

Goals and Objectives
For the Subspecialty Resident in Neonatal-Perinatal Medicine

CLINICAL

INPATIENT ROTATIONS

By the end of year 01

Master the management of straightforward disorders of neonatology, especially respiratory distress syndrome, sepsis, jaundice, seizure, etc.

Become expert at SIMV (synchronized intermittent mechanical ventilation), A/C (assist-control), HFOV (high frequency oscillator ventilation), and other modes of assisted ventilation in neonates, including the indications and the contraindications of each.

Become familiar with principles of ECMO (extra corporeal membrane oxygenation).

Master delivery room/perinatal stabilization of low birth weight, extremely low birth weight infants and infants with malformations.

Master management of extremely low birth weight infants.

Become familiar with advantages and limits of antenatal ultrasound, other diagnostic and fetal monitoring modalities.

Develop skills as a counselor for families with impending delivery of preterm infants or infants with prenatally diagnosed conditions.

Become familiar with concepts of individually-based developmental care in the NICU environment, and its impact on outcome.

Recognize and manage disorders in the newborn arising from legal and illegal substance abuse by the mothers.

By the end of year 02

Develop skills as a teacher of neonatal-perinatal physiology and pathophysiology to medical students and residents.

Develop skills as a diagnostician of genetic, polygenic and environmentally-induced malformation syndromes, including immediately life-threatening birth defects, such as craniofacial anomalies and neural tube defects.

Be prepared to provide the relevant information, to assist and support families in making informed decisions regarding the care of critically ill newborns within the ethical and legal constraints of the community.

Be familiar with the art of subspecialty consultation by telephone and in person, including consultation with obstetricians, pediatricians, and family practice physicians about common issues of perinatal management.

By the end of year 03

Manage independently all problems arising in the delivery suite.

Become knowledgeable about the impact of antepartum and intrapartum conditions affecting pregnant women (e.g. diabetes, congenital heart disease, and autoimmune disorders) on the fetus.

Become knowledgeable about the effects of maternally administered medications on the fetus.

Be skilled and confident in the management of all medical problems arising in the neonatal period.

Manage independently all problems related to special nutritional needs of low birth weight, very low birth weight and extremely low birth weight infants during the first months of life. This includes the strengths and limits of human milk.

Become expert at diagnosis and pre-operative management of complex structural cardiovascular anomalies presenting in the neonatal period.

Learn limits and strengths of relationships with associated medical teams who have independent expertise in one or more areas of neonatal medicine (e.g. pediatric surgery consultants).

Become expert at the pitfalls of legally mandated newborn screening program.

Understand costs of care – actual and projected, and of care expected to be needed in the future.

Become expert at recognizing the unique problems of neonatal transport by land.

Become a skilled and charismatic teacher to allied health professionals, medical students and residents.

OUTPATIENT ROTATIONS

Neonatal Follow-up clinics and Didactic Activities

Develop an appreciation for unique physical growth rate and developmental skills acquisition rates of extremely low birth weight and very low birth weight infants during first three years of their lives.

Develop expertise in the recognition of long term psycho-social impact on children and families.

Acquire appreciation for changing developmental needs of infants with common sequelae of neonatal problems including:

Spinal dysraphism

Chronic lung disease of prematurity

Defects arising from perinatal asphyxia

Develop expertise at the safe and efficacious withdrawal of durable medical equipment in the outpatient setting. This includes supplemental O2 delivery systems, respiratory and cardiac monitoring systems, and artificial airways.

Develop critical thinking skills about strengths and limitations of neonatal data bases.

Didactic

Learn principles of neurodevelopment.

Learn strengths and limitations of community resources available to physicians and families of physically and developmentally impaired children.

EDUCATION IN SCIENTIFIC PROCESS

A. BY THE END OF YEAR 01

1. Introduction to descriptive and analytic epidemiology course at Michigan State University
2. Statistical course - self study computer software
3. Learn SAS (statistical software) program.
3. Start planning a study with mentor.

B. BY THE END OF YEAR 02 GENERAL: CLINICAL INVESTIGATIVE PROCESSES

Become familiar with mission, concept and practices of the Institutional Review Board.

Participate in design/planning of a clinical trial.

Develop expertise in statistical tests as tools for study design and data analysis.

Develop expertise to critical evaluation of the Scientific Literature on an ongoing basis.

Understand strengths and weaknesses of multi-center databases, including that of the Vermont-Oxford database, of systematic analysis, and its close cousin, evidence-based medical practice.

Or

C. LABORATORY BASED INVESTIGATION

Participate in design and conduct of an investigation, obtaining data from animal models, tissue or cell culture, or archival human tissue.

D. GENERAL SKILLS OF INVESTIGATIVE BIOMEDICINE AND BIOLOGY

Understand the ethical underpinnings of human and animal research, and gain an appreciation for the responsible conduct of research.

E. BY THE END OF YEAR 03

Complete data collection and analysis of investigative project designed by the Subspecialty Resident.

Present original research findings in a recognized public forum.

Have a published paper or draft for a paper to be published.

EDUCATION IN TEACHING AND IN GENERAL SKILL ACQUISITION

BY THE END OF YEAR 03

Develop expertise at bedside teaching skills to allow effective participation in the education of health care professionals responsible for the care of the neonate.

Develop expertise teaching peers by means of presentation of research materials in conferences, seminars and workshops.