**Neonatal NP Competencies**

These are entry-level competencies for the neonatal nurse practitioner (NNP) and supplement the core competencies for all nurse practitioners.

Neonatal nurse practitioners provide health care to neonates, infants, and children up to 2 years of age. Practice as a NNP requires specialized knowledge and skills if safe, high-quality care is to be delivered to patients. Competencies are identified by the professional organization, along with an established set of standards that protect the public, ensuring patients’ access to safe, high-quality care. The National Association of Neonatal Nurse Practitioners (NANNP, 2010) had established competencies for the neonatal population focus that built upon the *Domains and Core Competencies of Nurse Practitioner Practice* developed by the National Organization of Nurse Practitioner Faculties (NONPF, 2006). The NNP competencies presented here build on that previous work and relate to the more recent *Nurse Practitioner Core Competencies* published by NONPF in 2012. The core competencies, which are demonstrated upon graduation regardless of population focus, are necessary for NPs to meet the complex challenges of translating rapidly expanding knowledge into practice and function in a changing health care environment.

See the “Introduction” for how to use this document and to identify other critical resources to supplement these competencies.

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<tr>
<th>Competency Area</th>
<th>NP Core Competencies</th>
<th>Neonatal NP Competencies</th>
<th>Curriculum Content to Support Competencies</th>
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</thead>
<tbody>
<tr>
<td><strong>Scientific Foundation Competencies</strong></td>
<td>1. Critically analyzes data and evidence for improving advanced nursing practice.</td>
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<td>Advanced Neonatal Pathophysiology</td>
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<td>2. Integrates knowledge from the humanities and sciences within the context of nursing science.</td>
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<td>Advanced Neonatal Pharmacology</td>
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<td>3. Translates research and other forms of knowledge to improve practice processes and outcomes.</td>
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<td>Advanced Neonatal Assessment</td>
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<td>Research and Quality Improvement</td>
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<td>• Research process and methods</td>
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<td>• Information databases</td>
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<td></td>
<td>• Critical evaluation of research findings</td>
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<td>• Translational research</td>
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<td>• Research on vulnerable populations</td>
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| 4.              | Develops new practice approaches based on the integration of research, theory, and practice knowledge | Interprets the role of the neonatal nurse practitioner (NNP) to the infant’s family, other healthcare professionals, and the community. | • Funding for research  
• Research dissemination  
• Institutional review boards  
  • Safety  
  • Continuous Quality Improvement |

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<thead>
<tr>
<th>Leadership Competencies</th>
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<th>Professional Role</th>
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</table>
| 1.                      | Assumes complex and advanced leadership roles to initiate and guide change. | Interprets the role of the neonatal nurse practitioner (NNP) to the infant’s family, other healthcare professionals, and the community. | • Professional leadership  
• Professional accountability  
• Evidence-based practice  
• Role theory  
• Advanced practice role  
• Role of the NNP  
• Scope of practice of the NNP  
• Standards of practice  
• Professional regulation and licensure  
• Credentialing and certification  
• Clinical decision making and problem solving  
• Professional scholarship |
| 2.                      | Provides leadership to foster collaboration with multiple stakeholders (e.g. patients, community, integrated health care teams, and policy makers) to improve health care. |                          |                  |
| 3.                      | Demonstrates leadership that uses critical and reflective thinking. |                          |                  |
| 4.                      | Advocates for improved access, quality and cost effective health care. |                          |                  |
| 5.                      | Advances practice through the development and implementation of innovations incorporating principles of change. |                          |                  |
| 6.                      | Communicates practice knowledge effectively both orally and in writing. |                          |                  |
| 7.                      | Participates in professional |                          |                  |

- **Teaching and Education**  
  - Theories—motivational, change, education, communication  
  - Program planning and evaluation  
  - Instructional technology  
  - Cultural sensitivity  
  - Communication
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|                 | organizations and activities that influence advanced practice nursing and/or health outcomes of a population focus. |                          | • Communication theory  
• Collaboration  
• Conflict resolution  
• Assertiveness  
• Collaborative practice models  
• Informatics  
• Consultation |
| Quality Competencies | 1. Uses best available evidence to continuously improve quality of clinical practice.  
2. Evaluates the relationships among access, cost, quality, and safety and their influence on health care.  
3. Evaluates how organizational structure, care processes, financing, marketing and policy decisions impact the quality of health care.  
4. Applies skills in peer review to promote a culture of excellence.  
5. Anticipates variations in practice and is proactive in implementing interventions to ensure quality. |                          | Healthcare Policy and Advocacy  
• Economics of health care |
|                 | Research and Quality Improvement  
• Information databases  
• Critical evaluation of research findings  
• Translational research  
• Research dissemination  
• Institutional review boards  
  •Safety  
  •Continuous Quality Improvement  
  •Finance and Value added care |
| Practice Inquiry Competencies | 1. Provides leadership in the translation of new knowledge into practice.  
2. Generates knowledge from clinical practice to improve practice and patient outcomes.  
3. Applies clinical investigative skills to improve health outcomes. |                          | Research and Quality Improvement  
• Research process and methods  
• Information databases  
• Critical evaluation of research findings  
• Translational research  
• Research on vulnerable populations  
• Research dissemination |
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<td>4. Leads practice inquiry, individually or in partnership with others.</td>
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<td>• Institutional review boards</td>
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<td>5. Disseminates evidence from inquiry to diverse audiences using multiple modalities.</td>
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<td>• Safety</td>
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<td>6. Analyze clinical guidelines for individualized application into practice</td>
<td></td>
<td>• Continuous Quality Improvement</td>
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<td>Technology and Information Literacy</td>
<td>1. Integrates appropriate technologies for knowledge management to improve health</td>
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<td>Competencies</td>
<td>care.</td>
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<td></td>
<td>2. Translates technical and scientific health information appropriate for various</td>
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<td>users’ needs.</td>
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<td></td>
<td>2.a Assesses the patient’s and caregiver’s educational needs to provide effective,</td>
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<td></td>
<td>personalized health care.</td>
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<td></td>
<td>2.b Coaches the patient and caregiver for positive behavioral change.</td>
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<td>3. Demonstrates information literacy skills in complex decision making.</td>
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<td>4. Contributes to the design of clinical information systems that promote safe,</td>
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<td></td>
<td>quality and cost effective care.</td>
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<td>5. Uses technology systems that capture data on variables for the evaluation of</td>
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<td>nursing care.</td>
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<td>Communication</td>
<td>• Communication theory</td>
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<td>• Collaboration</td>
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<td>• Informatics</td>
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<td>• Information data bases/technology</td>
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<td>Professional Role</td>
<td>• Consultation</td>
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<td>• Cultural sensitivity</td>
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<tr>
<td>Policy Competencies</td>
<td>1. Demonstrates an understanding of the interdependence of policy and practice.</td>
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<td>2. Advocates for ethical policies that promote access, equity, quality, and cost.</td>
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<td>Healthcare Policy and Advocacy</td>
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<td>3. Analyzes ethical, legal, and social factors influencing policy development.</td>
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<td>• Process of healthcare legislation</td>
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<td>4. Contributes in the development of health policy.</td>
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<td>• Maternal and child health legislation</td>
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<td>5. Analyzes the implications of health policy across disciplines.</td>
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<td>• Implications of healthcare policy</td>
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<td>6. Evaluates the impact of globalization on health care policy development.</td>
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<td>• Economics of health care</td>
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<td>• Third-party reimbursement</td>
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<td>• Legislation and regulations concerning advanced practice</td>
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<td><strong>Ethical and Legal Issues</strong></td>
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<td>• Ethical decision making</td>
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<td>• Ethical issues—reproductive, prenatal, neonatal, and infancy</td>
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<td>• Ethical use of information</td>
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<td>• Patient advocacy</td>
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<td>• Resource allocation</td>
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<td>• Legal issues affecting patient care and professional practice</td>
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<td><strong>Global Health Care</strong></td>
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Population-Focused Nurse Practitioner Competencies
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<th>Health Delivery System Competencies</th>
<th>Management and Organization</th>
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<tr>
<td>1. Applies knowledge of organizational practices and complex systems to improve health care delivery.</td>
<td>• Organizational theory</td>
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<tr>
<td>2. Effects health care change using broad based skills including negotiating, consensus-building, and partnering.</td>
<td>• Principles of management</td>
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<td>3. Minimizes risk to patients and providers at the individual and systems level.</td>
<td>• Models of planned change</td>
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<td>4. Facilitates the development of health care systems that address the needs of culturally diverse populations, providers, and other stakeholders.</td>
<td>• Collaborative practice</td>
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<td>5. Evaluates the impact of health care delivery on patients, providers, other stakeholders, and the environment.</td>
<td>• Healthcare system financing</td>
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<td>6. Analyzes organizational structure, functions and resources to improve the delivery of care.</td>
<td>• Reimbursement systems</td>
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<td>7. Collaborates in planning for transitions across the continuum of care.</td>
<td>• Standards of practice</td>
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<td>• Cost, quality, outcome measures</td>
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<td>• Resource management</td>
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<td>• Evaluation models</td>
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<td>• Peer review</td>
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<td>• Safety</td>
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<td></td>
<td>• Continuous Quality Improvement</td>
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<tr>
<td>Ethics Competencies</td>
<td>Conforms to the national <em>Code of Ethics of the National Association of Neonatal Nurses.</em></td>
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| 1. Integrates ethical principles in decision making.  
2. Evaluates the ethical consequences of decisions.  
3. Applies ethically sound solutions to complex issues related to individuals, populations and systems of care. | Ethical and Legal Issues  
- Ethical decision making  
- Ethical issues—reproductive, prenatal, neonatal, and infancy  
- Ethical use of information  
- Patient advocacy  
- Bioethics committees  
- Clinical research  
- Resource allocation  
- Genetic counseling  
- Legal issues affecting patient care and professional practice  
- Informed consent  
- Cultural sensitivity |

| Independent Practice Competencies | 1. Obtains a thorough health history to include maternal medical, antepartum, intrapartum, and newborn history.  
2. Performs a complete, systems-focused examination to include physical, behavioral, and developmental assessments.  
3. Develops a comprehensive database that includes pertinent history, diagnostic tests, and physical assessment.  
4. Demonstrates critical thinking and diagnostic reasoning skills in clinical decision-making.  
5. Establishes priorities of care.  
6. Initiates therapeutic interventions according to established standards of care.  
7. Demonstrates competency in the technical skills considered essential for NNP practice according to the standards set forth by national, professional. | Advanced Neonatal Pathophysiology  
Advanced Neonatal Pharmacology  
Advanced Neonatal Assessment  
Perinatal Issues  
A. Perinatal physiology  
- Maternal physiology (physiologic adaptation to pregnancy, pathologic changes or disease in pregnancy, effects of pre-existing disease)  
- Fetal physiology  
- Transitional changes  
- Neonatal physiology  
B. Pharmacology  
- Principles of pharmacology and pharmacotherapeutics, including those at the cellular response level |
|---------------------|--------------------------------------------------------------------------------------------------|
| 1. Functions as a licensed independent practitioner.  
2. Demonstrates the highest level of accountability for professional practice.  
3. Practices independently managing previously diagnosed and undiagnosed patients.  
3.a Provides the full spectrum of health care services to include health promotion, disease prevention, health protection, anticipatory guidance, counseling, disease management, palliative, and end of life care.  
3.b Uses advanced health assessment skills to |                                                                                 |

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differentiate between normal, variations of normal and abnormal findings.
3.c Employs screening and diagnostic strategies in the development of diagnoses.
3.d Prescribes medications within scope of practice.
3.e Manages the health/illness status of patients and families over time.
4. Provides patient-centered care recognizing cultural diversity and the patient or designee as a full partner in decision-making.
4.a Works to establish a relationship with the patient characterized by mutual respect, empathy, and collaboration.
4.b Creates a climate of patient-centered care to include confidentiality, privacy, comfort, emotional support, mutual trust, and respect.
4.c Incorporates the patient’s cultural and spiritual preferences, values, and beliefs into health care.
4.d Preserves the patient’s control over decision making by negotiating a mutually acceptable plan of care.
8. Intervenes according to established standards of care to resuscitate and stabilize compromised newborns and infants.
9. Implements developmentally appropriate care.
10. Ensures that principles of pain management are applied to all aspects of neonatal care.
12. Considers community and family resources and strengths, when planning patient care and follow up needs across the continuum of care.
13. Communicates with family members and caregivers regarding the newborn and infant's healthcare status and needs.
14. Applies principles of crisis management to assist family members in coping with their infant's illness.
15. Participates in the learning needs of students and other healthcare professionals.
16. Participates as a member of an interdisciplinary team through the development of collaborative and innovative practices.
17. Identify strategies to deliver culturally sensitive, high quality care free of personal biases.

- Principles of pharmacokinetics and pharmacodynamics of broad categories of drugs
- Common categories of drugs used in the newborn and infant
- Effects of drugs during pregnancy and lactation

C. Genetics
- Principles of human genetics
- Genetic testing and screening
- Genetic abnormalities
- Human Genome Project
- Gene therapy
- Genetic Counseling

General Assessment
- Perinatal history
- Antepartum conditions
- Prenatal diagnostic testing
- Intrapartum conditions
- Influence of altered environment on the newborn and infant
- Gestational age assessment
- Neonatal physical exam
- Behavioral assessment
- Developmental assessment
- Pain assessment
- Assessment of family adaptation, coping skills, and resources

Sociocultural Assessment
A. Family assessment
- Family function
  1. roles
  2. interactions
  3. effect of childbearing
| Social, cultural, and spiritual variations |
| Support systems |

B. Families in crisis
- Crisis theory
- Principles of intervention
- Crises of childbearing
  1. sick or premature infant
  2. chronically ill or malformed infant
  3. death of an infant
- Grief
  1. stages
  2. factors influencing grieving process
  3. pathologic grief
  4. sibling reactions

C. Principles of family-centered care

**Clinical and Diagnostic Laboratory Assessments**

Clinical laboratory tests
- Microbiologic
- Biochemical
- Hematologic
- Serologic
- Metabolic and endocrine
- Immunologic
- Routine newborn screening
- Other

Diagnostic tests (types and techniques)
- Ultrasound
- Computed tomography (CT)
- Magnetic resonance imaging (MRI), magnetic resonance angiogram (MRA), magnetic resonance spectroscopy (MRS)
- X-ray
- Electrocardiogram (EKG)
- Electroencephalogram (EEG)
- Echocardiogram
- Cardiac catheterization

Selection of diagnostic tests
- Indications
- Reliability
- Advantages and disadvantages
- Cost-effectiveness
- Interpretation of results
- Performance of procedures for neonates, including, but not limited to:
  - Lumbar puncture
  - Umbilical vessel catheterization
  - Percutaneous arterial and venous catheters
  - Arterial puncture
  - Venipuncture
  - Capillary heel-stick blood sampling
  - Suprapubic bladder aspiration
  - Bladder catheterization
  - Endotracheal intubation
  - Laryngeal airway placement
  - Intraosseous (to be alike)
  - Assisted ventilation
  - Resuscitation and stabilization
  - Needle aspiration of pneumothorax
  - Chest-tube insertion and removal
  - Exchange transfusion

**General Management**

A. Thermoregulation
- Factors affecting heat loss and production
- Mechanisms of heat loss and gain
Population-Focused Nurse Practitioner Competencies

- Temperature assessment techniques
- Hypothermia, hyperthermia
- Management techniques to minimize heat loss or maintain body temperature

B. Resuscitation and stabilization
- Assessment of risk factors
- Physiology of asphyxia
- Indications for intubation, ventilation, and cardiac compressions (see also section on neonatal procedures)
- Resuscitation equipment
- Pharmacotherapeutics
- Stabilization
- Neonatal transport
- Neonatal Resuscitation Program (NRP) provider

C. Pain management
- Physiology of pain
- Pain management
  1. Nonpharmacologic
  2. Pharmacologic

D. Palliative and end-of-life care
- Ethical considerations
- Pain management at end of life
- Hospice care
- Bereavement

Clinical Management

A. Cardiovascular system
- Embryology
- Physiology
- Fetal, transitional, neonatal circulation
- Rhythm disturbances/EKG interpretation
### Population-Focused Nurse Practitioner Competencies

#### A. Cardiovascular system
- Myocardial dysfunction
- Shock, hypotension, hypertension
- Congenital heart disease
  (pathophysiology, clinical presentation, differential diagnosis, medical management, pre- and postoperative management)
- Cardiovascular radiology and echocardiogram interpretation
- Cardiovascular pharmacology

#### B. Pulmonary system
- Embryology
- Physiology (oxygenation and ventilation, gas exchange, acid-base balance)
- Asphyxia
- Pulmonary diseases (pathophysiology, etiology, clinical presentation, differential diagnosis, treatment)
- Pulmonary radiology
- Respiratory therapy
  1. Physiologic principles
  2. Physiologic monitoring
  3. Continuous distending pressure
  4. Ventilation strategies
  5. Extracorporeal membrane oxygenation (ECMO)
- Respiratory pharmacology

#### C. Gastrointestinal (GI) system
- Embryology
- Anatomy and physiology of the GI tract
  1. Structure and function
  2. Hormonal influence
  3. Motility
  4. Digestion and absorption
- Digestive and absorptive disorders
  1. Disorders of sucking and swallowing
  2. Motility
  3. Gastroesophageal (GE) reflux
  4. Malabsorption
  5. Diarrhea or short gut
- Anomalies and obstruction
- Necrotizing enterocolitis

D. Nutrition
- Effects of maturational changes on management of nutritional requirements and feeding
- Caloric and nutritional requirements
- Feeding methods
  1. Breast
  2. Bottle
  3. Gavage
  4. Gastrostomy
  5. Transpyloric
  6. Trophic
- Breast milk versus formula
  1. Composition
  2. Benefits
  3. Preterm infants
- Parenteral nutrition
  1. Composition
  2. Indications
  3. Benefits
  4. Complications
  5. Monitoring
- Dietary supplementation for term and preterm infants
- Dietary adjustments in special circumstances
  1. Cholestasis
2. Short gut syndrome
3. Osteopenia
4. Inborn errors of metabolism

E. Renal and genitourinary
- Embryology and anatomy
- Renal physiology
- Evaluation of renal function
- Urinary tract infections
- Congenital anomalies
- Functional abnormalities of the renal system
- Renal failure
  1. Predisposing factors and etiologies
  2. Pathophysiology
  3. Management
    a. Fluid and electrolytes
    b. Nutritional modification
    c. Drug modification
    d. Hemofiltration
    e. Dialysis
    f. Transplant

F. Fluid and electrolytes
- Physiology
  1. Electrolyte homeostasis
  2. Body composition in fetal and neonatal periods
  3. Transitional changes
  4. Insensible water loss
  5. Endocrine control, (mineralocorticoids, antidiuretic hormone (ADH), calcitonin/parathyroid hormone (PTH))
  6. Renal function, physiology
- Calcium and phosphorus homeostasis
Principles of fluid therapy
1. Assessment of hydration
2. Maintenance requirements
3. Factors affecting total fluid requirements

Disorders of fluids and electrolytes

Immune and nonimmune hydrops

G. Endocrine and metabolic system
- Neuroendocrine regulation
- Carbohydrate metabolism
- Infant of a diabetic mother
- Adrenal disorders
- Thyroid disorders
- Inborn errors of metabolism
- Newborn screening
- Ambiguous genitalia, intersex disorders

H. Hematologic system and malignancies
- Development of the hematopoietic system
- Anemia
- Polycythemia and hyperviscosity
- Bilirubin
  1. Physiology of bilirubin production, metabolism, and excretion
  2. Hyperbilirubinemia
  3. Breast milk jaundice
  4. Encephalopathy
- Hepatic disorders
- Coagulation and platelets
  1. Physiology
  2. Disorders of coagulation and platelets
- Disorders of leukocytes
- Blood transfusions and blood products
- Malignancies, neoplasms
I. Immunologic system
- Development of the immune system
- Function of the immune system
- Allo- and auto-immune disorders
- Infectious diseases
- Evaluation of the infant
  1. History
  2. Physical examination
  3. Laboratory data
  4. Other diagnostic tests
- Treatment
  1. Antimicrobial
  2. Adjunctive therapy
- Infection with specific microorganisms

J. Musculoskeletal system
- Embryology
- Congenital abnormalities
- Birth injuries
- Metabolic bone disease

K. Neurobehavioral system
- Development of the nervous system
  1. Embryology
  2. Anatomy
  3. Cerebral circulation
  4. Maturation
- Birth injuries
- Anomalies and defects of central nervous system (CNS) and spine
- Ischemic brain injury
- Seizures
- Intracranial hemorrhage
- Disorders of movement and tone
- Growth and development
- Developmentally supportive care
• Developmental follow-up of infants

L. Eyes, ears, nose, and throat
• Embryology and anatomy
• Abnormalities of the airway
  1. Congenital
  2. Acquired
• Auditory system
  1. Physiology of hearing and speech
  2. Speech and language alterations
  3. Hearing screening methods

4. Abnormalities
• Visual system
  1. Physiology of vision and visual development
  2. Visual acuity
  3. Visual screening
  4. Pharmacotherapy
  5. Abnormalities
  6. Retinopathy of prematurity (ROP)

M. Integumentary system
• Embryology
• Anatomy and physiology
• Terminology
• Common variations
• Skin disorders
• Pharmacology

N. Intrauterine drug exposure
• Screening for maternal substance use
• Laboratory tests
• Ethical considerations
• Physiologic effects
• Clinical management
  1. Pharmacologic
  2. Nonpharmacologic
## Health Promotion and Disease Prevention

### A. Discharge planning
- Discharge planning process
  - Technologically dependent infants
  - Parent education
    1. Infant cue recognition
    2. Emergency measures
    3. Medical equipment
    4. Disease-specific instructions
    5. Well-child care (normal growth and development, nutrition, dental health)
- Community resources
- Home care and follow-up

### B. Primary care up to 2 years
- Physical assessment
- Immunization
- Hearing screening
- Eye exams
- Neurologic follow-up
- Developmental screening
- Safety issues