



# MATERNAL/FETAL AND NEONATAL SERVICES: Tiers in Brief to Support System Planning

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### How to cite the Maternal/Fetal and Neonatal Services: Tiers in Brief to Support System Planning

We encourage you to share this document with others and we welcome its use as a reference.

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## Maternal/Fetal and Neonatal Services: Tiers in Brief to Support System Planning

### 1.0 Tiers of Service

#### 1.1 *Tiers of Service Framework & Approach*

Planning and coordinating Maternal/Fetal and Neonatal services are major areas of focus for Perinatal Services BC (PSBC) and its partners (health authorities, ministries, community services, etc.). The Tiers of Service framework provides a tool to define and plan such services.

Utilizing a common language and methodology, the Tiers of Service framework:

- Recognizes that health services, while important, are one of several factors that contribute to maternal/fetal, neonatal, and infant overall well-being.
- Is informed by a review of frameworks/tools in other jurisdictions around the world.
- Facilitates system planning for clinical services, knowledge sharing/training, and quality improvement/research. The responsibilities & requirements for each of these three areas are defined within the Tiers framework.

Perinatal Services BC is leading the use of the Tiers of Service approach to system planning for Maternal/Fetal and Neonatal services. This is being done through:

*Creation of a series of modules:* Tiers of Service modules are being created for both Maternal/Fetal and Neonatal services.

*Self-assessment based on the modules:* Once the modules are finalized & accepted by key provincial partners, a self-assessment is completed by each facility. PSBC will work with health authority partners as necessary to support the completion of this work.

*System planning and service planning based on self-assessment results:* Using the findings from the self-assessment analysis, PSBC will support provincial, regional and local planning in collaboration with other entities.

## 2.0 Maternal/Fetal and Neonatal Tiers of Service

### 2.1 Module Development

The Maternal/Fetal and Neonatal Tiers of Service modules are made up of two components:

- (1) Setting the Stage for Tiers Development: Summarizes the data and literature used to create the modules.
- (2) Tiers in Brief to Support System Planning: Provides a high-level overview of key aspects of the Maternal/Fetal and Neonatal modules (**this document**).

In 2016, PSBC published a Perinatal Tiers of Service module<sup>1</sup>. This module was revised in late 2019 by an interprofessional working group comprised of representative(s) from each of BC's health authorities (various combinations of obstetricians, perinatologists, pediatricians, neonatologists, general practitioners, nurses, midwives, health directors/managers and planners) and a meeting facilitator. Two working groups (Maternal/Fetal and Neonatal) were established, accountable to the PSBC Steering Committee and their Health Authorities. The final version of each module was accepted by the PSBC Steering Committee.

The document was informed by work done in other jurisdictions, mostly notably Queensland<sup>2,3</sup>, New South Wales<sup>4</sup> and Western Australia<sup>5</sup>. B.C. data were used where it was available, as were relevant BC & Canadian standards & guidelines (e.g., Ontario Provincial Council for Maternal Child Health – Levels of Care; Accreditation Canada standards, Society of Obstetricians and Gynecologists of Canada, Canadian Pediatric Society, Royal College of Physicians and Surgeons [UK], American Academy of Pediatrics, American Academy of Pediatrics, American Congress of Obstetricians and Gynecologists, and National Health Service [UK]).

### 2.2 Module Scope

These modules focus on services provided to pregnant women or individuals, their fetus(es), and neonates in:

- Health Authority funded acute care hospitals; and
- Midwifery and physician supported home births; and
- Community-based antenatal and postnatal services.

While some primary care and community care services are identified in the module to acknowledge the continuum of services, it is recognized that the scope of activities required to support pregnant women or individuals, their fetus(es), and neonates goes far beyond what is in these modules. Further discussion of the needs, subsequent planning and action is strongly supported.

For the purposes of this document, "acuity" and "complexity" are terms used to help differentiate the tiers from each other. Acuity can be defined in terms of the level of severity of the presenting complaint, or how life-threatening it is; complexity is related to the multiplicity of underlying disorders or systems involved, including co-morbidities. Table 1 provides definitions for the different levels of acuity and complexity defined for this document.

Table 1. Levels of Acuity and Complexity

Level	Risk Assessment	Acuity	Complexity
Low	Low Risk	Condition not anticipated to impact well-being; if a condition is present requiring increased observation, it is transient.	Maternal/fetal or neonatal conditions that are common, have a mild systemic impact, and can be managed using standard resources and treatment protocols by a midwife or FP.
Medium	Moderate Risk	Condition impacting well-being but not life-threatening; requires increased observation and care.	Maternal/fetal or neonatal medical, surgical, or obstetrical conditions that may have a systemic impact and require access to a range of specialty care providers and resources.
High	High Risk	Condition life-threatening; requires intensive care.	Maternal/fetal or neonatal medical, surgical, or obstetrical conditions with severe systemic impact and requiring access to multi and/or subspecialty care providers and resources.

### 2.3 Module Implementation

The Maternal/Fetal and Neonatal Tiers of Service provide a guide to the responsibilities and requirements to provide a safe, sustainable and appropriate level of service. Facilities must be capable of meeting, **at a minimum**, all criteria described for their relevant tier on a **planned** basis. This, in turn, will assist with the planning and development of services appropriate to the needs of the relevant catchment area (local, regional and/or provincial).

#### Undertaking Procedures Normally Undertaken at a Higher Tier of Service

Facilities may have the clinical expertise, support services and equipment to provide some (but not all) planned activity(ies) described as being within the service scope of a higher tier. Undertaking such activities which are normally performed at higher tier sites should only be considered where the facility is able to undertake the activity(ies) consistently (not occasionally) and the enhanced role is consistent with the maternal/fetal and/or newborn service plan within the health authority.

#### Short-term or Permanent Move to a Lower Tier of Service

A maternal/fetal or neonatal service may need to reduce the scope of their service to a lower tier for a temporary period (e.g., key provider is no longer available and recruitment is underway). Health Authorities are responsible for advising PSBC and the relevant Health Authority network and ensuring that appropriate arrangements and management plans are in place.

If a maternal/fetal or neonatal service regularly reduces their scope to a lower tier, the Health Authority is encouraged to review the capability of that facility using the Tiers of Service modules. Permanent changes to services are communicated to the PSBC and the relevant Health Authority network.



### **Permanent Move to a Higher Tier of Service**

To move to a higher tier, a facility must complete a self-assessment before service changes will be considered. The facility must be able to consistently meet all criteria described at the higher tier. Raising the tier of service should not occur solely based on the skills of an individual clinician. Changes need to take into account the required clinical expertise (and the ongoing availability of that clinical expertise), support services and equipment to maintain activity(ies) at the proposed higher tier.

### **Unplanned/Emergency Service**

While the expectation is that each facility will align with the services outlined, occasional exceptions may occur, usually due to geography & transportation, in which treatments or procedures may be done on a case-by case basis in an unplanned/emergency service. These exceptions are appropriate in situations in which the resources (trained personnel, equipment, etc.) are available and deferring the treatment or procedure would be detrimental to the patient. All sites are required to have the capability to respond, stabilize and provide initial care to pregnant women and individuals, manage common obstetric and any neonatal conditions. Utilizing the Patient Transfer Network, all sites need to have the capability to transfer patients to higher level of care if and when required.

In preparation for an unplanned event, all sites must meet these minimum requirements:

1. Trained personnel to respond to unplanned delivery or OB Emergency
2. Clear transfer/transport process identified and available to personnel
3. Process to provide care to pregnant women and individuals < 20wk/GA and > 20wk/GA
4. Medication to manage OB/PP/Neo emergencies available and on hand
5. Equipment to support maternal and neonatal emergencies
6. Linkage to regional sites for clinical support and specialist consult

### **Rural and Remote Considerations**

Clinicians in rural and remote facilities need to balance local service capability against the impact on the pregnant woman or individual, newborn, and family when transferring to a higher tier of service. A pregnant woman or individual may be unable or unwilling to access care in the recommended location for a variety of reasons including the impact of travel (e.g., logistics and cost) and isolation from family and support structures. Clinicians are encouraged to acknowledge and respect a pregnant woman or individual's autonomy and right to be informed of the risks and benefits according to their personal needs and values. A pregnant woman or individual should be supported to make informed decisions and be provided with balanced information on services available.

On an **as needed basis**, facilities may occasionally provide care outside the service scope for their planned tier of service. To ensure clinical safety and quality of care in such instances:

- Advice and support should be sought from higher tier of service within the PSBC and Health Authority network for the pregnant woman or individual and/or newborn's clinical management team-based plan.
- Local consultation should occur with other clinicians regarding proposed procedure and impact on related services within the facility.
- Detailed discussions should occur with the pregnant woman or individual regarding potential risks with the aim of assisting the patient to make an informed choice regarding decisions for

care. This discussion should be documented in the pregnant woman or individual's medical record.

- Higher tiered Maternal/Fetal and/or Neonatal service facilities are expected to support rural and remote facilities by providing clinical advice, assisting with the development of clinical guidelines, making training and educational opportunities available, participating in collaborative care arrangements, providing clinical services such as outreach clinics (face-to-face or virtual) and/or participating in clinical review meetings.

### 3.0 Clinical Service

While some primary care and community care services are identified in the module to acknowledge the continuum of services, it is recognized that the scope of activities required to support pregnant women or individuals, their fetus(s), and neonates goes far beyond what is in this module. Further discussion of the needs and subsequent planning and action is strongly supported.

#### 3.1 Maternal/Fetal Service

**Maternal/Fetal** Tiers of Service range from no planned service, Tier 1 to Tier 6. Tier 6 maternal/fetal service provides perinatal services to pregnant women and individuals with very high-risk pregnancies and/or with conditions that are life-threatening to the mother or fetus, requiring 24/7 multi-and/or subspecialty care.

Maternal/Fetal Tiers of Service					
Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
Clinical Service					
Service Description / Responsibilities					
<ul style="list-style-type: none"> <li>Provides community-based antenatal and postnatal services to pregnant women or individuals in collaboration with higher tiers.</li> <li>Provides education and support which includes (but is not limited to) parenting, bonding, feeding &amp; lactation, &amp; identification and management of anxiety and postpartum depression.</li> <li>Informs pregnant woman or individual</li> </ul>	<p>Same as Tier 1 plus:</p> <ul style="list-style-type: none"> <li>Provides perinatal services to healthy pregnant women or individuals with low-risk term pregnancies and <b>≥37 weeks gestation</b> anticipating spontaneous vaginal delivery of healthy singleton infant in a mother-baby dyad care model; includes hospitals and home births. Arranges transfer of pregnant women or individuals requiring caesarean section to higher tier.</li> </ul>	<p>Same as Tier 2 plus:</p> <ul style="list-style-type: none"> <li>Provides perinatal services to pregnant women or individuals with low to moderate risk pregnancies not anticipated to impact well-being of the mother &amp;/or fetus and at <b>≥34 weeks gestation</b>; capacity to provide induction and augmentation of labour at term.</li> <li>For hospitals with &gt;750 deliveries and Tier 3 neonatal service onsite, may provide perinatal services to pregnant</li> </ul>	<p>Same as Tier 3 plus:</p> <ul style="list-style-type: none"> <li>Provides perinatal services to pregnant women or individuals with moderate risk pregnancies and <b>≥30 weeks gestation</b> which impact the well-being of the mother &amp;/or fetus, but not complex, high-risk conditions (e.g. cardiac; complex, nonlethal congenital abnormalities in fetus(s); and complicated multiple births).</li> </ul>	<p>Same as Tier 4 plus:</p> <ul style="list-style-type: none"> <li>Provides perinatal services to pregnant women or individuals with high risk pregnancies which may seriously impact the well-being of the mother &amp;/or fetus.</li> <li>Regional MFM referral service with telephone advice and support 24/7 for all Tiers within the Health Authority.</li> <li>Supported by the Tier 5 neonatal service onsite.</li> <li>Supports maternal/fetal</li> </ul>	<p>Same as Tier 5 plus:</p> <ul style="list-style-type: none"> <li>Provides perinatal services to pregnant women or individuals with very high-risk pregnancies and/or with conditions that are life-threatening to the mother or fetus, requiring 24/7 multi-and/or subspecialty care.</li> <li>Provincial MFM referral service with telephone advice and support for Tiers 1 to 5 24/7.</li> <li>Provides specialist obstetrical services including subspecialty</li> </ul>



Maternal/Fetal Tiers of Service					
Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
<p>about the safety, efficacy, risks and benefits of care options, including their choice of birthplace. No planned birthing (intrapartum) or neonatal nursery care available.</p> <ul style="list-style-type: none"> <li>Documented process in place for consultation and referral within the Health Authority network.</li> </ul>	<ul style="list-style-type: none"> <li>If spontaneous labour patient arrives at <b>≥35 weeks gestation</b> and can be supported by the Tier 2 neonatal service onsite, may be able to stay at Tier 2.</li> <li>If caesarean section capability onsite, as per criteria above and can provide elective (&gt;39 weeks) for healthy pregnant women or individuals with low-risk term pregnancies.</li> <li>Supports maternal/fetal consultations, referrals, and transfers from Tier 1. Accepts appropriate repatriation from Tiers 3 to 6.</li> </ul>	<p>women or individuals at <b>≥32 weeks gestation</b>.</p> <ul style="list-style-type: none"> <li>If spontaneous labour patient arrives at <b>≥32 weeks gestation</b>, and can be supported by the neonatal service onsite, may be able to stay at Tier 3.</li> <li>Performs low to moderate elective (planned) and emergency caesarean sections 24/7</li> <li>Provides antenatal care for pregnant women or individuals with identified risk factors in consultation with, and as considered appropriate by higher tier service.</li> <li>Supports maternal/fetal consultations, referrals, and transfers from Tiers 1 and 2. Accepts appropriate repatriation from Tiers 4 to 6.</li> </ul>	<ul style="list-style-type: none"> <li>Supported by the Tier 4 neonatal service onsite.</li> <li>Supports maternal/fetal consultations, referrals, and transfers from Tiers 1 to 3. Accepts appropriate repatriation from Tiers 5 and 6.</li> </ul>	<p>consultations, referrals, and transfers from Tiers 1 to 4. Accepts appropriate repatriation from Tier 6.</p>	<p>maternal fetal medicine, maternal fetal interventional surgery, genetic services, and obstetrical internal medicine.</p> <ul style="list-style-type: none"> <li>Onsite MFM consultation available for fetal service 24/7. If not onsite, has established links and support with geographically appropriate (within 1 hour driving distance) Tier 6 fetal and/or neonatal service for immediate consultation, referral and transfer.</li> <li>Onsite Adult Intensive Care Unit available for maternal service 24/7. If not onsite, has established links and support with geographically appropriate (within 1 hour driving distance) Adult Intensive Care Unit for immediate consultation, referral and transfer.</li> </ul>

Maternal/Fetal Tiers of Service					
Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
					<ul style="list-style-type: none"> <li>Supported by the Tier 5 or Tier 6 neonatal service onsite.</li> </ul>
Requirements					
Providers					
<ul style="list-style-type: none"> <li>Antenatal and postpartum service are provided by a variety of healthcare providers depending on patient need.</li> </ul>	<p>Same as Tier 1 plus:</p> <ul style="list-style-type: none"> <li>FP with obstetrical privileges or privileged RM on-call 24/7.</li> <li>For the newborn: Every birth should be attended by <i>at least 1 NRP qualified individual</i> whose only responsibility is the management of the newly born baby. If risk factors are present, <i>at least 2 qualified people should be present solely to manage the baby.</i></li> <li>For hospitals with &gt;150 deliveries, personnel capable of performing caesarean sections on-call 24/7 (i.e. general surgeon, FP with enhanced obstetrical skills or obstetrician),</li> </ul>	<p>Same as Tier 2 plus:</p> <ul style="list-style-type: none"> <li>Personnel capable of performing caesarean sections on-call 24/7 (i.e. general surgeon, FP with enhanced obstetrical skills or obstetrician).</li> <li>For hospitals with &lt;750 deliveries, access to OB consultation in community.</li> <li>For hospitals with &gt;750 deliveries, pediatrician and obstetrician on-call 24/7 &amp; available to come on-site as required.</li> <li>Anesthesiologist or FP with anesthetic skills on-call 24/7</li> <li>RNs with perioperative scope of practice 24/7 on-call.</li> </ul>	<p>Same as Tier 3 plus:</p> <ul style="list-style-type: none"> <li>Obstetrician on-call 24/7.</li> <li>Anesthesiologist on-call 24/7.</li> <li>Pediatrician on-call 24/7.</li> <li>For hospitals with &gt;1,250 deliveries, plan for back-up or access to second OR team if needed for urgent surgery.</li> <li>Hospital RN with perinatal specialty education or equivalent 24/7.</li> <li>Access to hospital RN with Critical Care certification 24/7.</li> <li>Access to pharmacy services.</li> </ul>	<p>Same as Tier 4 plus:</p> <ul style="list-style-type: none"> <li>Obstetrician onsite 24/7.</li> <li>Anesthesiologist on-call 24/7 &amp; available to come on-site as required for obstetrical services.</li> <li>For hospitals with &gt;3,000 deliveries, require designated anesthesiologist<sup>1</sup>, OR team, and dedicated OR 24/7.</li> <li>Neonatologist on-call 24/7.</li> <li>Pediatrician (or neonatologist designate) onsite 24/7.</li> <li>Access to 24/7 subspecialists: internal medicine, intensivist, general surgery, gynecology, urology, medical genetics, and reproductive</li> </ul>	<p>Same as Tier 5.</p> <ul style="list-style-type: none"> <li>Dedicated OB Anesthesiologist onsite 24/7.</li> <li>Tier 6 Fetal: MFM on-call 24/7 and able to attend onsite 24/7.</li> </ul>

<sup>1</sup> Designated anesthesiologist is not equivalent to dedicated obstetrical anesthesiology (DOBA) service.

Maternal/Fetal Tiers of Service					
Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
	<ul style="list-style-type: none"> <li>supporting staff, and onsite OR.</li> <li>In hospital RN/LPNs: successful completion of basic perinatal course; RN/LPNs supported with breastfeeding education</li> <li>RN who has completed the FHS course 24/7 for NSTs and when women are in labour at hospital.</li> <li>Liaison to PHN</li> <li>Access to Regional Perinatal Educator or CNE.</li> <li>Access to allied health services (may be off-site).</li> </ul>	<ul style="list-style-type: none"> <li>Access to onsite allied health services.</li> <li>Performs, results &amp; interprets a limited range of transfusion medicine tests on-site: ABO/D, Group &amp; Screen (GS) &amp; limited cross matching (electronic cross matches where available).</li> </ul>		<ul style="list-style-type: none"> <li>infectious disease specialists.</li> <li>Access to dedicated onsite clinical pharmacist and specialized allied health services.</li> <li>Access to reproductive mental health specialist.</li> <li>Access to pharmacy services 24/7.</li> </ul>	
Facility					
<ul style="list-style-type: none"> <li>Antenatal and postpartum care can be provided in a variety of settings including home visits.</li> <li>No planned birthing (intrapartum) or neonatal nursery care onsite.</li> </ul>	<ul style="list-style-type: none"> <li>Access to outpatient electronic fetal monitoring.</li> <li>In hospital – at least one designated labour/delivery room (with appropriate equipment available) and postpartum room or single room maternity care</li> <li>Planned home birth – supplies and</li> </ul>	<p>Same as Tier 2 plus:</p> <ul style="list-style-type: none"> <li>Dedicated maternity ward.</li> <li>Onsite OR.</li> <li>Standard plasma protein products &amp; blood components stored on-site 24/7 (most RBC groups, plasma, albumin, RhIG).</li> </ul>	<p>Same as Tier 3 plus:</p> <ul style="list-style-type: none"> <li>Access to onsite perinatal and general ultrasound service.</li> <li>For hospitals with &gt;1,250 deliveries, dedicated physical space and staffed OR for obstetrical services 24/7.</li> <li>Pools &amp; aliquots &amp;/or plasma reduces blood components &amp;</li> </ul>	<p>Same as Tier 4 plus:</p> <ul style="list-style-type: none"> <li>Onsite adult high acuity unit (HAU) or intensive care unit. If no ICU, has documented process with an off-site intensive care unit for referral/transfer.</li> <li>Onsite inpatient beds for serious medical and/or surgical conditions, (e.g.</li> </ul>	<p>Same as Tier 5 plus:</p> <ul style="list-style-type: none"> <li>Tier 6 Maternal: Access to onsite Cardiac Care Unit, Neurosurgical Services, and minimum Tier 5 neonatal services.</li> <li>Tier 6 Fetal: Access to fetal surgery and full spectrum of fetal intervention 24/7.</li> </ul>

Maternal/Fetal Tiers of Service					
Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
	<p>equipment to treat emergency conditions in the home are readily available.</p> <ul style="list-style-type: none"> <li>If providing elective &amp; emergent caesarean section services, has an onsite OR.</li> </ul>		<p>prepares components for routine, non-emergency &amp; emergency transfusions (including massive transfusion) 24/7</p>	<p>pulmonary edema, cardiac/ renal) or documented process for off-site beds to support care for critically ill pregnant woman or individuals.</p>	
Knowledge Sharing and Transfer/Training					
Student Learning					
<ul style="list-style-type: none"> <li>No formalized student teaching responsibilities<sup>2</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>May offer training for midwifery students and other healthcare students.</li> </ul>	<p>Same as Tier 2 plus:</p> <ul style="list-style-type: none"> <li>If designated by UBC as a training site, provides perinatal inpatient &amp;/or community and outpatient learning experiences for: <ul style="list-style-type: none"> <li>Undergraduate medical students.</li> <li>Family medicine residents.</li> <li>Elective obstetrical residents.</li> <li>Midwifery students.</li> </ul> </li> <li>May offer nursing and allied health undergraduate education by offering practicum placements in perinatal care.</li> </ul>	<p>Same as Tier 3 plus:</p> <ul style="list-style-type: none"> <li>Designated by UBC as an OB/GYN training site for: <ul style="list-style-type: none"> <li>Undergraduate medical students.</li> <li>Family medicine residents.</li> <li>Pediatric residents</li> <li>Elective obstetrical residents.</li> <li>Midwifery students</li> </ul> </li> <li>Supports nursing and allied health undergraduate education by offering practicum placements in perinatal care.</li> </ul>	<p>Same as Tier 4 plus:</p> <ul style="list-style-type: none"> <li>Range of obstetrical experiences is broader than Tier 4 and encourage rotations in areas of subspecialty OB/GYN and experience in MFM.</li> </ul>	<p>Same as Tier 5 plus:</p> <ul style="list-style-type: none"> <li>Designated by UBC as an OB/GYN training site for: <ul style="list-style-type: none"> <li>Obstetrical residents</li> <li>Anesthesia residents for obstetrical rotations</li> <li>MFM fellows</li> </ul> </li> <li>Range of obstetrical experiences is broad, including rotations in low to high risk obstetrics, MFM including both maternal high-risk obstetrics and fetal conditions, OB internal medicine, medical genetics, and ultrasound.</li> </ul>

<sup>2</sup> Further discussions of the needs for primary care and community care and subsequent planning is strongly supported.

Maternal/Fetal Tiers of Service					
Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
			<ul style="list-style-type: none"> <li>Range of obstetrical experiences is broader than Tier 3.</li> </ul>		<ul style="list-style-type: none"> <li>In conjunction with UBC, develops model for training of MFM residents in BC.</li> </ul>
Continuing Education					
<ul style="list-style-type: none"> <li>May offer informal perinatal continuing education opportunities for primary care and community care services.</li> <li>No formalized continuing education responsibilities<sup>3</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>Supports interprofessional team to attend relevant learning opportunities within the Health Authority/ Provincial tiered network to maintain clinical competencies.</li> <li>Mechanisms in place to regularly review interprofessional team education needs related to maintenance of maternal/fetal competencies.</li> <li>Participate in Obstetrical risk management and interprofessional training programs</li> <li>Healthcare providers are encouraged to take part in the FHS refresher course every two years.</li> </ul>	<p>Same as Tier 2 plus:</p> <ul style="list-style-type: none"> <li>Facilitates interprofessional team access to learning activities based on identified practice gaps, including the practice of critical clinical skills where limited opportunity exists in practice (e.g., simulation, off-site clinical experiences).</li> </ul>	<p>Same as Tier 3 plus:</p> <ul style="list-style-type: none"> <li>Provides educational opportunities for staff working in sites that provide Tier 2 to 3 maternal/fetal services.</li> <li>May offer team-based learning with simulation</li> </ul>	<p>Same as Tier 4 plus:</p> <ul style="list-style-type: none"> <li>Provides educational opportunities for staff working in sites that provide Tier 2 to 4 maternal/fetal services.</li> </ul>	<p>Same as Tier 5 plus:</p> <ul style="list-style-type: none"> <li>Provides educational opportunities for staff working in sites that provide Tier 2 to 5 maternal/fetal services.</li> </ul>

<sup>3</sup> Further discussions of the needs for primary care and community care and subsequent planning is strongly supported.

Maternal/Fetal Tiers of Service					
Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
Quality Improvement and Research					
<ul style="list-style-type: none"> <li>Supports healthcare providers to provide perinatal care according to national/provincial guidelines/standards.</li> <li>Healthcare providers who provide direct antenatal care contributes to the BC Perinatal Data Registry.</li> <li>Actively participates in Health Authority &amp; local interprofessional perinatal quality improvement processes, including clinical outcome &amp; morbidity/mortality reviews.</li> <li>No formal research responsibilities.</li> </ul>	<p>Same as Tier 1 plus:</p> <ul style="list-style-type: none"> <li>Health Authority QI structures &amp; processes are in place to specifically review &amp; improve the quality &amp; safety of maternal/fetal care, including case reviews.</li> </ul>	<p>Same as Tier 2 plus:</p> <ul style="list-style-type: none"> <li>Participates in provincial maternal/fetal improvement initiatives.</li> </ul>	<p>Same as Tier 3 plus:</p> <ul style="list-style-type: none"> <li>In collaboration with Tiers 5 and 6, leads maternal/fetal improvement initiatives at a regional level to address quality/risk issues in hospitals within Health Authority network.</li> <li>In partnership with PSBC and Health Authority network, develops &amp; shares perinatal guidelines/policies within the Health Authority.</li> <li>Participates in provincial Maternal and Neonatal morbidity/mortality reviews.</li> <li>Supports Tier 1-3 within their Health Authority to conduct Maternal and neonatal morbidity/maternal reviews.</li> </ul>	<p>Same as Tier 4 plus:</p> <ul style="list-style-type: none"> <li>Establishes mechanisms &amp; processes for quality improvement within the Health Authority, including clinical outcome &amp; morbidity/mortality reviews.</li> <li>Leads perinatal quality improvement projects within the Health Authority.</li> <li>Participates in research related to the specialty.</li> </ul>	<p>Same as Tier 5 plus:</p> <ul style="list-style-type: none"> <li>Leads provincial evaluation/quality improvement projects.</li> <li>Leads and supports others to conduct obstetric and fetal research.</li> </ul>



### 3.2 Neonatal Service

**Neonatal** Tiers of Service range from no planned service, Tier 1 to Tier 6. Tier 6 neonatal service provides neonatal services to newborns who are very high risk and/or with conditions that require 24/7 multi-and subspecialty management and care (e.g. ECMO, cardiac surgery, and complex surgeries).

Generally, maternal/fetal and neonatal services located at the same hospital will be either at the same tier (i.e., a Tier 3 maternal/fetal service has a Tier 3 neonatal service) or with maternal/fetal tier a step higher than the neonatal tier (i.e., a Tier 3 maternal/fetal service has a Tier 2 neonatal service).

Neonatal Tiers of Service					
Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
Clinical Service					
Service Description / Responsibilities					
<ul style="list-style-type: none"> <li>Provides postnatal care of newborns including education and support for parenting, bonding, feeding &amp; lactation.</li> <li>No planned neonatal nursery care available.</li> <li>Documented process in place for consultation and referral within the Health Authority network.</li> </ul>	<p>Same as Tier 1 plus:</p> <ul style="list-style-type: none"> <li>Provides planned neonatal services to newborns at <b>≥37 weeks</b> in a mother-baby dyad care model; including minor transient conditions related to physiological adaptation.</li> <li>An urgent/emergent baby born at <b>≥35 weeks gestation</b>, and is an appropriate weight for gestational age without need for additional support such as gastric tube feeds, with ability to be cared for in mother-baby dyad model may be able to remain at a Tier 2 neonatal service,</li> </ul>	<p>Same as Tier 2 plus:</p> <ul style="list-style-type: none"> <li>Provides planned neonatal services to newborns at <b>≥34 weeks</b> and <b>≥1800g</b>; and newborns with low to moderate risk.</li> <li>An urgent/emergent baby born at <b>≥32 weeks gestation</b> and <b>≥1500g</b>, and is an appropriate weight for gestational age, may be able to remain at Tier 3 neonatal service.</li> <li>For hospitals with &gt;750 deliveries, may provide neonatal services to newborns at <b>≥32 weeks gestation</b>.</li> <li>Supports neonatal consultations, referrals, and</li> </ul>	<p>Same as Tier 3 plus:</p> <ul style="list-style-type: none"> <li>Provides planned neonatal services to newborns at <b>≥30 weeks</b> and <b>≥1200g</b>; and newborns with moderate risk requiring acute management.</li> <li>Supports neonatal consultations, referrals, and transfers from Tiers 1 to 3. Accepts appropriate repatriation from Tiers 5 and 6.</li> </ul>	<p>Same as Tier 4 plus:</p> <ul style="list-style-type: none"> <li>Provides planned neonatal services to newborns who are at high risk and are requiring complex management and care.</li> <li>Supports neonatal consultations, referrals, and transfers from Tiers 1 to 4. Accepts appropriate repatriation from Tier 6.</li> </ul>	<p>Same as Tier 5 plus:</p> <ul style="list-style-type: none"> <li>Provides planned neonatal services to newborns who are very high-risk and/or with conditions that require 24/7 multi-and subspecialty management and care (e.g. ECMO, Cardiac Surgery, and complex surgeries).</li> <li>Performs full range of newborn surgeries.</li> <li>Provincial neonatal referral service with telephone advice and support for Tiers 1 to 5 24/7.</li> </ul>

Neonatal Tiers of Service					
Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
	<p>following discussions with a higher Tier service.</p> <ul style="list-style-type: none"> <li>Initiates neonatal resuscitation and stabilization in preparation for transfer, if indicated.</li> <li>Supports neonatal transfers from Tier 1 focusing on mother-baby dyad care model.</li> </ul>	<p>transfers from Tiers 1 and 2. Accepts appropriate repatriation from Tiers 4 to 6 at <b>≥32 weeks corrected gestational age</b> and <b>≥1500g</b>.</p>			
Requirements					
Providers					
<ul style="list-style-type: none"> <li>Postpartum care for newborn is carried out by healthcare providers depending on the type of patient care needed.</li> </ul>	<p>Same as Tier 1 plus:</p> <ul style="list-style-type: none"> <li>FP or privileged RM on-call 24/7 and present at time of birth to assess infant.</li> <li>For the newborn: Every birth should be attended by <i>at least 1 NRP qualified individual</i> whose only responsibility is the management of the newly born baby. If risk factors are present, <i>at least 2 qualified people should be present solely to manage the baby</i>.</li> </ul>	<p>Same as Tier 2 plus:</p> <ul style="list-style-type: none"> <li>Pediatrician on-call 24/7 and available for onsite consultation as needed.</li> <li>Hospital RN with Neonatal Specialty Education or equivalent 24/7.</li> <li>For ROP screening, access to ophthalmologist in the Health Authority</li> <li>Access to designated onsite nursing and allied health services for developmentally supportive care, lactation support, and</li> </ul>	<p>Same as Tier 3 plus:</p> <ul style="list-style-type: none"> <li>Access to designated onsite RT 24/7.</li> </ul>	<p>Same as Tier 4 plus:</p> <ul style="list-style-type: none"> <li>Neonatologists on-call 24/7.</li> <li>Pediatrician (or neonatologist designate) onsite 24/7.</li> <li>Access to Clinical Pharmacist and Clinical Dietitian onsite.</li> <li>Access to onsite clinical and diagnostic pediatric subspecialties and allied health services.</li> </ul>	<p>Same as Tier 5 plus:</p> <ul style="list-style-type: none"> <li>Access to onsite subspecialists 24/7, such as pediatric surgery and cardiology.</li> <li>Lactation consultant on-site days, M-F.</li> <li>Access to subspecialists including pediatric neurologist, medical geneticist, nephrologists, endocrinologist, gastroenterologist, ENT specialist, ophthalmologist, respirologist,</li> </ul>

Neonatal Tiers of Service					
Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
	<ul style="list-style-type: none"> <li>Access to some allied health services (may be off-site).</li> </ul>	<ul style="list-style-type: none"> <li>feeding transition (examples include OT or SLP services, dietician, and lactation consultant).</li> <li>Access to general RT onsite 24/7.</li> </ul>			<ul style="list-style-type: none"> <li>hematologist, infectious disease specialist, pediatric surgical subspecialties.</li> </ul>
Facility					
<ul style="list-style-type: none"> <li>No planned birthing (intrapartum) or neonatal nursery care onsite.</li> </ul>	<p>Same as Tier 1 plus:</p> <ul style="list-style-type: none"> <li>Ability to provide care of infant at mother's bedside.</li> <li>Resuscitation and stabilization equipment available.</li> <li>Access to neonatal bilirubin screening.</li> <li>Telehealth capabilities.</li> </ul>	<p>Same as Tier 2 plus:</p> <ul style="list-style-type: none"> <li>Neonatal unit equipped to commence and maintain CPAP <math>\leq 48</math> hours if clinically improving</li> <li>Ability to initiate and maintain IV access and OG/NG feeds.</li> <li>For IVH screening, access to cranial ultrasound in the Health Authority</li> <li>Emergency access and local/remote interpretation of x-rays 24/7.</li> <li>Dedicated space for isolating newborns.</li> </ul>	<p>Same as Tier 3 plus:</p> <ul style="list-style-type: none"> <li>Neonatal unit equipped to provide conventional respiratory support, parenteral nutrition, etc.</li> <li>Acquisition of ECHO and EEG available onsite with remote interpretation 24/7.</li> </ul>	<p>Same as Tier 4 plus:</p> <ul style="list-style-type: none"> <li>Neonatal unit equipped to provide full range and long-term mechanical ventilation.</li> <li>Provides neonatal exchange transfusion.</li> <li>Emergency access and interpretation of x-rays and high-level imaging services 24/7.</li> </ul>	<p>Same as Tier 5 plus:</p> <ul style="list-style-type: none"> <li>Onsite surgical suite equipped for full range of neonatal surgery including ECMO and cardiac.</li> </ul>

Neonatal Tiers of Service					
Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
<b>Knowledge Sharing and Transfer/Training</b>					
<b>Student Learning</b>					
<ul style="list-style-type: none"> <li>No formalized student teaching responsibilities<sup>4</sup></li> </ul>	<ul style="list-style-type: none"> <li>May offer training for midwifery students and other healthcare students.</li> </ul>	<p>Same as Tier 2 plus:</p> <ul style="list-style-type: none"> <li>If designated by UBC as a training site, provides neonatal inpatient learning experiences for:               <ul style="list-style-type: none"> <li>Undergraduate medical students.</li> <li>Family medicine residents.</li> </ul> </li> <li>Encourages nursing and allied health undergraduate education by offering practicum placements in neonatal care.</li> </ul>	<ul style="list-style-type: none"> <li>Designated by UBC as a training site for:               <ul style="list-style-type: none"> <li>Undergraduate medical students.</li> <li>Family medicine residents.</li> <li>Pediatric residents.</li> <li>Midwifery students.</li> </ul> </li> <li>Supports nursing and allied health undergraduate education by offering practicum placements in neonatal care.</li> <li>Range of neonatal experience is broader than Tier 3.</li> </ul>	<p>Same as Tier 4 plus:</p> <ul style="list-style-type: none"> <li>Role in post graduate medical and nursing education.</li> <li>Range of neonatal experiences is broader than Tier 4 which includes neonatal-perinatal subspecialty fellows.</li> </ul>	<p>Same as Tier 5 plus:</p> <ul style="list-style-type: none"> <li>Support Respiratory Therapy student practicum placements.</li> <li>Range of neonatal experiences is broad, including rotations in general pediatrics, NICU, PICU and subspecialty areas (i.e. medical genetics and neonatal follow-up clinic).</li> <li>In conjunction with UBC, develops model for training of neonatal subspecialty residents in BC.</li> </ul>
<b>Continuing Education</b>					
<ul style="list-style-type: none"> <li>No formalized neonatal continuing education responsibilities<sup>5</sup>.</li> <li>May offer informal neonatal continuing education opportunities for</li> </ul>	<ul style="list-style-type: none"> <li>Supports interprofessional team to attend relevant learning opportunities within the Health Authority/ Provincial tiered network to maintain clinical</li> </ul>	<p>Same as Tier 2 plus:</p> <ul style="list-style-type: none"> <li>Facilitate access to learning activities based on identified practice gaps, including the practice of critical clinical skills where limited</li> </ul>	<p>Same as Tier 3 plus:</p> <ul style="list-style-type: none"> <li>Provides educational opportunities for staff working in sites that provide Tier 2 to 3 neonatal services.</li> </ul>	<p>Same as Tier 4 plus:</p> <ul style="list-style-type: none"> <li>Provides educational opportunities for staff working in sites that provide Tier 2 to 4 neonatal services.</li> </ul>	<p>Same as Tier 5 plus:</p> <ul style="list-style-type: none"> <li>Provides educational opportunities for staff working in sites that provide Tier 2 to 5 neonatal services.</li> </ul>

<sup>4,5</sup> Further discussions of the needs for primary care and community care and subsequent planning is strongly supported.

Neonatal Tiers of Service					
Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
primary care and community care services.	<p>competencies (e.g., simulation, off-site clinical experiences).</p> <ul style="list-style-type: none"> <li>Mechanisms in place to regularly review interprofessional team education needs related to maintenance of neonatal competencies.</li> </ul>	<p>opportunity exists in practice (e.g., simulation, off-site clinical experiences).</p>			
Quality Improvement and Research					
<ul style="list-style-type: none"> <li>Actively participates in quality improvement processes within the Health Authority.</li> <li>Contributes newborn data to the BC Perinatal Data Registry.</li> </ul>	<p>Same as Tier 1 plus:</p> <ul style="list-style-type: none"> <li>Supports physicians &amp; staff to provide neonatal care according to national/provincial guidelines/standards.</li> <li>Actively participates in Health Authority &amp; local interprofessional neonatal quality improvement processes, including clinical outcome &amp; morbidity/mortality reviews.</li> <li>No formalized responsibilities in conducting research.</li> </ul>	<p>Same as Tier 2 plus:</p> <ul style="list-style-type: none"> <li>Health Authority QI structures &amp; processes are in place to specifically review &amp; improve the quality &amp; safety of neonatal care, including case reviews.</li> <li>Participates in provincial neonatal improvement initiatives.</li> </ul>	<p>Same as Tier 3 plus:</p> <ul style="list-style-type: none"> <li>In collaboration with Tiers 5 and 6, leads neonatal quality improvement initiatives to address quality/risk issues in hospitals within Health Authority network.</li> <li>Participates in provincial Neonatal morbidity/mortality reviews. Supports Tiers 1-3 within their HA to conduct Neonatal morbidity and mortality reviews</li> <li>In partnership with PSBC and Health Authority network, develops &amp; shares</li> </ul>	<p>Same as Tier 4 plus:</p> <ul style="list-style-type: none"> <li>Establishes mechanisms &amp; processes for quality improvement within the Health Authority, including clinical outcome &amp; morbidity/mortality reviews.</li> <li>Participates in research related to the specialty.</li> </ul>	<p>Same as Tier 5 plus:</p> <ul style="list-style-type: none"> <li>Leads provincial evaluation/quality improvement projects.</li> <li>Leads and supports others to conduct neonatal research.</li> </ul>

Neonatal Tiers of Service					
Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
			neonatal guidelines/policies within the Health Authority.		



## 4.0 References

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<sup>1</sup> Perinatal Tiers of Service Module; 2016. Retrieved from:

<http://www.perinatalservicesbc.ca/Documents/Resources/SystemPlanning/TiersOfService/TiersofService.pdf>

<sup>2</sup> Queensland Health. Clinical Services Capability Framework for Public and Licensed Private Health Facilities v3.2. Brisbane: Queensland Government Department of Health; 2014. Maternal CSCF

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<sup>3</sup> Queensland Health. Clinical Services Capability Framework for Public and Licensed Private Health Facilities v3.2. Brisbane: Queensland Government Department of Health; 2014. Neonatal CSCF

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<sup>4</sup> New South Wales Ministry of Health. Guide to the Role Delineation of Clinical Services (2019).

Retrieved from: <https://www.health.nsw.gov.au/services/Publications/role-delineation-of-clinical-services.PDF>

<sup>5</sup> Western Australia. Health Clinical Services Framework 2014-2024. Retrieved from:

[https://ww2.health.wa.gov.au/~media/Files/Corporate/Reports%20and%20publications/Clinical%20Services%20Framework/Clinical\\_Framework\\_2014-2024.pdf](https://ww2.health.wa.gov.au/~media/Files/Corporate/Reports%20and%20publications/Clinical%20Services%20Framework/Clinical_Framework_2014-2024.pdf)