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SCOPE OF MEDICAL ACTIVITIES PERFORMED BY
N E O N A T A L N U R S E P R A C T I T I O N E R S

JOINT DOCUMENT



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Laura Molinari

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Ordre des infirmières et infirmiers du Québec

4200, boulevard Dorchester Ouest

Westmount, Québec H3Z 1V4

Téléphone : (514) 935-2501 or 1 800 363-6048

Fax: (514) 935-3770

ventepublications@oiiq.org

www.oiiq.org

Collège des médecins du Québec

2170, boulevard René-Lévesque Ouest

Montréal (Québec) H3H 2T8

Téléphone : (514) 933-4441 or 1 888 MÉDECIN

Fax: (514) 933-3112

info@cmq.org

www.collegedesmedecins.qc.ca

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Members of the working group on the scope of medical activities performed by neonatal nurse practitioners

Suzanne Durand

Director, Development and Professional Support Department
Ordre des infirmières et infirmiers du Québec

Dr. Richard Gosselin

Neonatologist
Montreal Children's Hospital

Dr. Pauline Gref

Inspector-Investigator
Collège des médecins du Québec

Annie Lacroix

Neonatal Nurse Practitioner (pilot project)
Sainte Justine Hospital

Linda Morneault

Neonatal Nurse Practitioner (pilot project)
Montreal Children's Hospital

Dr. Bruno Piedboeuf

Neonatologist
Paediatrics Research Unit
Centre hospitalier universitaire de Québec

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I N T R O D U C T I O N

Within the team of health-care professionals led by the attending physician, neonatal nurse practitioners (NNP) provide nursing and medical care to newborns admitted for intermediate or intensive neonatal care to a university medical centre or affiliated university medical centre where tertiary or level-3 neonatal care is provided, as defined in the CMOQ guide *La complémentarité dans les services d'obstétrique et de néonatalogie*.

NNPs work in close collaboration with the care team, particularly the attending physician, to provide quality care to newborns. NNPs are called on to perform, among others, the medical activities set out in section 36.1 of the *Nurses Act*:

1. Prescribing diagnostic examinations;
2. Using diagnostic techniques that are invasive or entail risks of injury;
3. Prescribing medications and other substances;
4. Prescribing medical treatment; and
5. Using techniques or applying medical treatments that are invasive or entail risks of injury.

C O N T E X T O F T H E P R A C T I C E

Neonatal nurse practitioners work only in level-3 neonatology medical centres where a neonatologist or paediatrician with neonatal-care privileges practises. This physician provides professional services on site or is available 24 hours a day, 7 days a week. The physician designated as the attending physician remains the ultimate decision-maker regarding care.

Neonatal nurse practitioners work with premature or term newborns with any pathology requiring admittance to neonatal intensive care or intermediate care. They work with newborns and their families at various stages of the perinatal period. NNPs may:

- Take part in prenatal consultations;
- Assist the attending physician in the management of premature or term newborns experiencing complications at birth;
- Monitor newborns in neonatal intensive or intermediate care or in the delivery room; and
- Work in the maternity ward with term newborns exhibiting signs of complications or a deteriorating condition.

The primary activities concerned are neonatal resuscitation and stabilization, prescription of medication and other substances, prescription of diagnostic examinations and application of diagnostic techniques that are invasive or entail risks of injury, prescription of medical treatments and application of invasive medical treatments, consultations, clinical on-call services and cooperation between the medical resident and the neonatal nurse practitioner.

NEONATAL RESUSCITATION AND STABILIZATION

Neonatal nurse practitioners must hold an instructor's-level certificate in neonatal cardiopulmonary resuscitation issued by a master instructor recognized by the Heart & Stroke Foundation of Quebec. This certificate allows the NNP to resuscitate and stabilize newborns in any sector where they may be admitted, including the delivery room and during inter-institution transportation. NNPs may work independently or in cooperation with other team members, such as the attending physician, respiratory therapist or medical resident, when present.

It is essential that rules governing medical care and rules governing the use of medicines give NNPs sufficient autonomy to be able to perform complete neonatal resuscitation in the absence of a physician in the immediate environment. Moreover, these same rules must also give NNPs sufficient autonomy in the stabilization of newborns.

8 Neonatal resuscitation

The skill of the person responsible for resuscitation will play an important role in minimizing potential damage, including following a difficult delivery. Therefore, neonatal nurse practitioners must be proficient in the resuscitation techniques of a recognized program, particularly rapid assessment and initial steps of stabilization, ventilation, chest compressions and administration of medication and other substances. NNPs must also be empowered to take charge of resuscitation of a newborn admitted to a neonatal unit with a problem that quickly puts the newborn's life in danger (cardiorespiratory arrest, severe respiratory distress, etc.). In an emergency, NNPs must be empowered to perform invasive techniques such as intubation, insertion of an umbilical venous catheter or central venous catheter via a peripheral route.

Neonatal stabilization

The purpose of neonatal stabilization is to stabilize the newborn using a series of treatments that will ensure oxygenation and ventilation, and maintain cardiac output and tissular perfusion. At this stage, the newborn requires not only support care, but also monitoring and appropriate assessment. Thus, the NNP must be able to accurately assess, anticipate and quickly commence support to the newborn in various ways:

- Cardiac monitoring;
- Respiratory monitoring;
- Assessment of the oxygen concentration to be administered;
- Assessment of blood saturation and pressure;
- Prescription of basic bedside exams, in accordance with rules governing medical care;
- Treatment of hypotension, in accordance with rules governing medical care and rules governing the use of medicines; and
- Treatment of convulsions and infections, in accordance with rules governing medical care and rules governing the use of medicines.

At all times the nurse practitioner remains aware of the ethical aspects of resuscitation, including the decision to stop neonatal resuscitation and the decision not to begin it.

P R E S C R I P T I O N O F M E D I C A T I O N A N D O T H E R S U B S T A N C E S

In close collaboration with the neonatologist, neonatal nurse practitioners may prescribe medications in their specialty that are subject to the rules governing the use of medicines, only while the newborn is hospitalized; they may also prescribe other substances covered by the rules governing medical care. The physician is responsible for ambulatory medical follow-up after the newborn has been discharged from the medical centre.

Prescription and adjustment

Nurse practitioners prescribe and adjust the appropriate medications based on the diagnosis established by the attending physician and on their knowledge of pharmacology (pharmacokinetics, pharmacodynamics, drug interactions), the newborn's medical history and other pathologies the newborn may have.

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Administration and clinical monitoring

- Specialized nurse practitioners prepare the medication and, if necessary, administer it and appropriately record it in the chart;
- They clinically monitor newborns on medication in cooperation with the pharmacist and the attending physician;
- They contribute to educating the newborn's family in this regard;
- They must be able to detect, prevent, treat and document the side effects of medication; and
- They must be able to identify drug interactions.

The board of directors of the health-care institution must approve the rules governing the use of medication to supervise the practice of the specialized nurse practitioner.

As indicated on page 21 of the main document, *Guidelines on the Nursing Practice of Specialized Nurse Practitioners*, some medications in Appendix II of the *Regulation on the Terms and Conditions for the Sale of Medications* should be covered by rules governing the use of medicines.

Examples of classes of medications and other substances that neonatal nurse practitioners may prescribe and adjust in accordance with the rules governing the use of medicines in the institution:

Antibiotics such as cephalosporin and penicillin
Anticonvulsants such as barbiturates and hydantoins
Topical antifungal agents
Analgesics such as opiate agonists, including codeine, morphine and fentanyl

Local anesthetics
Diuretics
Ophthalmic drops for exams
Intravenous solutions
Respiratory stimulants
Vitamins
Surfactants in emergencies

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The prescription of certain classes of medication, such as the ones below, should be restricted to physicians:

Antibiotics such as cefotetan disodium (cephalosporins), imipenem (beta-lactams) and amphotericin B (antifungal agent)
Antivirals such as acyclovir

Anticonvulsants such as carbamazepine, lamotrigine and sodium valproate
Opiate agonists such as hydromorphone and oxycodone

DIAGNOSTIC EXAMINATIONS AND DIAGNOSTIC TECHNIQUES THAT ARE INVASIVE OR ENTAIL RISKS OF INJURY

Specialized nurse practitioners may act alone in emergencies or during routine activities. Rules governing medical care determine their conduct and the prescription of certain radiological and ultrasound tests.

Diagnostic examinations

1 2 Within the rules governing medical care, NNPs may prescribe or perform the diagnostic examinations required to assess a newborn. They coordinate activities (drinking, bathing, other tests, etc.) based on these examinations. They notify parents of the examinations and ask for their consent when necessary. The results of these examinations may confirm a diagnosis or provide valuable information about the newborn's condition or his/her response to therapy. After discussion with the attending physician, NNPs inform parents of the results and future treatments. Moreover, they monitor the newborn after examinations and provide continuous care, and modulate treatments based on results.

The board of directors of the health-care institution must approve rules governing medical care (ARHSSS, section 190) to supervise the practice of specialized nurse practitioners as regards the prescription of diagnostic examinations.

Examples of laboratory tests that neonatal nurse practitioners may prescribe:

BLOOD BANK	COOMBS direct and indirect Blood group (grouped-crossed)
BIOCHEMISTRY	Stool analysis Urine analysis Ionic balance (sodium, potassium and chlorides) Total and direct bilirubin Calcium (ionized and total) Creatinine and urea (serumal and urinary)

BIOCHEMISTRY	Urinary electrolytes Hepatic enzymes (ASAT, ALAT) Iron, ferritin Blood, venous and capillary gases Glycaemia Serumal levels of medications (caffeine, theophylline, antibiotics, anticonvulsants, etc.) Urinary osmolarity
COAGULATION	Coagulogram <ul style="list-style-type: none"> • Prothrombin time (PT-RNI) • Activated cephalin time (ACT or PTT) Bleeding time Thromboplastin time
MICROBIOLOGY	Antibioqram Urine culture Miscellaneous discharge culture (wound, throat, endotracheal secretions) Stool culture Haemoculture

Examples of medical imaging tests and other diagnostic examinations that neonatal nurse practitioners may prescribe:

Abdominal ultrasound Transfontanelle ultrasonography Electrocardiogram Electroencephalogram Oto-acoustic emission	Pulmonary function tests: oxymetry, cardiorespiratory recordings Visual- and auditory-evoked potential Flat plate abdominal X-ray Pulmonary X-ray
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Diagnostic techniques that are invasive or entail risks of injury

When assessing newborns, NNPs may prescribe or perform invasive diagnostic techniques if they have determined that the technique is necessary for assessment purposes, but must respect the rules governing medical care in force in the institution. Taking into consideration essential elements in the selection of the appropriate diagnostic technique, NNPs apply the technique, monitor the newborn afterwards, detect signs of complications early on and manage them appropriately. They inform the attending physician of treatments and adjust the nurse's therapeutic plan and medical treatment plan based on their discussions with the physician.

The board of directors of the health-care institution must approve the rules governing medical care (ARHSSS, section 190) that cover diagnostic techniques that are invasive or entail risks of injury that NNPs may prescribe or perform.

1 4

Examples of diagnostic techniques that are invasive or entail risks of injury that neonatal nurse practitioners may prescribe or perform:

Arterial puncture
Spinal tap
Bladder tap

MEDICAL TREATMENTS AND APPLICATION OF MEDICAL TREATMENTS THAT ARE INVASIVE OR ENTAIL RISKS OF INJURY

Medical treatments

Within the limits of the rules governing medical care established to this effect, neonatal nurse practitioners may prescribe, perform, modify or discontinue certain necessary medical treatments to previously diagnosed newborns. They take into consideration the newborn's condition and possible limitations when deciding on the optimal treatment; they consult parents about the selection and inform them of the procedures, expected results, potential complications and alternate solutions. They apply medical treatments themselves or ensure that they are performed by another professional under optimal conditions. Except in emergencies, the selection of treatment as well as the expected results are discussed with the attending physician and the final decision is made with him. NNPs monitor newborns after treatment, detect complications early on and manage them, monitor and make requests for necessary professional services.

When the expected results are not achieved, a decision is made on other therapeutic options with the attending physician. NNPs adjust the nurse's therapeutic plan and the medical treatment plan based on the medical treatments prescribed, performed, modified or discontinued.

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Examples of medical treatments that neonatal nurse practitioners may prescribe:

Parenteral nutrition	Respiratory therapy and modification of respiratory parameters
Insertion of a gastrointestinal or urinary tube	Phototherapy
Assisted ventilation method	Transfusion of blood products
Pulmonary physiotherapy	Stimulation of oral sphere

Application of invasive medical treatments

The board of directors of the health-care institution must approve the rules of medical care (ARHSSS, section 190) governing any invasive medical treatments that a neonatal nurse practitioner may prescribe and perform.

Examples of invasive medical treatments that a neonatal nurse practitioner may prescribe or perform:

Arterial catheter: insertion and removal
Chest tube: insertion and removal
Endotracheal intubation and extubation

Insertion of a gastrointestinal tube
Ascite puncture

C O N S U L T A T I O N

Consultation is the process by which a physician asks for an opinion concerning a condition or specific patient situation, while remaining responsible for the patient's care. Within the NNP's practice, a neonatologist or paediatrician with neonatology privileges must always be consulted.

Intra-institutional consultations

Consultations with a specialist cannot be requested by the nurse practitioner unless there has been prior communication with the attending physician, and the consultation remains the physician's responsibility.

Neonatal nurse practitioners may request professional services from other health-care professionals (social worker, respiratory therapist, occupational therapist, etc.), unless there are specific rules governing the use of resources to the contrary.

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Requests for consultation from physicians regarding a child about to be born or a newborn from another sector (prenatal consultation, delivery room, nursery, etc.) and addressed to the paediatrician may be performed by the nurse practitioner by participating in the consultation, with the consulting physician remaining fully responsible.

Inter-institutional consultations / telephone consultations

Neonatal nurse practitioners may respond to requests for information from a nurse or another institution. When a physician requests a consultation, specialized nurse practitioners cooperate with the on-duty or available paediatrician in the information, discussion and recommendation process concerning the newborn's state of health. At all times the consulting physician remains fully responsible for the newborn at his physical site. The paediatrician bears the responsibility of accepting or refusing the transfer of a newborn, as the newborn would be admitted under his name.

Transportation

When transferring a newborn, in the event specialized nurse practitioners are not present at the time of transportation, they can communicate with the responsible team.

In the event specialized nurse practitioners provide transportation themselves because the newborn's condition is unstable and requires the presence of a neonatal nurse practitioner to stabilize this condition, the NNP manages the newborn's care at the requesting medical centre and supervises nursing care and respiratory therapy. The NNP may take on medical care and prescribe necessary medication during transportation in accordance with the rules governing medical care and rules governing the use of medicines in force at the institution where she works. As needed, she communicates with the attending physician by phone.

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Communication among the various members of the transportation team is a key asset that will ensure that effective services are provided to the newborn. A communication algorithm may be necessary to efficiently manage calls and may be developed by the institution from which transportation is being requested.

C L I N I C A L O N - C A L L S E R V I C E S

Neonatal nurse practitioners perform nursing and medical activities during their shifts or when on call based on the terms and conditions below.

Neonatal nurse practitioners, together with medical residents, provide professional coverage during the day, evening, night and on weekends, in accordance with the needs of newborns. The physician on call (neonatologist or paediatrician with neonatal privileges) is considered to be the attending physician and must be notified when patients are admitted under his name and of any significant changes in the condition of newborns under his care. When there is a senior neonatology resident (fellow), NNPs must contact the fellow, who will then contact the physician on call, if any. NNPs must be on call at the medical centre in the event that rapid intervention is required. The on-call procedures for NNPs are determined jointly by the head of the clinical department and the director of nursing care.

COLLABORATION BETWEEN THE MEDICAL RESIDENT AND NEONATAL NURSE PRACTITIONER

Collaboration between the medical resident and neonatal nurse practitioner is important, just as is collaboration between the NNP and the neonatologist because of the impact on the quality of their professional relationship, as well as on the quality of care provided to newborns.

Priority must be given to professionals in training when assigning newborns in order to increase their exposure to clinical activities and their proficiency with the techniques required for their professional practice. Thus, the organization of the environment must foster the achievement of internship objectives and sufficient exposure to techniques, both for the medical resident and the nurse practitioner in training. However, the exposure of medical residents to the techniques used in neonatology remains a priority, given the autonomy of their practice and their responsibility with regard to the care of newborns. Following the medical resident's acquisition of the skills required to apply these techniques, the specialized nurse practitioner in training and the neonatal nurse practitioner may practise these techniques. Equitable sharing of the use of techniques among the nurse practitioner, the medical resident and other health-care professionals is desirable and recommended based on the specific organization of work in each setting.



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