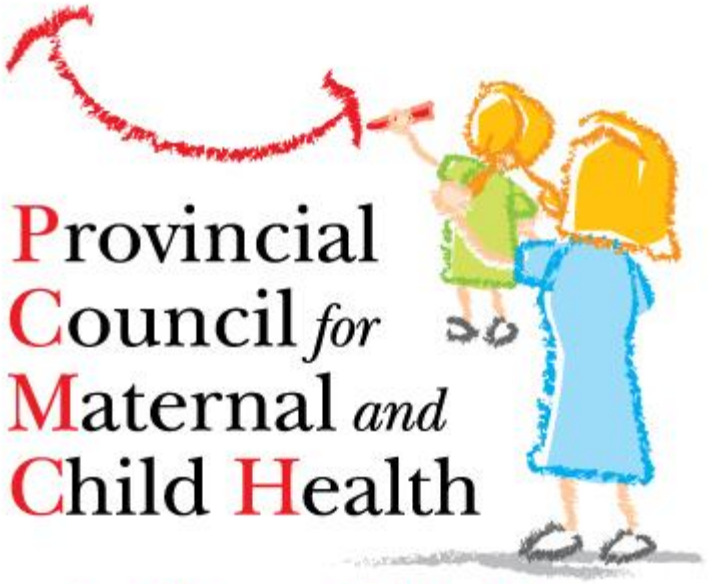


Standardized Maternal and Newborn Levels of Care Definitions

Updated July 8, 2011

Format:

This document consists of 6 sections:

Overview and Caveats:

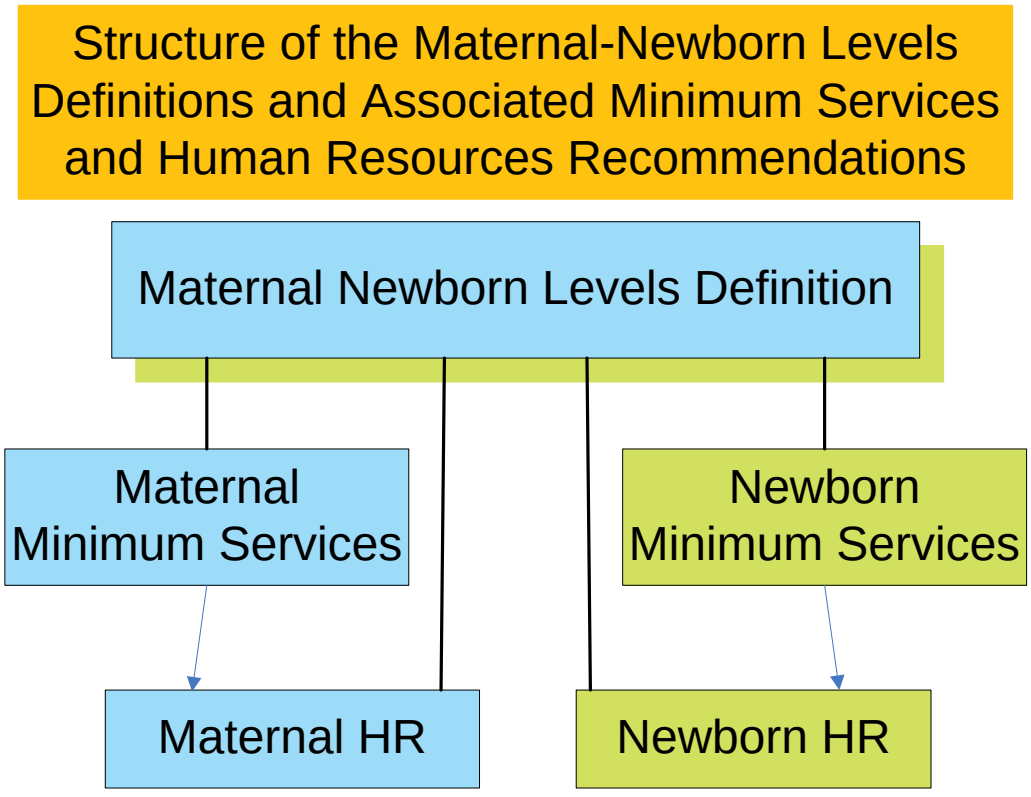
All sites providing delivery services are expected to have:

- Care providers competent to provide maternal and newborn care, including resuscitation and stabilization, as per Society of Obstetrics and Gynaecology of Canada (SOGC) guidelines
- A clearly established referral path and process to higher/specialized levels of care
- Clearly established patient transfer protocols
- Appropriate staff education for services delivered

Newborn level definitions refer to separate areas for newborn care in a hospital; in Mother-Baby Couplet Care or in a nursery or in a Neonatal Intensive Care Unit.

These definitions and the supporting service and human resource documents represent minimum expectations for each category unless otherwise specified.

It is expected that maternal and newborn levels are aligned i.e. the levels are the same within each organization so that infants are not, by design, being delivered in organizations that do not have the staff, expertise and equipment to manage their care requirements.



Maternal and Newborn Level of Care Definitions

<table>
<tr><th>Gestational Age</th><th colspan="2">Maternal Care</th><th>Newborn Care</th></tr>
<tr><td>Level I</td><td colspan="2">Level Ia and Level Ib</td><td>Level I</td></tr>
<tr><td rowspan="2">GREATER THAN OR EQUAL TO 36 WEEKS AND 0 DAYS</td><td colspan="2">Risk
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.
Between 36 + 6 days and 36 + 0 days only if spontaneous preterm labour in absence of any other fetal maternal complications; in particular APH, hypertension, diabetes, any maternal infection or fever in labour greater than 38^{o}C.
For all other cases less than 37 weeks consultation or transfer is recommended.
Operative vaginal deliveries should be undertaken only when there is a reasonable chance of success and a backup plan is in place (SOGC/ MOREOB).
Support
The goal, where possible, should be to provide human resources and supports needed for 24/7 anaesthesia coverage
Labour analgesia should be available. This includes use of systemic narcotics (e.g. IM, IV, PCA), nitrous oxide with appropriate monitoring and safety protocols and labour epidural pain relief based on the availability of anaesthesia staff at the centre.
Epidural services, where available, should follow established CAS/ASA guidelines for obstetrical anaesthesia.
When a caesarean delivery is determined to be necessary and within scope of service, there must be timely access to anaesthetic and surgical services for the operative procedure. (Refer to SOGC guidelines).</td><td>Expected skill level:
Evaluation and postnatal care of healthy newborn infants who are predominantly cared for in a mother-baby dyad model (rooming-in).
Phototherapy.
Manage, for a limited duration, term newborn complications such as transient tachypnea of the newborn (TTNB), antibiotic prophylaxis, hypoglycaemia, and feeding difficulties.
Resuscitation and stabilization of ill infants before transfer to an appropriate care facility.</td></tr>
<tr><td>Level Ia
Does not provide caesarean delivery service 24/7/365
Singleton pregnancies only
VBAC deliveries should not be offered.
Informed consent should be documented regarding the availability of resources and procedures i.e. capacity to provide on-site caesarean birth.</td><td>Level Ib
Provides caesarean delivery service 24/7/365
May care for uncomplicated dichorionic twin pregnancies greater than or equal to 36 weeks and 0 days.
Capability for electronic fetal monitoring.
Suspected SGA infants would not be delivered without consultation.
Assessment and care by an anaesthesiologist or FP/GP anaesthetist for operative deliveries.</td><td></td></tr>
</table>

Gestational Age	Maternal Care	Newborn Care
Level II	Level IIa	Level IIa
GREATER THAN OR EQUAL TO 34 WEEKS AND 0 DAYS	**Care as above PLUS:** **Risk** • Women carrying a fetus with anomalies (minor) not likely to need immediate interventions. • Low-to-moderate maternal risk experiencing low risk medical/obstetrical complications where SGA is not suspected. • May care for uncomplicated dichorionic twin pregnancies. If less than 36 weeks and 0 days consider consultation and transfer. **Support** • 24/7 induction and augmentation of labour • 24/7 availability of continuous EFM • Available assessment within 30 minutes by obstetrics, anaesthesia, and paediatrics for emergencies and potential caesarean sections.	**Care as above PLUS:** **Risk** • Care for infants with a gestational age greater than or equal to 34 weeks and 0 days and birth weight greater than 1800 grams. **Illness and intervention** • Mild illness expected to resolve quickly. • Care of stable infants who are convalescing after intensive care • Nasal oxygen with oxygen saturation monitoring (acute and convalescing). • Ability to initiate and maintain a peripheral intravenous. • Gavage feeding **Retro-transfers**. • Stable neonatal retro-transfers with a corrected age over 32 weeks and 0 days gestation, a weight greater than 1500 grams and not requiring assisted ventilation, or advanced treatments or investigations.
Gestational Age	Maternal Care	Newborn Care
Level IIb	Level IIb	Level IIb
GREATER THAN OR EQUAL TO 32 WEEKS AND 0 DAYS	**Care as above PLUS:** • May care for uncomplicated dichorionic twin pregnancies. If less than 34 weeks and 0 days consider consultation and transfer.	**Care as above PLUS:** **Risk** • Care of infants with a gestational age greater than or equal to 32 weeks and 0 days gestation and a birth weight greater than 1500 grams. **Illness and interventions** • Moderately ill with problems expected to resolve quickly or who are convalescing after intensive care. • Continuous Positive Airway Pressure (CPAP), either transitional or extended stable CPAP. • May have mechanical ventilation for brief durations (less than 24 hours) • Insert and maintain umbilical lines. • Maintenance of PICC lines. • Peripheral intravenous infusions and total parenteral nutrition for a limited duration. **Retro-Transfers** • Stable neonatal retro-transfers that are over 30 weeks and 0 days gestation, over 1200 grams and not requiring assisted ventilation or advanced treatments or investigations.

Gestational Age	Maternal Care	Newborn Care
Level IIc	Level IIc	Level IIc
GREATER THAN OR EQUAL TO 30 WEEKS AND 0 DAYS**	**Care as above PLUS:** **** Note:** **The gestational age and birth weight criteria of 30 weeks plus 0 days and greater than 1200 grams will be a change from usual practice for some IIC units and should only be implemented following a clinical trial to make sure that the outcomes are comparable to Level III care for the 30 to 32 week population. Until this evaluation has been done the admission criteria for those IIC units currently functioning with 32 week 0 days as their admission criteria should remain at status quo.** **Risk** • Moderate maternal and/or neonatal risk • Delivery of infants with antenatally diagnosed non-life threatening fetal anomalies (following consultation with a MFM specialist and paediatrician) not requiring immediate intervention • May care for uncomplicated dichorionic or monochorionic twin pregnancies. If less than 32 weeks and 0 days gestation consider consultation and transfer. • May care for uncomplicated triplets as expertise and capacity allows.	**Care as above PLUS:** **Risk** • Care of infants with a gestational age greater than or equal to 30 weeks and 0 days gestation and a birth weight greater than 1200 grams. **See note to immediate left.** **Illness and interventions** • Moderately ill newborns with problems expected to resolve within a week or who are convalescing after intensive care. • Mechanical ventilation for conditions expected to resolve within a week or extended continuous positive airway pressure. • Intravenous infusion • Total parenteral nutrition • The ability to insert and maintain umbilical central lines • Maintenance of percutaneous intravenous central lines, access to PICC line insertion. • Support of babies with extended mechanical ventilation and lower gestational age may be required as a result of temporary inability to transport (e.g. geography, weather, capacity). **Retro-Transfers** • Retro-transfers should be reviewed on a case-by-case basis between the tertiary and receiving sites.

Gestational Age	Maternal Care	Newborn Care	
Level III	Level III	Level IIIa	Level IIIb

ANY GESTATIONAL AGE OR WEIGHT	**Care as above PLUS:**
	
	• High Risk maternal and/or neonatal (newborn care requirements must be within the scope of the newborn program services and resources).
	• 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 or care
	  • neonatal surgical services
	• Neonatal intensive care services as per Neonatal Scopes of Services document.
	• On-site adult intensive care unit services available to accept transfer and care of unstable parturients.
		Care as above PLUS:
		
		• Any gestational age or weight.
		• Mechanical ventilation support including high frequency, and possibly inhaled nitric oxide, for as long as required.
		• Timely access to a comprehensive range of subspecialty consultants.
			As in IIIa PLUS:
			
			• On site surgical capability.

Diagnostic Tests/Treatments for Maternal Care

Type of Diagnostic Test/Treatment Available	Maternal					
Minimum Standard for Level	**Level Ia**	**Level Ib**	**Level IIa**	**Level IIb**	**Level IIc**	**Level III**
PRENATAL						
Routine antenatal screening access should be arranged for all pregnant women regardless of where they live	YES	YES	YES	YES	YES	YES
Electronic Fetal Monitoring	YES	YES	YES	YES	YES	YES
IN LABOUR						
Fetal Fibronectin (fFn)	YES	YES	YES	YES	YES	YES
Continuous Fetal Monitoring (external)	NO	YES	YES	YES	YES	YES
Fetal Scalp pH	NO	NO	NO	Optional	Optional	Optional
Continuous O_2 sat monitoring	YES	YES	YES	YES	YES	YES
Obstetrical ultrasound	NO	NO	NO	NO	YES	YES
OBSTETRICAL INTERVENTIONS						
Induction of labour	NO	YES	YES	YES	YES	YES
Operative vaginal delivery (forceps *or* vacuum)	YES*	YES*	YES	YES	YES	YES
Epidural **	NO**	NO**	YES	YES	YES	YES
Surgery, caesarean section	NO	YES	YES	YES	YES	YES
ICU care on site	NO	NO	NO	NO	NO	YES
Administer blood products	YES	YES	YES	YES	YES	YES
POST DELIVERY						
D & C	NO	YES	YES	YES	YES	YES

*Excludes mid- cavity rotation
** Where available for levels Ia and Ib

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Human Resources for Maternal Care

Type of Personnel Minimum Standard	Level Ia	Level Ib	Level IIa	Level IIb	Level IIc	Level III
Medical:						
Family Physician/Midwife	YES	YES	YES	YES	YES	YES
GP Surgeon/General Surgeon/GP Obstetrical Surgeon	NO	YES	NO	NO	NO	NO
GP Anaesthetist/ Anaesthesiologist	NO	YES	YES	NO	NO	NO
Obstetrician	NO	NO	YES	YES	YES	YES
Anaesthesiologist	NO	NO	NO	YES	YES	YES
Maternal Fetal Medicine Specialist	NO	NO	NO	NO	NO	YES
Nursing:						
Registered Nurse * As per FCMNG	YES	YES	YES	YES	YES	YES
Registered Practical Nurse	Optional	Optional	Optional	Optional	Optional	Optional
Respiratory Therapy:						
Registered Respiratory Therapist	NO	NO	YES	YES	YES	YES
Other Staffing Support:						
Pharmacist	NO	NO	YES	YES	YES	YES
Social Worker	NO	NO	YES	YES	YES	YES
Dietician	NO	NO	YES	YES	YES	YES
Spiritual Care/Bereavement Support	YES	YES	YES	YES	YES	YES
Ultrasonography Technicians	NO	YES	YES	YES	YES	YES
Radiology Technicians	NO	YES	YES	YES	YES	YES
Lactation Support /Consultant	YES	YES	YES	YES	YES	YES
Specialist Consultations:						
Antenatal Paediatric Consultations	NO	NO	YES	YES	YES	YES
Antenatal Neonatal Subspecialists Consultations	NO	NO	NO	NO	NO	YES
Cardiology	NO	NO	NO	NO	NO	YES
Clinical Genetics	NO	NO	NO	NO	NO	YES
Radiology	NO	YES	YES	YES	YES	YES
Internal Medicine	NO	NO	YES	YES	YES	YES
Psychiatry	NO	NO	NO	NO	YES	YES

NOTE: Availability of personnel should be consistent with the model of care within the organization and the normal work schedule for the particular professional group

Diagnostic Tests/Treatment for Newborn Care

Type of Diagnostic Test	Newborn Care						
Minimum Standard	**Level I**	**Level IIa**	**Level IIb**	**Level IIc**	**Level IIIa**	**Level IIIb**	**Accessibility**
General Laboratory							
Micro technique for neonates - all routine blood work and newborn screening	YES	YES	YES	YES	YES	YES	
Blood type & Coombs	YES	YES	YES	YES	YES	YES	
Cross match	YES	YES	YES	YES	YES	YES	
Bacterial smear	YES - Regional	YES	YES	YES	YES	YES	
Bacterial and viral studies	YES	YES	YES	YES	YES	YES	REGIONAL
Drug screen	YES	YES	YES	YES	YES	YES	REGIONAL
Metabolic screen (serum AA, urine AA and OA, ammonia, lactate)	NO	YES	YES	YES	YES	YES	REGIONAL
Therapeutic drug monitoring	NO	YES	YES	YES	YES	YES	REGIONAL
Umbilical cord blood pH	YES	YES	YES	YES	YES	YES	
Continuous O_2 sat monitoring	YES	YES	YES	YES	YES	YES	
Pathology	NO	NO	NO	NO	YES	YES	
Other Diagnostics							
Echocardiography	NO	NO	NO	NO	YES – Timely Access	YES - 24/7	
EEG	NO	NO	NO	NO	YES Timely Access	YES Timely Access	
Infant eye exams (retinopathy)	NO	NO	**See note below	YES	YES	YES	

NOTE: A YES for testing or services indicates 24/7/365 availability, If otherwise indicated, testing and or services should be consistent with the normal model of care and work schedule of personnel i.e. Monday-Friday and/or timely access for technologist.

**Not having a screening service (on-site or remote) is a confining feature and a major obstacle to retro- transfer. Centres with limited coverage are encouraged to explore local or regional cross-coverage. At this point we will remove ROP screening as a “must have” for Level IIb. We will re-survey the province to evaluate the current level of ROP screening support and will review the results of that survey at the Maternal-Newborn Advisory Committee and will then reassess the minimum criteria for Level IIb.

Type of Treatment	Newborn						
Minimum Standard	**Level I**	**Level IIa**	**Level IIb**	**Level IIc**	**Level IIIa**	**Level IIIb**	Accessibility
Treatment							
Gavage feeding	NO	YES	YES	YES	YES	YES	
Lumbar puncture	NO	YES	YES	YES	YES	YES	
Phototherapy	YES	YES	YES	YES	YES	YES	
Short term O_2 stabilization	YES	YES	YES	YES	YES	YES	
Long term O_2 therapy - convalescent	NO	YES	YES	YES	YES	YES	
Continuous positive airway pressure management	NO	NO	YES	YES	YES	YES	
Endotracheal intubation (prior to transfer)	YES	YES	YES	N/A	N/A	N/A	
Ventilation support < 24 hours	NO	NO	YES	YES	YES	YES	
Ventilation support < 7 days	NO	NO	NO	YES	YES	YES	
Ventilation support unlimited	NO	NO	NO	NO	YES	YES	
Administration of surfactant (prior to transfer)	NO	YES	YES	YES	YES	YES	
Drainage of pneumothorax prior to transfer	YES	YES	YES	YES	YES	YES	
Chest tube initiation and maintenance	NO	NO	NO	YES	YES	YES	
Short term IV stabilization	YES	YES	YES	YES	YES	YES	
Long term IV therapy (greater than 1 week)	NO	NO	YES	YES	YES	YES	
Catheterization of umbilical vein and/or artery	YES	YES	YES	YES	YES	YES	
Umbilical central line maintenance	NO	NO	YES	YES	YES	YES	
Percutaneous IV central line maintenance	NO	NO	YES	YES	YES	YES	
PICC line insertion	NO	NO	NO	YES- timely access	YES	YES	
Arterial puncture	NO	NO	YES	YES	YES	YES	
Administer blood products	YES - prior to transfer	YES	YES	YES	YES	YES	
TPN	NO	NO	YES	YES	YES	YES	
Full range of non-invasive and invasive procedures/treatments/monitoring for tertiary care	NO	NO	NO	NO	YES	YES	
Infant surgery	NO	NO	NO	NO	NO	YES	
Neonatal Follow-Up	NO	NO	NO	YES - access	YES	YES	

Human Resources for Newborn Care

Type of Personnel*	Newborn Units					
Minimum Standard	Level I	Level IIa	Level IIb	Level IIc	Level IIIa	Level IIIb
Medical: MRP						
Family Physician/Midwife	YES	YES	NO	NO	NO	NO
Paediatrician	NO	YES	YES	YES	NO	NO
Neonatologist	NO	NO	NO	Access **to**	YES	YES
Nursing:						
Registered Nurse	YES	YES	YES	YES	YES	YES
Registered Practical Nurse	Optional	Optional	Optional	Optional	Optional	Optional
Respiratory:						
Registered Respiratory Therapist	NO	YES - ON CALL	YES - ON CALL	YES - IN HOUSE	YES - IN HOUSE	YES - IN HOUSE
Other Staffing Support:						
Social Worker	NO	YES	YES	YES	YES	YES
Feeding and Developmental Assessments (Physiotherapy or Occupational Therapist)	NO	NO	NO	YES	YES	YES
Dietician	NO	NO	YES	YES	YES	YES
Pastoral Care/ Bereavement Support	YES	YES	YES	YES	YES	YES
Ultrasonography Techs for cranial utrasounds	NO	NO	WEEKDAYS	WEEKDAYS	YES - ON CALL	YES - ON CALL
Radiology Techs	YES - ON CALL	YES - ON CALL	YES	YES	YES	YES
Pharmacist	NO	YES - ON CALL	YES - ON CALL	YES - ON CALL	YES - ON CALL	YES - ON CALL
Clerical Staff	YES	YES	YES	YES	YES	YES
Subspecialties (access to):						
Antenatal Consult for Inborn Units	NO	YES	YES	YES	YES	YES
Neonatal surgery	NO	NO	NO	NO	NO	YES
Anaesthesia	NO	NO	NO	NO	NO	YES
Paediatric Cardiology	NO	NO	NO	NO	YES	YES
Radiology	YES	YES	YES	YES	YES	YES
Ophthalmology	NO	NO	**see note below	YES	YES	YES

*Like the Society of Obstetricians and Gynaecologists, the Canadian Paediatric Society has published standards for hospitals providing neonatal care. The Society specifies that, at Level I hospitals a primary care physician or paediatrician should be available on call at all times. In Level II hospitals a paediatrician should be on call always and either in-house or assured that appropriately trained staff are in-house when mechanical ventilation is in progress. In Level III hospitals a neonatologist should be available on call always and there should be in-house coverage by appropriately trained staff (paediatrician, paediatric trainee, or neonatal NP) certified to perform the full range of resuscitation and intensive care roles. ONTARIO MEDICAL ASSOCIATION POLICY ON MATERNAL AND NEWBORN CARE IN ONTARIO. February, 2008

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