trust. The repercussions have been far reaching, resulting in reduced quality and safety of care to patients, as well as strained working relationships with other Departments. As with any dispute, the issues are much more complex than they appear to an uninformed observer.

The Department is interested in committing to a third service for VGH, that being a dedicated obstetrical anesthesiology (DOBA) service that would provide 24 / 7 coverage. This would be an important component, but not the only requirement for Victoria to have a top-rated tertiary level obstetrics program. The Department disagrees with the proposed fee schedule that was negotiated as part of the Physician Master Agreement between the Ministry of Health and the BCMA for DOBA. Several years ago PHSA signed a contract with anesthesiologists at BC Women's Hospital to provide DOBA (among other services) for an amount above what is currently in the Physician Master Agreement. Details about the contract are not available, which is problematic; the situation has created the belief within VGH's Department of Anesthesia that there is a two-tier payment system in the province for similar types of work. The Department strongly believes that there should be parity across the province for DOBA.

c. **Department of Obstetrics and Gynecology**. The Department was concerned when the medical on-call availability program (MOCAP) payments its members receive for taking second call at home were reduced. VIHA's MOCAP Review Committee made the recommendation as part of a plan to balance the overall MOCAP budget for VIHA. The Department felt that this was a unilateral decision made by VIHA without its input, so in response the Department refused to accept transfers of high-risk patients from other parts of the province. This decision had a substantial impact on VGH's NICU and the hospital's neonatologists. Although this issue was resolved it contributed to a suboptimal relationship between the Department and VIHA and probably impacted interdepartmental relationships. The Department does not have a leader for its Obstetric program despite searching for the past 18 months.

   The Department is supportive of having DOBA and members are frustrated that this issue has not been solved**.** If such a service were in place, the Department thinks that this would address the majority of quality and safety issues related to obstetric services in Victoria.

d. **Department of Quality, Research and Patient Safety**. In 2010 the Department conducted a proactive risk assessment (FMEA - Failure Modes and Effects Analysis) of VIHA's process for providing care to a hypothetical high-risk maternity patient. The goal was two-fold: to identify areas of high-risk and develop risk modification

strategies and to rebuild relationships between departments that are involved in providing this care. The exercise identified 11 high-level steps, 51 sub-processes and 95 potential failure modes in a case. The hypothetical scenario involved a primivigrada woman with a BMI of 38 carrying twins. Five unique failure modes were assigned the highest severity score: unplanned transfer to the main OR; failure of support from OR staff for anesthesia management; anesthesiologist not available when required, delay in availability of OR team, and delay in recognizing malpresentation. Several actions to reduce risk were identified. These included:

- eliminate transfers to the main OR by having dedicated staff / physicians to run the LDR OR 24 hours / day
- have the Department of Anesthesia provide inservices to RNs
- institute a dedicated obstetrical anesthesiology service
- upgrade the ultrasound in LDR.

Despite many hours dedicated to this project by Obstetrics, Family Practice, Neonatology/Pediatrics, Anesthesiology and Nursing, and the findings being accepted and supported by SIMAC, there is general frustration that little if any action has actually materialized from this exercise.

e. **VIHA Senior Administration.** VIHA has been challenged, like other health authorities, to balance budgets and rationalize payments that it provides for contracts. Sometimes the tough decisions that must be made are perceived to have been reached without adequate consultation. This perception has played a factor in deteriorating relationships with some of VIHA's Departments. When a few physicians have elected to advocate for more resources by stating their views publicly, VIHA has at times responded in the media in a manner and tone that is not respectful. This more confrontational approach, while understandable, has further contributed to strained relationships.

   VIHA is interested and supportive of DOBA but has been frustrated with its inability to obtain agreement with the Department of Anesthesia, despite offering the maximum amount that is prescribed in the BCMA Physician Master Agreement with the Ministry of Health. VIHA senior administration has considered the option of creating a distinct Department of Obstetrical Anesthesia and independently recruiting the anesthesiologists required to support the program; however this has no support from the current Department of Anesthesia and would be seen as divisive and not sustainable. VIHA has entered into discussions with the Ministry to determine if there is a possibility of creating greater transparency around all contracts for services across the province but in particular for DOBA. This would be an important step forward to providing the parity requested by the Department of Anesthesia.

5. Regulatory Agencies

a. Society of Obstetricians and Gynaecologists of Canada (SOGC)

The review team looked at SOGC guidelines that were relevant to the issues that were being analyzed. Four guidelines were relevant:

1. Attendance at Labour and Delivery Guidelines for Obstetrical Care (2000)[14]
2. Fetal Health Surveillance: Antepartum and Intrapartum Consensus Guideline (2007)[15]
3. Statement on Wait Times in Obstetrics and Gynaecology (2008)[16]
4. Obesity in Pregnancy (2010)[12]

The 2000 SOGC guideline on Attendance at Labour and Delivery was reviewed, including the fact that components affecting anesthesiologists had been accepted by the Canadian Anesthesiologists' Society. The guideline directs that, for a level III facility, there must be "continuous on site presence of obstetric, anaesthetic, and pediatric personnel for women in active labour". However, the guideline does not make clear if these personnel need to be present in the Labour & Delivery Unit or only present in the hospital (and therefore possibly actively engaged in other life-saving activities). In British Columbia, only the BC Women's Hospital has a DOBA service.

The Fetal Health Surveillance guideline makes many recommendations for antepartum and intrapartum fetal health surveillance. Of note the guideline describes a newer approach for classifying electronic fetal monitor (EFM) tracings either as 1) normal; 2) atypical, or 3) abnormal according to specific criteria for: 1) baseline heart rate, 2) heart rate variability, 3) decelerations, and 4) accelerations. The guideline specifies actions that should be taken for each classification of the EFM tracing. It also recommends that intrapartum EFM tracings be documented every 15 minutes.

The 2008 SOGC guideline on Wait Times states that "emergency Caesarean Sections should be performed within approximately 30 minutes". However, experts in maternal fetal medicine would argue that the time should be much shorter than this and that it is possible, in an LDR with DOBA and LDR nurses trained to cover all of the required operative assistance, for emergency Caesarean Sections to be undertaken within 5 to 7 minutes.

The 2010 guideline on Obesity in Pregnancy highlights the fact that obese patients have an increased risk of Caesarean Section and that those who do have this operation have an increased rate of complications postoperatively. Furthermore, "antenatal consultation with an anesthesiologist should be considered to review analgesic options and to ensure a plan is in place should a regional anaesthetic be chosen".

b. Provincial Health Services Authority (PHSA). PHSA operates eight agencies that provide province-wide health care services, including the BC Women's Hospital & Health Centre and the BC Children's Hospital and Sunny Hill Health Centre for

Children. Perinatal Service BC reports to this health authority. PHSA negotiated separate contracts for anesthesiologists that provide DOBA for the BC Women's Hospital, which take into account their academic roles in education and research.

c. **Perinatal Services BC (PSBC).** PSBC reports to the PHSA and its goal is to "improve the capacity and processes of provincial perinatal services through strategic leadership across a range of initiatives, with an overriding commitment to quality, accountability and resource planning, education and knowledge transfer, performance targets development and monitoring, and clinical standards achievement. PSBC has an oversight responsibility that is province-wide including:
   - Accountability for level 3 neonatal intensive care (NICU) and specialized acute maternity beds
   - Oversight via collaboration with stakeholders, and especially health authorities, regarding level 1 and 2 neonatal and high-risk maternity beds, as well as other perinatal services across the care continuum, from public health, to primary and community care, to hospital care.

d. **Accreditation Canada.** Accreditation Canada completed its Qmentum accreditation process of VIHA's Maternal and Fetal program in 2010. One of the issues highlighted in the report was DOBA and led to the following observation / recommendation:

   There is restricted availability of anesthesia services to support obstetric operative procedures (C-sections) and pain management at the VGH site. Clinical leadership states that this has had a direct impact on timely access to emergent cesarean sections, giving examples where a delay of up to two hours for an emergency section has occurred when the on call anesthetist was previously occupied in providing service for an emergency procedure in the OR. This is a significant risk issue for the VIHA, which should be addressed immediately.

e. **BC College of Physicians and Surgeons.** The College has been involved with the issue of physicians or physician groups withdrawing services from health authorities and has a published policy about this issue. The withdrawal, by the Department of Anesthesia, of its pain service from VGH in 2010 would appear to fall in a gray area as far as this policy is concerned. The services that the Department of Anesthesia had provided in the past have not been withdrawn; rather, the way in which the services were provided was reorganized. It would be difficult if not impossible to show a direct relationship between the change in this service and adverse patient outcomes (i.e., patient safety). Nevertheless, the negative patient experiences that resulted from this decision led VIHA to ask the BC College to investigate. The College did not believe that the VGH anesthesiologists' decision met the criteria for withdrawal of a service that had patient safety implications.

f. **BC Ministry of Health.** The Ministry of Health is responsible for setting physician fees through a fee-for-service schedule of benefits, as well as through funding for physicians who provide necessary on-call services for health authorities. Some physician services are reimbursed through alternate payment contracts that

guarantee compensation independent of the actual number / type of services provided. Additional contracts are often negotiated with academic hospitals because of some of the unique challenges such institutions experience. These contracts, as well as alternate payment plans, are not transparent like the fee-for-service schedule. This lack of transparency naturally generates concern that, although all physician groups are meant to be treated fairly, there is a perception that some groups are 'treated more fairly than others'.

Several years ago, in an attempt to improve payments to anesthesiologists providing obstetric services, the Ministry negotiated an increase with the BC Medical Association (BCMA) for anesthesia obstetrical services at high-volume sites. The allocation of fees was handled by the BCMA and the BC Anesthesiologists' Society (BCAS). The decision of the BCAS was to apply the increase completely to the fee for service for epidurals rather than towards contracts for anesthesiologists working at high volume sites who provided obstetrical anesthesia.

g. **BC Anesthesiologists' Society (BCAS).** The BCAS has broken away from the BCMA and is attempting to negotiate fees directly with the Ministry; however to date the Ministry has not agreed to do this. The Society has used cases, such as the one reviewed here, to highlight the issues of a shortage of anesthesiologists in BC that is linked directly, in the view of the Society, to the inadequate fee schedule for anesthesiologists.

Recommendations

The recommendations that were generated based on this review have been organized to follow the framework of patient safety / quality topics, which is based on the Healthcare Encounter Safety and Quality Model.[11] There are five major elements to this framework and model:

1. **Design** healthcare delivery to achieve optimal outcomes
2. **Deliver** optimal care
3. **Respond** when healthcare delivery and outcomes are not optimal
4. **Leadership**
5. **Principles**

Design Tertiary Maternal - Fetal Care at the VGH to achieve optimal outcomes

The review team believes that the fundamental elements exist to provide state of the art, tertiary level, maternal - fetal care in Victoria. There are many committed and highly trained individuals and a willingness at an individual level to work collaboratively with other respected healthcare professionals. However, VIHA requires a clear vision that is endorsed by all stakeholders, including patients, about what tertiary level service looks like in 2012 and beyond. There are many pieces to this puzzle that will not fit together optimally unless there is an overarching design for this program. Such a program should be a stated priority of VIHA, endorsed by the Board and communicated to all stakeholders. Because this is part of a provincial service, this vision for maternal – fetal care needs to link to Perinatal BC's plans for province-wide standards. This linkage is particularly relevant for the issue of DOBA but also for the adequate support of neonatal resources. The following recommendations are made to focus the VIHA improvement effort:

Recommendation 1

VIHA's Population and Community Health portfolio should lead the creation of a visionary, tertiary-level, Maternal – Fetal Healthcare Program (MFHP). Such a program should describe the optimal tertiary model of care that would best fit with Victoria's unique features, including the physical space requirements for such a program to thrive. A multidisciplinary team that includes patient representation should be charged with developing an appropriate model of care. The vision should include an enhanced academic focus; thus discussions should include the University of British Columbia (UBC) and other appropriate educational institutions in the province. The vision could include a major capital fund-raising campaign to provide funds that would allow needed expansion of space.

Recommendation 2

The model of care delivery should focus on the proactive management of antepartum and intrapartum risks to mother and child by: 1) defining risk factors that categorize patients within certain risk profiles (This should be done in conjunction with Perinatal BC so that provincial standards can be established); 2) assigning responsibility to the most appropriate healthcare provider (or team of providers) based on the number and severity of risks to maternal / fetal wellbeing that a patient has (This should include primary obstetrical care being provided for highest risk patients by Obstetricians / Perinatologists); and 3) developing a multidisciplinary team approach for managing the highest risk patients.

Recommendation 3

VIHA's Population and Community Health portfolio should work closely with the Department of Family Practice and with midwives to ensure the continued viability of a very strong and important part of the current model of obstetric care in Victoria. This part of the model should be retained and strengthened, capitalizing on future opportunities for training undergraduate and postgraduate students in obstetrical practice.

Recommendation 4

VIHA's Population and Community Health portfolio should establish a dedicated obstetrical anesthesiology (DOBA) service that functions within the current Department of Anesthesia as soon as possible. Priority should be given to candidates with specialized training in obstetric anesthesiology.

Recommendation 5

VIHA's Chief Medical Officer and Chief Executive Officer should work expeditiously with PHSA and the Ministry of Health to establish the principle of equitable payment for the DOBA service as part of a provincial strategy for the provision of tertiary level obstetric care in British Columbia. The Department of Anesthesia and the Health Authority Medical Advisory Committee should be kept regularly apprised of their efforts on this file.

Recommendation 6

VIHA's Population and Community Health portfolio, working with the Office of the CMO and Department Heads, should update existing manpower plans for Obstetrics, Anesthesia, Pediatrics, Neonatology, Family Practice and Midwives to support the MFHP. This should be accompanied by a plan for appropriate levels of nursing and allied health staffing to support the MFHP.

Recommendation 7

VIHA's Population and Community Health portfolio working with the Office of the CMO, the Department of Obstetrics and Gynecology, and UBC should recruit an academic Head of Obstetrics. The position should be given appropriate authority (including budget) and structured to allow for additional recruitment so that a focus of expertise can be developed in the multidisciplinary management of high-risk obstetrical patients.

Recommendation 8

The Executive Medical Director and Executive Director, Quality & Patient Safety should work with the MFHP to design and develop appropriate performance measures for the clinical microsystems[17,18] that deliver care to mothers and neonates. These performance measures would ideally be available electronically and be tracked over time as a key piece of a safety and quality management system.

Delivery of Optimal Care

Recommendation 9

The Director of Child, Youth and Family Health and the Manager of LDR should take necessary steps to ensure that an appropriate number of LDR nurses are trained in all aspects of obstetrical surgical care such that the LDR can function independently of the Main Operating Room.

Recommendation 10

The Executive Medical Director, Population and Community Health, should complete an audit of all physicians and midwives with obstetric privileges (and midwives) at VGH to ensure training in Fetal Health Surveillance is current and has been implemented in practice. Further, the Executive Medical Director should ensure that this becomes a standard for the granting of obstetrical privileges within VIHA.

Recommendation 11

Until a master plan of space requirements for a Maternal – Fetal Health Centre are completed, VIHA should consider relocating its Biomedical Engineering from the 3rd floor of VGH and use that space to provide immediate space requirements for the LDR.

Recommendation 12

VIHA should post neonatal resuscitation algorithms and drug doses in easily found places wherever neonatal resuscitation might take place. This would be particularly relevant at this time for the main ORs.

Recommendation 13

VIHA should encourage the SOGC to work with the Canadian Anesthesiologists' Society to update and clarify their publication: Attendance at Labour and Delivery - Guidelines for Obstetrical Care (2000). In addition, VIHA may also wish to ask the Canadian Anesthesiologists' Society to consider developing a formal process for such collaboration and review of potentially joint guidelines, as well as a formal process for the dissemination of these guidelines to all Canadian anesthesiologists. Both Societies could consider the development of such guidelines with the principles of "Collaboration, Simplicity, (and) Transparency".[19]

Respond when Outcomes, and the Design / Delivery of Care were not optimal

Recommendation 14

Recognizing that VIHA has existing policies on disclosure and reporting, the Quality & Patient Safety portfolio, under the authority of the Chief Medical Officer and Chief Operating Officer, should develop an organizational policy and procedure for managing serious adverse events. The management plan should include the following aspects: 1) immediate management; 2) appropriate support for patients and for staff; 3) disclosure to the patient; 4) informing key stakeholders; 5) reporting; 6) analysis of an adverse event using an appropriate system based approach; 7) evaluation of individuals.

Leadership

Recommendation 15

VIHA and its Departments should come to a mutual agreement about working together in the future based on the principles highlighted below. Specifically - to protect the reputation of all involved and to (re)gain public confidence, VIHA and its medical staff should avoid using the media as a vehicle for airing differences, even if a patient suffers an unfortunate outcome. All methods for dispute resolution should be used when there are disagreements over the allocation of limited resources.

Recommendation 16

VIHA should support formal leadership training and development amongst its medical staff and adequately resource its medical leaders so they function optimally in these extremely challenging but important roles.

Principles[20]

Recommendation 17 – Patient engagement

VIHA should formally and consistently engage appropriate patients in all decisions made about improvements to maternal-fetal care in Victoria. To facilitate this, VIHA should consider creating a position to coordinate and lead patient engagement that is part of the Quality and Safety portfolio.

Recommendation 18 – Respectful, transparent relationships

Safe care requires effective communication that only takes place consistently within relationships that are built on trust. Trust is gained through respect and transparency. VIHA, Department Heads and medical staff should model this principle in their relationships by committing to respectful communication and being as transparent as possible when negotiating physician payments.

Recommendation 19 – Recognizing that healthcare is a complex environment and healthcare providers should be supported within a just and trusting culture

VIHA should examine the elements of a just and trusting culture and recognize that this is a foundation for a safety culture, and take steps towards implementing policies and procedures that would support and encourage such a culture.

Recommendation 20 – Responsibility and accountability

Successful improvement is only possible when clear accountability for implementation is specified. Therefore, for each recommendation VIHA accepts from these reports, responsibility should be assigned to a specific individual who is given an appropriate amount of authority to act.

Recommendation 21 – Continuous learning and improvement

Since high quality and safe care require continuous improvement, VIHA should adopt and invest in a model for quality and safety management that provides: (1) appropriate methods for identifying improvement opportunities / hazards; (2) a method for prioritizing those opportunities; (3) a tool set of improvement methods; and (4) performance measures for the teams leading improvements.

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