

## **Summary of the Tiers of Obstetric and Neonatal Service in Canadian Hospitals**

Team on Improved Perinatal Health Care Regionalization (funded by the Canadian Institutes of Health Research PER-150902)

June 2020

This document provides details regarding the various obstetric and neonatal tiers of service frameworks that exist in the provinces and territories of Canada. Details of these tiers of service were obtained from the reproductive care programs of the provinces and territories and compiled by the Team on Improved Perinatal Health Care Regionalization (funded by the Canadian Institutes of Health Research PER-150902)

**Citation:** Summary of the Tiers of Obstetric and Neonatal Service in Canadian Hospitals. Report of the CIHR Team on Improved Perinatal Health Care Regionalization. Vancouver. 2020.

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## **Regionalization of perinatal care (Source: CIHR grant application)**

The World Health Organization defines regionalization of health services as ‘the rational distribution of medical services across territories, ensuring that services and facilities at all three levels (primary, secondary and tertiary) are located in such a way as to offer both easy access to the population and cost-effective care’ [1]. Regionalization of perinatal care is similarly defined as ‘a method that rationalizes existing health care services to ensure that each pregnant woman and newborn infant is cared for in an appropriate facility’ [2].

Regionalization was embraced and implemented in Canada in the late 1960s and 1970s [3], but significant challenges continue to plague the delivery of perinatal health care, particularly in rural and remote regions. The closure of small hospitals and the attrition of small-volume surgical programs (and hence access to cesarean delivery) in rural Canada require women to travel long distances for antenatal care and childbirth. Problems also exist in high-volume, high-intensity regions such as the Greater Toronto Area, where inadequate tertiary-care capacity dictates that women with high-risk pregnancies deliver in non-tertiary settings. Other challenges associated with regionalized perinatal care include geography, climate, highly variable emergency transport service provision, organizational differences between provinces in the provision of care for pregnant women and newborns at different levels of perinatal risk, and the absence of a national program for evaluating and improving regionalization.

### **History of perinatal care regionalization**

Regionalization of services was pioneered in the surgical sub-specialties [4-6]. Deaths following open-heart surgery are 25% to 40% lower in large-volume hospitals performing over 200 procedures annually compared with smaller-volume hospitals [4-6]. For less complicated procedures, the mortality gradient flattens out at lower volumes; hospitals performing 50-100 hip replacements annually have a mortality rate almost as low as that of hospitals performing 200 or more [4-6]. Finally, low-risk procedures (e.g., cholecystectomy) show no relation between volume and mortality. There is a broad consensus regarding the incremental value of specialization in terms of resources and personnel and hence regionalization for high-risk conditions [4-6]. However, high-volume centres do not necessarily optimize delivery of care for low-risk conditions [7,8]. This is also true for care of low-risk pregnant women [9,10].

The earliest effort at articulating and implementing regionalized perinatal care was made by the Department of National Health and Welfare in Canada in 1968 [11] in connection with referral of high-risk pregnant women. This was followed by a 1970 Canadian paper on regional organization of neonatal services [12]. In 1971, the Society of Obstetricians and Gynaecologists of Canada, the Canadian Paediatric Society and the American Medical Association championed the development of regional perinatal intensive care facilities [13,14].

### **Current status of regionalized perinatal care in Canada**

Unlike in the United States, the development of regionalized perinatal care in Canada has not been hampered by the growth of managed care institutions [15-18]. Recognition of the need to match level of care with risk has resulted in an incremental regionalization of services [19-24] and substantial improvements in maternal, fetal and neonatal mortality [25-42]. However, regionalization of services is structured somewhat differently among the provinces/territories, because health care services are (mostly) a provincial responsibility, albeit guided by the provisions of the Canada Health Act. This diversity reflects local solutions to complex issues, including geography, population density and climate. Prince Edward Island and the territories

have negotiated arrangements with adjacent provinces for the care of high-risk women and infants. The decentralization of responsibility for delivering health services has allowed for increased flexibility to deal with local priorities and context. Nonetheless, provincial/territorial systems of regionalization are subject to varying levels of funding, oversight and evaluation.

### **Maternal and fetal risk and levels of care/tiers of service**

A major goal of regionalization is the appropriate and timely transfer of high-risk pregnant women and newborn infants to centres offering the appropriate tier of service in order to reduce maternal, fetal and infant morbidity/mortality. Under regionalization, levels of care (which the patient receives) and tiers of service (provided at each hospital) are designated with an alpha-numeric value that implies a specific level of functioning. Although regionalization in Canada varies by province/territory, the organization of care and services (hereafter the term tiers of service is used to encompass both levels of care and service) is generally similar across regions. Thus in British Columbia, hospitals providing tier 1a service for mothers manage women with low-risk pregnancies who have no anticipated concerns about maternal/fetal well-being, while hospitals providing tier 4 level service manage high-risk pregnancies that may be life-threatening to the mother/fetus (e.g., pregnant women with pulmonary embolism). Similarly, hospitals providing tier 1 services for newborns manage term infants who require normal care, while tier 3b hospitals provide care for newborns with high acuity who require multi-specialty management, such as those born at <26 weeks' gestation and infants requiring neonatal surgery.

### **Evaluation of the structure, processes and outcomes of regionalization**

Despite commitment to the concept of regionalization, the quality of perinatal care regionalization in Canada has not been assessed for several decades. A process of quality assurance and improvement in each province/territory is required to ensure that all programs benefit from the lessons learned in individual programs [43].

### **Evaluation of perinatal care regionalization**

The CIHR Team on Improved Perinatal Care Regionalization PER-150902 has the following objective and subobjective (among others):

Objective: To critically analyse the provision of perinatal health services in Canada using a systems approach and thereby enhance regionalization of perinatal care.

Subobjective: To assess the structure, processes and outcomes of perinatal regionalization in each province/territory with regard to tiers of hospital service.

### **Structure of perinatal care regionalization**

This document briefly describes the structure of perinatal care regionalization in the provinces and territories of Canada. The description of the tiers of obstetric and neonatal service were obtained from the reproductive care programs of each of the provinces and territories.

### **Limitations**

The designation of a hospital's tier of obstetric or neonatal service may change with changes in services provided. In fact, some provinces and territories have recently updated their tiers of service designations and others are in the process of making changes. This document provides past designations of tiers of service as the tiers of service information was used to evaluate the past processes and outcomes associated with regionalization for the period 2013 to 2018.

## **British Columbia: Tiers of Service**

British Columbia has recently updated its tiers of service and information on the update is available in the following document ([Appendix 1](#))

Perinatal Services BC. Maternal/Fetal and Neonatal Services: Setting the Stage. Vancouver, BC: Perinatal Services BC; 2020 January 27.

A description of the past tiers of service structure can be obtained from [Appendix 2](#). An assessment of the designated tier of service and the availability of required services (for that designated tier of service) is available in [Appendix 3](#).

A brief description of the tiers of obstetric service is provided below.

**Tier 0 (0):** No provision of routine obstetric service.

**Tier 1a (1):** Provides 24/7 management of the normal fetus and woman (singleton fetus in cephalic presentation, at term gestation, for woman with a body mass index between 18.5 and 30 kg/m<sup>2</sup>) and maternal resuscitation & stabilization in preparation for transfer for cases with unexpected complications.

**Tier 1b (1.5):** Provides 24/7 management of pregnancies with intrauterine fetal death, augmentation/ induction of labour, planned and emergency cesarean delivery, planned VBAC, preterm labour 35+0 to 36+6 weeks gestation, postterm gestation, maternal BMI 30-38 kg/m<sup>2</sup>, women with gestational hypertension or diabetes, mild IUGR, etc.

**Tier 2a (2):** Provides 24/7 management of pregnancies with non-life threatening antepartum hemorrhage, moderate IUGR, moderate oligohydramnios, BMI >38 kg/m<sup>2</sup>, pre-eclampsia, pre-existing hypertension with mild systemic involvement, pregestational diabetes impacting the fetus, macrosomic fetus, trial of labour for breech presentation at term, etc.

**Tier 2b (2.5):** Provides 24/7 management of pregnancies with complicated dichorionic/diamniotic twins, fetuses with severe IUGR, severe oligohydramnios, congenital anomalies requiring evaluation after birth, uncomplicated monochorionic/diamniotic twins, women with diagnosed chronic unstable conditions (e.g., mild renal disease with lupus) severe pre-eclampsia, etc.

**Tier 3:** Provides 24/7 management of pregnancies with complicated monochorionic/diamniotic twins, maternal intubation/ventilation, HELLP syndrome, pregestational hypertension with significant maternal systemic involvement, women with serious medical or surgical conditions, women requiring emergency rescue cerclage, etc.

**Tier 4:** Provides 24/7 management of pregnancies with requirement for fetal surgery, complicated triplets, fetuses requiring transfusions, twin-twin transfusion syndrome, fetus with hydrops, congenital diaphragmatic hernia, gastroschisis, etc.

A list of the hospitals in British Columbia by tiers of obstetric service (used for the analysis of data from 2013-2018) is provided in Table 1 below.

Table 1. List of hospitals by tiers of obstetric service, British Columbia.

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TIER 0 HOSPITALS: BRITISH COLUMBIA

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Boundary Hospital  
Chetwynd Hospital Hlth Centre  
Delta Hospital  
Dr. Helmcken Memorial Hospital  
Eagle Ridge Hospital  
Fraser Canyon Hospital  
Lakes District Hospital And Hc  
Mackenzie District Hospital Hc  
Mcbride And District Hospital  
Mission Memorial Hospital  
Nicola Valley Health Centre  
Northern Haida Gwaii Hosp Hc  
Port Hardy Hospital  
Royal Jubilee Hospital  
Saanich Peninsula Hospital  
South Okanagan Gen Hospital  
Tofino General Hospital

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TIER 1 HOSPITALS: BRITISH COLUMBIA

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Haida Gwaii Hospital Hlth Centre  
Invermere And District Hospital  
Lady Minto Gulf Islands Hospital

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TIER 1B HOSPITALS: BRITISH COLUMBIA

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100 Mile District Gen Hospital  
Bulkley Valley District Hospital  
Campbell River And District Gh  
Cariboo Memorial Hospital  
Chilliwack General Hospital  
Cowichan District Hospital  
Creston Valley Hospital  
Dawson Creek District Hospital  
East Kootenay Regional Hospital  
Elk Valley Hospital  
Fort Nelson General Hospital  
Fort St. John Hospital H Centre  
G. R. Baker Memorial Hospital  
Golden And District Genhospital  
Kitimat Hospital Health Centre

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TIER 1B HOSPITALS: BRITISH COLUMBIA (CONTINUED)

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Kootenay Boundary Reg Hospital  
Kootenay Lake Hospital  
Langley Memorial Hospital  
Lillooet Hospital Health Centre  
Mills Memorial Hospital  
Peace Arch Hospital  
Penticton Regional Hospital  
Port Meneill District Hospital  
Powell River General Hospital  
Prince Rupert Regional Hospital  
Queen Victoria Hospital  
Ridge Meadows Hospital And Hcc  
Shuswap Lake General Hospital  
Squamish General Hospital  
St Joseph's General Hosp [Comox]  
St. John Hospital  
St. Mary's Hospital [Sechelt]  
Stuart Lake Hospital  
The North Isl H Campbel River Dc  
The North Isl H Comox Valley C  
Vernon Jubilee Hospital  
West Coast General Hospital  
Wrinch Memorial Hospital

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TIER 2 HOSPITALS: BRITISH COLUMBIA

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Abbotsford Regional Hospital  
Burnaby Hospital  
Lions Gate Hospital  
Nanaimo Reg Gen Hospital  
St. Paul's Mount Saint Joseph H  
The Richmond Hospital

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TIER 2B HOSPITALS: BRITISH COLUMBIA

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Kelowna General Hospital  
Royal Inland Hospital  
University Hospital Of Nbc

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TIER 3 HOSPITALS: BRITISH COLUMBIA

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Royal Columbian Hospital  
Surrey Memorial Hospital  
Victoria General Hospital

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TIER 4 HOSPITALS: BRITISH COLUMBIA

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BC Women's Hospital Hlth Centre

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## Alberta: Tiers of Obstetric Service

The structure of the tiers of obstetric service framework in Alberta is described in Table 2 below.

Table 2. Tiers of obstetric service, Alberta.

Tier	Label	Description
0 (0)	No Obstetric services	Acute care hospital offering no elective obstetrical service
A (1)	Low Risk	Acute care hospital with obstetrical service but no Cesarean section capability
B (2)	C-Section capability	Non urban acute care hospital with obstetrical service and Cesarean section
C (3)	Regional	Acute care hospital with access to obstetricians/pediatricians
D (4)	Tertiary	Tertiary care centre

A detailed list of hospitals in Alberta and their tiers of obstetric service designation by year is provided in **Appendix 4**.

The tiers of obstetric service designation used for the analysis of data from 2013-2018 is provided below.

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### TIER 0 HOSPITALS: ALBERTA

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Bow Island Health Centre  
Cardston Health Centre  
Central Peace Health Complex  
Devon General Hospital  
Didsbury District Health Services  
Fairview Health Complex  
Grande Cache Comm Hlth C  
High Prairie Health Complex  
Leduc Community Hospital  
Manning Community H Centre  
Redwater Health Centre  
Sacred Heart Comm Hlth Centre  
Seton (Jasper) Healthcare Centre  
Smoky Lake Healthcare Centre  
Strathmore District H Services  
Swan Hills Healthcare Centre  
Wabasca/Desmarais Hcare Centre  
Westview Health Centre

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### TIER 1 HOSPITALS: ALBERTA

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Athabasca Healthcare Centre  
Crowsnest Pass Health Centre  
Drayton Valley Hospital C Centre  
Raymond Health Centre

Rimbey Hospital and Care Centre  
Slave Lake Healthcare Centre

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TIER 1 HOSPITALS: ALBERTA (CONTINUED)

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St. Theresa General Hospital  
Sundre Hospital and Care Centre  
Three Hills Health Centre  
Valleyview Health Centre

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TIER 2 HOSPITALS: ALBERTA

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Barrhead Healthcare Centre  
Brooks Health Centre  
Canmore General Hospital  
Cold Lake Healthcare Centre  
Covenant H Bonnyville Hc Centre  
Covenant H St. Mary's H Camrose  
Daysland Health Centre  
Drumheller Health Centre  
Edson Healthcare Centre  
Fort Saskatchewan Comm Hosp  
High River General Hospital  
Hinton Healthcare Centre  
Lacombe Hospital Care Centre  
Northwest Health Centre  
Olds Hospital And Care Centre  
Peace River Comm Health Centre  
Pincher Creek Health Centre  
Ponoka Hospital And Care Centre  
Provost Health Centre  
Rocky Mountain H Health Centre  
St. Therese-St. Paul Hcare Centre  
Stettler Hospital Care Centre  
Taber Health Centre  
Vermilion Health Centre  
Viking Health Centre  
Wainwright Health Centre  
Westlock Healthcare Centre  
Wetaskiwin Hosp Care Centre  
Whitecourt Healthcare Centre  
William J. Cadzow L La Biche Hcc

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TIER 3 HOSPITALS: ALBERTA

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Chinook Regional Hospital  
Covenant H Grey Nuns C Hosp  
Covenant H Misericordia C Hosp  
Medicine Hat Regional Hospital  
Northern Lights Regional Hc  
Queen Elizabeth Ii Hospital  
Red Deer Reg Hospital Centre  
Sturgeon Community Hospital

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TIER 4 HOSPITALS: ALBERTA

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Foothills Medical Centre  
Peter Lougheed Centre  
Rockyview General Hospital  
Royal Alexandra Hospital  
South Health Campus

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## Saskatchewan: Tiers of Obstetric Service

Under the tiers of obstetric service framework in Saskatchewan the two provincial hospitals (Regina and Saskatoon) are classified as Tier 4 hospitals. Prince Albert is the busiest centre next to Saskatoon and Regina and this hospital gets intermediate risk referrals from the North. They are identified as a T2B, and the other Regional hospitals are classified as Tier 2. The Community / District / Northern Hospitals are a Tier 1 hospitals. **Appendix 5** provides details of each hospital and some notes on service provision by hospital.

The tiers of obstetric service designation used for the analysis of data from 2013-2018 is provided below.

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### TIER 0 HOSPITALS: SASKATCHEWAN

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Broadview Union Hospital  
Hudson Bay Health Care Facility  
Kamsack Hospital And Nursing Home  
Kelvington Hospital  
Kindersley And District Hlth Centre  
La Loche Health Centre  
Maidstone Health Complex  
Porcupine Carragana Hospital  
Rosthern Hospital  
St. Joseph's Health Centre  
Unity And District Health Centre  
Weyburn General Hospital  
Wolseley Memorial Hospital  
Wynyard Integrated Hospital  
Yutthe Dene Nakohodi Health Centre

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### TIER 1 HOSPITALS: SASKATCHEWAN

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All Nations' Healing Hospital  
Emmanuel H St. Joseph's H [Estevan]  
Humboldt District Hospital  
La Ronge Health Centre  
Melfort Hospital  
Nipawin Hospital  
Rosetown Health Centre  
Southeast Integ C Centre Moosomin  
Tisdale Hospital

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TIER 2 HOSPITALS: SASKATCHEWAN

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Battlefords Union Hospital  
Cypress Regional Hospital  
Dr. F.H. Wigmore Regional Hospital  
Lloydminster Hospital  
Meadow Lake Hospital  
Northwest Health Facility  
Victoria Hospital  
Yorkton Regional Health Centre

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TIER 4 HOSPITALS: SASKATCHEWAN

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Regina General Hospital  
Royal University Hospital

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## Manitoba: Tiers of Obstetric Service (Appendix 6)

The table below provides a description of the services provided in Manitoba hospitals.

<b>Regional Health Authority</b>	<b>Hospital/ Birthing Centre</b>	<b>Planned Maternity Services</b>	<b>NICU</b>
<b>Winnipeg</b>	Health Sciences Centre, (HSC) Winnipeg	Tertiary Care – High risk maternity care	All neonatal care except as noted below
	St. Boniface General Hospital, (SBGH), Winnipeg	Tertiary Care - High risk maternity care	– all neonatal care except as noted below
	The Birth Centre, Winnipeg	Registered Midwives – (no physicians on site). Low risk maternity care	Only normal newborn care
<b>Interlake Eastern</b>	Selkirk & District General Hospital, Selkirk	Family birthing unit - Obstetrics with surgical capacity	Only normal newborn care
<b>Prairie Mountain</b>	Brandon General Hospital, Brandon	Obstetrics with surgical capacity	Level 2/3 depending on how it is classified, see below
	Dauphin General Hospital, Dauphin	Obstetrics with surgical capacity	Only normal newborn care
	Neepawa District Memorial Hospital, Neepawa	Obstetrics with surgical capacity	
<b>Southern Health-Santé Sud</b>	Notre Dame Hospital, Notre Dame	Low risk maternity care	Only normal newborn care
	Portage Hospital, Portage	Obstetrics with surgical capacity	Only normal newborn care
	Ste Anne Hospital, Ste Anne	Obstetrics with surgical capacity	Only normal newborn care
	Bethesda, Steinbach	Obstetrics with surgical capacity	Only normal newborn care
	Boundary Trails Health Centre, Winkler/Morden	Obstetrics with surgical capacity	Only normal newborn care
<b>NRHA</b>	Flin Flon General Hospital, Flin Flon	Obstetrics with surgical capacity	Only normal newborn care
	The Pas Health Complex, The Pas	Obstetrics with surgical capacity	Only normal newborn care
	Thompson General Hospital, Thompson	Obstetrics with surgical capacity	Level 2+ care: see below

## **Neonatal Care in Manitoba**

Only HSC, St. Boniface Hospital, Brandon Hospital and Thompson Hospital keep infants requiring more than basic neonatal care. Some hospitals are be more equipped than others for immediate resuscitation/stabilization, short term IV placements or occasional gavage feeds. The care at the 4 hospitals above a level 1 is indicated above, with exceptions noted below.

### **Health Sciences Centre and St. Boniface Hospital Neonatal Care:**

HSC and SBGH work as a coordinated neonatal team, both are Level 3 NICUs, and predominantly provide the same level of care for Manitoba as well as the referral centres for parts of Nunavut and North Western Ontario.

### **Infants preferentially delivered at HSC (as compared to SBGH):**

Mostly include infants who require some types of specialized surgical care in the immediate neonatal period such as: complex airway anomalies, congenital diaphragmatic hernias, neurosurgical anomalies. Simpler surgical anomalies (ie gastroschisis, duodenal atresia) could be delivered at either site. Infants expected to require renal replacement therapy in the immediate neonatal period or management of inborn errors of metabolism are delivered at HSC.

### **Brandon Hospital:**

Functions as a level 2/3. Transfer if possible infants at less than 32 weeks gestation, if delivered there will keep 29+ if stable. Would transfer to Winnipeg known cardiac or surgical anomalies requiring neonatal surgery/specialized care. Able to provide short term ventilation, CPAP, BLES, gavage feeding, exchange transfusions, photo, IV therapy, medication, chest tubes, invasive monitoring, NAS screening/treatment, ROP exams, etc. Have 24 hour pediatrician support; no neonatologist.

### **Thompson Hospital:**

Transfer out for deliveries around less than 34 weeks. Fncction at a level 2+. They provide gavage feeds, monitors, management of NAS, IVs, short term CPAP and brief ventilation. No invasive monitoring, chest tubes etc and do not provide ROP screening.

### **A few specialized neonatal services are not available in Manitoba and include:**

Paediatric/neonatal cardiac surgery. Most infants with antenatal diagnoses are delivered at HSC, stabilized and transferred by the neonatal transport team. A few infants who may require immediate surgery or cardiac pacing would be delivered at one of the surgical centres (ie Edmonton or Vancouver). Infants with uncomplicated lesions (ie VSD only, stable AVSDs) can be delivered at SBGH but most infants with known congenital heart disease are delivered at HSC. ECMO (Extra corporeal membrane oxygenation) is not available in Manitoba. There is a plan in place for rescue ECMO and transfer. Infants expected to require immediate ECMO would be delivered in a centre with this capacity (most likely Edmonton or Vancouver)  
Fetal interventions: most fetal interventions are available here though interventions such as laser ablation for twin to twin is not done here.

The tiers of obstetric service designation used for the analysis of data from 2013-2018 is provided below.

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TIER 0 HOSPITALS: MANITOBA

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Altona Community Memorial  
Arborg Districts Health Centre  
Beausejour District Hospital  
Churchill Health Centre  
Concordia Hospital  
Deloraine Health Centre  
E. M. Crowe Memorial Hospital  
Gimli Community Health Centre  
Grace Hospital  
Hamiota District Health Centre  
Lakeshore Health Centre  
Lynn Lake Hospital  
Melita Health Centre  
Minnedosa District Hospital  
Norway House Hospital  
Percy E. Moore Hospital  
Pinawa Hospital  
Pine Falls Health Complex  
Russell Health Centre  
Souris Health Centre  
Ste. Rose General Hospital  
Stonewall District Health Centre  
Swan River Valley Hospital  
Teulon/Hunter Mem Hospital  
Victoria General Hospital  
Virden District Hospital

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TIER 1 HOSPITALS: MANITOBA

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Notre Dame Hospital

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TIER 2 HOSPITALS: MANITOBA

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Bethesda Hospital  
Boundary Trails Health Centre  
Brandon General Hospital  
Dauphin Regional Health Centre  
Flin Flon General Hospital  
Neepawa Health Centre  
Portage District Ge Hospital  
Selkirk Regional Health Centre  
Ste. Anne Hospital

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TIER 2 HOSPITALS: MANITOBA (CONTINUED)

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The Pas Health Complex  
Thompson General Hospital

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TIER 3 HOSPITALS: MANITOBA

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Health Sciences Centre Winnipeg  
St. Boniface General Hospital

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## **Ontario: Tiers of Maternal and Neonatal Service**

Tiers of maternal and neonatal care have been standardized and defined for Ontario by the Provincial Council for maternal and Child Health. Details of this framework are provided in **Appendix 7** and a list of hospitals with their tiers of service designation in 2017 are provided in **Appendix 8**. Briefly, the levels of care are as follows

**Level 1:** Low maternal and neonatal risk including no significant medical diseases or risk factors likely to impact pregnancy and not anticipated to experience any significant complications.

Level 1a: No provision of cesarean delivery service

Level 1b: Provision of cesarean delivery service 24/7

Neonatal: Postnatal care of healthy newborns. Resuscitation and stabilization of ill infants before transfer to an appropriate care facility.

**Level 2:** Low-to-moderate maternal risk e.g. women carrying a fetus with anomalies (minor) not likely to need immediate interventions; low risk medical/obstetrical complications where SGA is not suspected.

Neonatal care: care for infants with a gestational age  $\geq 34$  weeks and a birth weight  $\geq 1800$  g.

**Level 3:** High maternal risk and/or complex medical, surgical and/or obstetrical complications requiring complex multidisciplinary and subspecialty critical care at any gestational age. High fetal risk complications such as diagnosis of congenital malformations that require access to: special fetal diagnostic or therapeutic procedures, paediatric subspecialty consultation/care and neonatal surgical services

Neonatal care: Neonatal intensive care for any gestational age and birth weight; availability of timely access to subspecialty consultants. Level 3b: Onsite surgical capability.

The tiers of obstetric service designation for Ontario hospitals used for the analysis of data from 2013-2018 is provided below.

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### TIER 0 HOSPITALS: ONTARIO

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Atikokan General Hospital  
Geraldton District Hospital  
Hornepayne Community Hospital  
Huron Perth H Seaforth C Hosp  
Kirkland And District Hospital  
Manitoulin Hc Mindemoya Hosp  
North Of Sup Hcg Wilson Mgh  
North Shore Hnw Blind River Hc  
Quinte Hc North Hastings Dhosp  
Quinte Hc Prince Edward Cnty M  
Weeneebayko Aha Attawapiskat H  
Wingham And District Hospital

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#### TIER 1 HOSPITALS: ONTARIO

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Alexandra Marine Gen Hospital  
Dryden Regional Health Centre  
Hanover And District Hospital  
Huron Perth Hca — Clinton Ph  
Lady Dunn Health Centre  
Listowel Memorial Hospital  
Manitoulin Hc Little Current Site  
Mics Group Hs Lady Minto Hosp  
North Of Sup Hcg Wilson Mgh  
North Of Sup Hcg Mccausland H  
North Well Hcc Louise Marshal H  
North Well Hcc Palmerston Dh  
Red Lake Marg Cochenour Mh  
Renfrew Victoria Hospital  
Sensenbrenner Hospital  
St. Joseph's Gen Hosp [Elliot Lake]  
Strathroy Middlesex Gen Hosp  
Weeneebayko Aha Moose Factory

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#### TIER 1B HOSPITALS: ONTARIO

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Almonte General Hospital  
Brockville Gh Charles Street Site  
Collingwood Gen Marine Hosp  
Cornwall Com H Mcconnell Ave  
Erie Shores Healthcare  
Georgian Bay Gen Hosp Midland  
Groves Mem Community Hospital  
Halton Hcs Georgetown Hosp  
Hamilton Hsci West Lincoln Mh  
Headwaters Health Care Centre  
Hôpital Gén De Hawkesbury Dgh  
Hôpital Notre-Dame Hospital  
Lake Of The Woods Dist Hospital  
Lakeridge Health—Port Perry Site  
Leamington Dist Mem Hospital  
Muskoka Alg Hc Huntsville Dmh  
Muskoka Alg Hc So Muskoka Mh  
Norfolk General Hospital  
Northumberland Hills Hospital  
Pembroke Regional Hospital Inc.  
Perth Smiths Falls Dh Sf Site  
Quinte Hc Belleville Gen Hospital  
Riverside Hc La Verendrye Hosp  
Ross Memorial Hospital

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**TIER 1B HOSPITALS: ONTARIO (CONTINUED)**

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Sioux Lookout Meno Ya Win Hc  
South Bruce Grey Hc Walkerton  
Stevenson Memorial Hospital  
Temiskaming Hospital  
West Lincoln Memorial Hospital  
West Parry Sound Health Centre  
Winchester Dist Mem Hospital  
Woodstock General Hospital

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**TIER 2 HOSPITALS: ONTARIO**

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Bluewater Hlth Sarnia Gen Hosp  
Bluewater Health—Milton Site  
Cambridge Memorial Hospital  
Guelph General Hospital  
Halton Hcs Milton Dist Hospital  
Huron Perth Hca Stratford Gh  
Hôpital Montfort  
Queensway Carleton Hospital  
St. Thomas Elgin Gen Hospital  
Timmins And District Hospital

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**TIER 2a HOSPITALS: ONTARIO**

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Brant Com Hcs Brantford Gen H  
Chatham-Kent Ha Chatham C  
Chatham-Kent Ha Pub Gen Hosp  
Grand River Hospital—K-W Hlth C  
Grey Bruce Hs Owen Sound Hosp  
Halton Hcs Oakville/trafalgar H  
Humber River Hosp Church Street  
Humber River Hosp Finch Street  
Humber River Hosp Wilson Site  
Joseph Brant Hospital  
Lakeridge Hlth Ajax And Pickering  
Niagara Health Sys St. Catharines  
Peterborough Reg Health Centre  
Rouge Valley Hs Ajax Pickering  
Scarborough Hnw Birchmount  
St. Joseph's Hlth Centre Toronto  
St. Joseph's Healthcare Hamilton  
The Scarborough Hos Birchmount  
Trillium H Part Mississauga Hosp

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TIER 2a HOSPITALS: ONTARIO (CONTINUED)

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Unity Hth Toronto St. Joseph's Hc  
William Osler Hs Bramton Civic H  
William Osler Hs Etobicoke Gh

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TIER 2a HOSPITALS: ONTARIO

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Health Sciences North / H Santé-N  
Lakeridge Health Oshawa Site  
Mackenzie H Mck Richmond Hill H  
Markham Stouffville H Markham  
Michael Garron Hospital  
North Bay Reg Health Centre  
North York Gen Hosp General Site  
Orillia Soldiers' Mem Hospital  
Rouge Valley Hs Rv Centenary  
Royal Victoria Reg Health Centre  
Sault Area Hospital  
Scarborough Hnw Centenary  
Scarborough Hnw General  
Southlake Reg Health Centre  
The Scarborough Hos General C  
Thunder Bay Reg Hsc  
Trillium Hlth Part Credit Valley H  
Windsor Reg Hos Metropolitan C

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TIER 3 HOSPITALS: ONTARIO

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Hamilton Hs McMaster U Med C  
Kingston Hsc Kingston Gen Hosp  
London Health Sciences Centre  
Sinai Hlth Sys Mount Sinai Hosp  
Sunnybrook Hsc Sunnybrook C  
The Ottawa Hospital Civic C  
The Ottawa Hospital General C  
Unity Hlth To St. Michael's H

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## **Quebec: Tiers of Obstetric and Neonatal Service**

Tiers of obstetric service in Quebec are provided in **Appendix 9** and tiers of neonatal are described in **Appendix 10**. **Appendix 11** provides a listing of hospitals in Quebec and their tiers of neonatal service designation.

A brief description of the tiers of obstetric service framework in Quebec is provided below.

### **Birth centers (midwifery) and dispensary**

1. Basic obstetrical and neonatal care
2. Hospital care access in case of emergency
3. Clients: Normal singleton pregnancy  $\geq 36$  weeks in healthy women with no need for medical consultation for complications.
4. No surgery
5. Neonatal level 1A

### **Tier OB IA Hospital**

1. Basic obstetrical and neonatal care
2. Hospital care access in case of emergency
3. Clients: Normal singleton pregnancy  $\geq 36$  weeks in healthy women with no need for medical consultation for complications.
4. Operating theatre
5. Neonatal level 1A

### **Tier OB IB Hospital**

1. Basic obstetrical and neonatal care
2. Access to surgical care in case of emergency
3. Clients
  - a. Singleton  $\geq 34$  weeks, no anticipated maternal or fetal complications needing special care over the perinatal period
  - b. With risk factors or mild maternal/fetal complications and considered safe by a consulting obgyn or MFM team
4. Surgery room
5. Level 1B or 2A neonatal care services

### **OB IIA Hospital**

1. Obstetrical primary care or secondary care
2. Access to obstetrical surgery in case of emergency
3. Clients
  - a. Normal pregnancy or high risk pregnancy  $\geq 34$  weeks
  - b. Pregnancy at high risk of maternal obstetrical complications and appropriate adult level of care
4. Surgery and adult ICU
5. Not for women with anticipated tertiary maternal or neonatal risks
6. Level 2A neonatal care

### **Tier OB IIB Hospital**

1. Obstetrical primary care or secondary care
2. Access to obstetrical surgery in case of emergency
3. Clients
  - a. Pregnancy at low or high risk at  $\geq 32$  weeks
  - b. Pregnancy at high risk of maternal obstetrical complications and appropriate adult level of care
4. Surgery and adult ICU
7. Not for women with anticipated tertiary maternal or neonatal risks
5. Level 2B neonatal care

### **Tier OB III Hospital**

1. Obstetrical primary care, secondary care or tertiary care
2. Access to other specialty services in adult care
3. Clients
  - a. Any pregnancy at low, high or very high risk
  - b. Pregnancy needing specialists and advanced equipment
4. Surgery and adult ICU
5. Obstetrical surgery team and anesthetists 24/7
6. Level 3A, 3B or 3C neonatal care

## **New Brunswick: Tiers of Obstetric and Neonatal Service**

Detailed description of the tiers of maternal and neonatal service in New Brunswick are provided in **Appendix 12.**

A brief description is provided below.

### **Level 1: Low acuity**

Providing services for women at  $\geq 37$  weeks and infants  $\geq 36$  weeks' gestation and over.

Physician resources: Family physician.

### **Level 2A: Mild acuity**

Providing services for women  $> 34$  weeks and infants  $\geq 34$  weeks' gestation

Physician resources: Obstetrician, Pediatrician, Anesthetist, Internist.

### **Level 2B: Moderate acuity**

Providing services for women  $\geq 32$  weeks' and infants  $\geq 32$  weeks' gestation.

### **Level 3: Severe acuity**

All gestational ages.

Physician resources: Maternal Fetal Medicine specialist, Neonatologist, Intervention radiologist, Vascular surgeon, etc.

The tiers of obstetric service designation for New Brunswick hospitals used for the analysis of data from 2013-2018 is provided below.

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TIER 1 HOSPITAL: NEW BRUNSWICK  
UPPER RIVER VALLEY HOSPITAL

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TIER 2A HOSPITALS: NEW BRUNSWICK  
CAMPBELLTON REGIONAL HOSPITAL  
CHALEUR REGIONAL HOSPITAL  
EDMUNDSTON REGIONAL HOSPITAL  
MIRAMICHI REGIONAL HOSPITAL  
TOTAL

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TIER 2B HOSPITALS: NEW BRUNSWICK  
DR. GEORGES-L.-DUMONT UNI HC

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TIER 3 HOSPITALS: NEW BRUNSWICK  
DR. EVERETT CHALMERS R HOSPITAL  
SAINT JOHN REGIONAL HOSPITAL  
THE MONCTON HOSPITAL

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## **Nova Scotia: Tiers of Obstetric and Neonatal Service**

Detailed descriptions of the tiers of maternal and neonatal service in Nova Scotia are provided in **Appendix 13**. A brief description is provided below.

### **Maternal Tiers of Service**

**Tier 2a (Specialty Care):** Maternal and fetal care for conditions that MAY impact pregnancy and delivery but are not life-threatening. Includes hypertension, insulin-dependent diabetes (controlled), di-di twins, uncomplicated mono-di twins. Lower limit of GA is 36 weeks, sometimes 35. Obstetricians & anesthetists on call 24/7/365. Specialized nursing care on site.

**Tier 2b (Specialty Care):** Maternal and fetal care for conditions that MAY impact pregnancy and delivery but are not life-threatening. Includes hypertension, insulin-dependent diabetes (controlled), di-di twins, uncomplicated mono-di twins. Lower limit of GA is 34 weeks. Obstetricians, anesthetists on call 24/7/365. Specialized nursing care on site.

**Tier 3 (Sub-specialty Care):** Maternal and fetal care for conditions that seriously impact pregnancy and delivery and may be life-threatening. Includes all gestational ages, immediate access to a full range of adult sub-specialists, advanced imaging with interpretation, complex maternal or fetal conditions requiring immediate intervention.

### **Neonatal Tiers of Service**

**Tier 1 (Normal Care):** Care for infants without anomalies requiring immediate investigation or intervention who are >36 weeks (+ some at 35 weeks), stabilize and manage ill infants and those < 36 weeks until transfer, accept repatriated infants with GA and care needs appropriate for resources.

**Tier 2a (Specialty Care):** Care for moderately ill infants with conditions expected to resolve rapidly and/or those not expected to need sub-specialty care/investigations urgently. Includes infants > 34 weeks and those needing CPAP or short-term ventilation. Accepts repatriated infants with GA and care needs appropriate for resources.

**Tier 2b\* (Specialty Care):** Care for moderately ill infants with conditions expected to resolve rapidly and/or those not expected to need sub-specialty care/investigations urgently. Includes infants > 34 weeks and those needing CPAP or ventilation. Accepts repatriated infants with GA and care needs appropriate for resources.

**Tier 3 (Sub-specialty Care):** Comprehensive care for infants at any gestational age including those who are critically ill. Includes full range of respiratory support, immediate on-site access to full range of pediatric sub-specialists, on-site advanced imaging with interpretation, and on-site surgical repair of complex congenital or acquired conditions.

The tiers of obstetric service designation for Nova Scotia hospitals used for the analysis of data from 2013-2018 is provided below.

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TIER 0 HOSPITALS: NOVA SCOTIA

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BUCHANAN MEM COM H CENTRE

DIGBY GENERAL HOSPITAL

INVERNESS CONS MEM HOSPITAL

ROSEWAY HOSPITAL

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SOLDIERS MEMORIAL HOSPITAL

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TIER 2A  
HOSPITALS:  
NOVA SCOTIA

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ABERDEEN  
HOSPITAL  
COLCHESTER  
EAST HANTS  
H CENTRE  
CUMBERLAN  
D REG  
HEALTH C  
CENTRE  
SOUTH  
SHORE  
REGIONAL  
HOSPITAL  
YARMOUTH  
REGIONAL  
HOSPITAL

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TIER 2B HOSPITALS: NOVA SCOTIA

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CAPE BRETON HEALTHCARE COMPLEX  
ST. MARTHA'S REGIONAL HOSPITAL  
VALLEY REGIONAL HOSPITAL

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TIER 3 HOSPITALS: NOVA SCOTIA

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IWK HEALTH CENTRE

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## Prince Edward Island: Tiers of Obstetric and Neonatal Service

Detailed descriptions of the tiers of maternal and neonatal service in Prince Edward Island are provided in **Appendix 14**. A brief description is provided below.

### Maternal Tiers of Service

**Tier 2a (Specialty Care):** Maternal and fetal care for conditions that MAY impact pregnancy and delivery but are not life-threatening. Includes hypertension, insulin-dependent diabetes (controlled), di-di twins, and uncomplicated mono-di twins. Lower limit of GA is 34 weeks.

**Tier 2b (Specialty Care):** Maternal and fetal care for conditions that MAY impact pregnancy and delivery but are not life-threatening. Includes hypertension, Insulin dependent diabetes (controlled), di-di twins, and uncomplicated mono-di twins. Lower limit of GA is 32 weeks.

### Neonatal Tiers of Service

**Tier 2a (Specialty Care):** Care for moderately ill infants with conditions expected to resolve rapidly and/or those not expected to need sub-specialty care/investigations urgently. Includes infants  $\geq 32$  weeks or  $\geq 34$  weeks and those needing CPAP or short term ventilation. Accepts repatriated infants with GA and care needs appropriate for resources.

The tiers of obstetric service designation for Prince Edward Island hospitals used for the analysis of data from 2013-2018 is provided below.

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TIER 2A HOSPITALS: PRINCE EDWARD ISLAND  
PRINCE COUNTY HOSPITAL

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TIER 2B HOSPITALS: PRINCE EDWARD ISLAND  
QUEEN ELIZABETH HOSPITAL

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## **Newfoundland and Labrador: Tiers of Obstetric and Neonatal Service (Appendix 15)**

Detailed descriptions of the tiers of maternal and neonatal service were not available for Newfoundland and Labrador.

For this report, hospitals were classified based on hospital volume into tiers of service P, Q, R and S.

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### **TIER P HOSPITALS: NEWFOUNDLAND AND LABRADOR**

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CONNAIGRE PENINSULA HLTH CNTRE  
DR. CHARLES L. LEGROW HLTH CNTRE  
PLACENTIA HEALTH CENTRE  
RUFUS GUINCHARD HLTH CARE CNTRE  
DR. Y.K. JEON KITTIWAKE HLTH CNTRE  
GREEN BAY HEALTH CENTRE  
SIR THOMAS RODDICK HOSPITAL

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Total

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### **TIER Q HOSPITALS: NEWFOUNDLAND AND LABRADOR**

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JAMES PATON M REG HEALTH CENTRE  
LABRADOR HEALTH CENTRE  
LABRADOR WEST HEALTH CENTRE  
BURIN PENINSULA HLTH CARE CENTRE  
CAPT WILLIAM JACKMAN M HOSPITAL  
CARBONEAR GENERAL HOSPITAL  
DR. G. B. CROSS MEMORIAL HOSPITAL  
CHARLES S. CURTIS MEM HOSPITAL

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### **TIER R HOSPITALS: NEWFOUNDLAND AND LABRADOR**

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CENTRAL NEWFLD R HLTH CENTRE  
WESTERN MEMORIAL REG HOSPITAL

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### **TIER S HOSPITALS: NEWFOUNDLAND AND LABRADOR**

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HEALTH SCIENCES CENTRE-ST. JOHN'S

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## **Yukon, Northwest Territories and Nunavut: Tiers of Obstetric and Neonatal Service**

Hospitals in the Yukon were categorised based on the tiers of maternal and neonatal service framework used in British Columbia (see **Appendix 16**).

For the analysis of data from 2013-2018, the following tiers of obstetric service designations were used for hospitals in the 3 territories:

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### TIER 1 HOSPITALS: COMBINED TERRITORIES

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FORT SMITH HEALTH CENTRE

HAY RIVER REGIONAL HEALTH CENTRE

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### TIER 2 HOSPITALS: COMBINED TERRITORIES

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INUVIK REGIONAL HOSPITAL

QIKIQTANI GENERAL HOSPITAL

STANTON TERRITORIAL HOSPITAL

WHITEHORSE GENERAL HOSPITAL

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