EDUCATIONAL GOALS – Short version, revised 7/8/2009

FOR TRAINEES IN NEONATAL-PERINATAL MEDICINE

UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER at DALLAS

The overall goals of the postdoctoral training program in Neonatal-Perinatal Medicine at the University of Texas Southwestern Medical School are to provide an environment that will permit each trainee to develop their skills in the clinical care of the neonate to the highest level of excellence possible based on a knowledge of fetal and neonatal physiology and evidenced-based approaches to therapy and to have sufficient protected time to develop their skills in the design, understanding and performance of clinical and/or laboratory research that will result in a better understanding of fetal and/or neonatal development, physiology and pathology. The clinical rotations are outlined below. The curriculum is enhanced by several conferences and courses described elsewhere that are held throughout each academic year and serve to provide an enhancement of each trainee's understanding of developmental physiology and pathology and clinical management.

Year #1:

Term and Near-Term Newborn Nursery (one 4-week block).

Goal: During the rotation the trainee will 1) be introduced to the broad spectrum of clinical problems seen in the term neonate that may not require admission to the Neonatal Intensive Care Unit (NICU), e.g., maternal chorioamnionitis, transient tachypnea of the newborn, neonatal abstinence syndrome, and infant feeding problems; 2) begin learning about and assuming responsibility for resident-medical student education under attending supervision;

3) learn appropriate triage criteria to and from the newborn nursery, and 4) have the opportunity to refresh NRP skills at lower risk deliveries under the supervision of nurse practitioners. During this rotation the trainee will be assigned to the NICU for 3 buddy calls at Parkland and one at Chidrens Medical Center (CMC). Each buddy call will include a night call along with a senior fellow (2^{nd}-4^{th} year of fellowship) 4:00 PM to 1:00 PM. This will introduce the trainee to the functions of the NICU, which may be new to the trainee, and allow him/her to assist in the care of neonates in the NICU, perform procedures when indicated, and attend higher risk deliveries, under the guidance of a senior fellow and/or Neonatal Nurse Practitioner (NNP). He/she will provide clinical care under the supervision of a 2nd or 3rd year fellowship trainee. This will prepare the trainee for subsequent rotations in the NICU at Parkland and at CMC.

Neonatal Intensive Care Nursery at Parkland (three to four 4-week blocks).

Goal: To introduce the trainee to the physiology, pathophysiology and unique problems of the sick preterm and term neonate and the well preterm low-birth-weight neonate, to begin development of expertise in

resuscitation, stabilization and care of the at-risk neonate from birth to discharge, and to permit the trainee to develop skills in performing procedures and supervising and teaching pediatric residents and 4th year medical students on electives. In initial rotations the attending physician will conduct teaching and patient care rounds. The trainee will gradually assume this role as he/she shows evidence of increasing expertise and confidence. The trainee is expected to demonstrate the ability to interact with all members of the patient care team, e.g., nurses, respiratory therapist, and dieticians. By the end of year one, the trainee should: 1) understand the pathophysiology for problems commonly seen in the NICU and be capable of diagnosing and providing care for these problems, e.g., respiratory distress syndrome, patent ductus arteriosus, apnea of prematurity, neonatal sepsis, preterm anemia, necrotizing enterocolitis, neonatal nutrition, feeding intolerance, and basic fluid and electrolyte therapy; 2) develop skills in the placement of umbilical catheters and chest tubes, thoracentesis, intubation and peripheral percutaneous central catheters (PIC lines); and 3) acquire knowledge in the use of conventional mechanical ventilation and NCPAP. If the trainee is considered deficient in any area of clinical care, as determined in the faculty biannual assessments, the trainee will be assigned additional clinical months in the NICU during the second year.

Neonatal Intensive Care Nursery at CMC (one 4-week block).

Goal: To introduce the trainee to the physiology, pathophysiology and unique problems of the pre- and postoperative neonate, stabilization and care of the at-risk neonate before, during and after transport, and to permit the trainee to develop skills in performing procedures and to collaborate with a multidisciplinary team involving surgical disciplines. In initial rotations the attending physician will conduct teaching and patient care rounds. The trainee will gradually assume this role as he/she shows evidence of increasing expertise and confidence. The trainee is expected to demonstrate the ability to interact with all members of the patient care team, e.g., nurse practitioners, nurses, respiratory therapist, dieticians, surgeons, and anesthesiologists. Because of the complexity of the patients, first year fellows will rotate in the CMC NICU only during the second half of the year.

The CMC NICU admits exclusively outborn neonates, who are being transferred predominantly for specialized surgery that is not available in other NICUs in the region. Thus, this rotation is designed to expose trainees to transports and to the perioperative care of the most complex patients. Daytime and nighttime teams at the CMC NICU include one or more advanced practitioners and one fellow, but no house officers. As at the PMH NICU, the fellow in neonatal-perinatal medicine serves as leader of the team. Night coverage is assured by either one or two advanced practitioner(s) or one advanced practitioner and one fellow.

High-Risk Obstetrics (one 4-week block).

Goal: To develop an appreciation for and an understanding of the problems encountered by the obstetrician in the care of the high-risk pregnancy, to learn how they are addressed as out-patients using prenatal diagnostic techniques and in-patients using the High-Risk Pregnancy Ward, and to understand how the Neonatal-Perinatal Physician participates in this care as a consultant.

Resuscitation (one 4-week block).

Goal: To develop an understanding of the principles of stabilization at birth, assessment in the delivery room, use and assignment of Apgar Scores, and when and how to initiate measures necessary to maintain respirations, heart rate and "adequate" oxygenation (resuscitation). Each trainee will be NRP certified in the first month and will use these skills during the month. Each Trainee will assist in the consultation of high-risk pregnancies and assist in the admission of neonates to the NICU and their stabilization.

Research (five 4-week blocks).

Goal: In the first year, the research experience is primarily directed toward developing a clinical- or laboratory-based research project under the supervision of a faculty mentor at the Medical School that will provide an initial research experience. The trainee is expected to participate in the development and design of the project in the first year, to learn investigative methods, and to present the background, rational and initial experimental design at a Division Research Conference by the end of the first year. An Oversight Committee, made up of 3 persons including the mentor and up to 2 faculty outside of the Division, will participate in the evaluation of the research project throughout the training program.

Year #2:

Neonatal Intensive Care at Parkland (two to four 4-week blocks).

Goal: To continue to build upon the clinical care and teaching skills acquired in the first year of training and to permit a greater role in conducting teaching and patient care rounds with residents and medical students. The trainee is expected to demonstrate: 1) additional understanding of the complexities of fetal/neonatal physiology and the pathophysiology of neonatal problems, which now include more complex entities, including fetal/neonatal growth abnormalities, hypoxic-ischemic encephalopathy, seizures, persistent pulmonary hypertension, chronic lung disease, hypotension and the use of pressors, and care of neonates with congenital anomalies; 2) an increased ability to supervise and direct a patient care team; 3) continued professionalism as it related to interactions with parents and all members of the patient care team; and 4) continued development of skills related to the procedures outlined in year 1 plus placement of percutaneous arterial catheters and use of high frequency

ventilation. If deficiencies are noted in the trainee's ability to understand the mechanisms associated with the sick neonate, to provide adequate care, to perform essential procedures, or to interact with members of the patient care team, as determined by biannual assessments, which may be more frequent in this case, the trainee will be assigned additional clinical months in the NICU during the second and/or third years of training.

Neonatal Intensive Care Nursery at CMC (one 4-week block).

Goal: To build on knowledge and experience acquired during the first year. The trainee will continue to learn the physiology, pathophysiology and unique problems of the pre- and postoperative neonate, stabilization and care of the at-risk neonate before, during and after transport, and further develop skills in performing procedures and collaborating with a multidisciplinary team involving surgical disciplines. The trainee will start to assume the role of team leader as he/she shows evidence of increasing expertise and confidence. The trainee is expected to demonstrate the ability to interact with all members of the patient care team, e.g., nurse practitioners, nurses, respiratory therapist, dieticians, surgeons, and anesthesiologists

Research (eight to nine 4-week blocks).

Goal: In the second year, the trainee is expected to continue to develop expertise in the design and conduct of clinical or laboratory research. The trainee is expected to demonstrate an increased understanding of the principles used in research and to demonstrate progress from the first year. Each trainee will present a progress report at the Division Research Conference at mid-year of the second year of training, and the trainee is expected to meet with the Oversight Committee every 6 months to determine progress. A course in biomedical statistics and/or experimental design is required at this time to facilitate the understanding of experimental design and analysis.

Biomedical Statistics.

Goal: To understand the basic use and limitations of statistical analyses commonly employed in the evaluation of clinical and/or laboratory research in order to be able to complete their research project and to critically evaluate the research literature. The trainee is expected to pass a formal introductory course in biomedical statistics.

Year #3

Neonatal Intensive Care at Parkland (one 4-week block).

Goal: To continue to build upon the clinical and interpersonal skills acquired in the first two years and to develop a greater role in conducting teaching and patient care rounds with the pediatric residents and medical students. The third year trainee is expected to be: 1) capable of assuming full responsibility for all teaching and clinical decision making by the end of

the third year and 2) to be able to justify all approaches to care, using an understanding of the disease processes and the available literature, i.e., evidence-based medicine. The rotation will vary from 1–4 mon depending on the skills and progress of the trainee. Trainees that have not made adequate progress will be required to have more clinical months in the NICU.

Neonatal Intensive Care Nursery at CMC (one 4-week block).

Goal: To complete the development of knowledge and experience acquired during previous years. The trainee will continue to learn and teach the physiology, pathophysiology and unique problems of the pre- and postoperative neonate, stabilization and care of the at-risk neonate before, during and after transport, and further develop skills in performing procedures and collaborating with a multidisciplinary team involving surgical disciplines. The trainee will start to assume the role of team leader as he/she shows evidence of increasing expertise and confidence. The trainee is expected to demonstrate the ability to interact with all members of the patient care team, e.g., nurse practitioners, nurses, respiratory therapist, dieticians, surgeons, and anesthesiologists

Research (eight to nine 4-week blocks).

Goal: To further develop expertise in the design, conduct and now analysis of clinical or laboratory research, and to be able to apply to the appropriate institutional committees for permission to perform a research project. The trainee is expected to demonstrate continuing progress in understanding the basic principles employed in research and demonstrate adequate progress in their project from the first and second years. Each trainee will present two research conferences in the third year. The first is early in the year and serves as an update and to identify any new areas of investigation. The second presentation is given at the end of the third year as a standup, formal presentation followed by questions and answers. Each trainee *will* complete at least one "primary" research project during the three years and be able to prepare that project for presentation at national and/or international scientific meetings and ultimately for publication. The latter must be accomplished ***before*** applying for Sub-Board eligibility. Several of these research months may be call free. The trainees are expected to continue to meet with their respective Oversight Committees in order to determine progress and to assess the research project for Sub-Board approval.

Cardiovascular Intensive Care Unit (CVICU) (one 4-week block).

Goal: The main goal of the rotation is to assure exposure of the fellows in Neonatal-Perinatal Medicine to pre- and post-operative cardiac patients, primarily neonates and infants, so as to focus learning on congenital heart disease physiology and mechanical circulatory support (particularly extracorporeal membrane oxygenation or ECMO). Thus the experience

will include direct clinical management of cardiac patients to facilitate acquisition of the knowledge and skills required to care for them. During the rotation in the CVICU at CMC, the fellow in Neonatal-Perinatal Medicine will take in-house call at CMC on at least an every 4th night basis with the ICU/Cardiology fellow or cardiac nurse practitioner.. The fellow in Neonatal-Perinatal Medicine will have no calls at Parkland Memorial Hospital or in the CMC NICU during this rotation and will participate in all educational activities of the CVICU.

Elective Rotations:

Anesthesiology, Operating Room, Children's Medical Center: Year 1,2 or 3

Goals: During this rotation the trainee will increase his level of proficiency, i.e., become competent (expectation) or expert (above expectation) in procedures required for acute airway and vascular management.

Purple team rotation, NNICU at Parkland (1-3 blocks of 4 weeks, Year 1, 2 or 3); this can be an assigned or an elective rotation

Goals: The main goal of this rotation is to increase the trainee's experience in neonatal procedures and to increase his/her level of proficiency, i.e., become competent (expectation) or expert (above expectation) in all neonatal procedures listed on the credentialing form (except ECMO, which will be taught at CMC), including but not limited to those required for acute airway and vascular management.

In addition to the goals listed for NNICU rotation for the specific year of training, the trainee will build expertise in working in collaboration with the neonatal nurse practitioners (NNPs), respecting the NNPs' autonomy (allowing them to present their own observations, differential diagnosis and plan of care during rounds, and to re-evaluate the patients and adjust management as necessary) and fostering a culture of team work and mutual teaching, the direction of which will be highly depending on the level of training of the fellow (mostly learning from NNP's experience at the beginning of the first year, and mostly providing teaching of pathophysiology and supervision at the end of the third year)

Long-Term Follow-up (one 4-week block), Children's Medical Center.

Year # 2 or 3

Goal: To develop an understanding of normal and abnormal development, the complexities of care often required by the very-low-birth-weight neonate after discharge from the hospital, and the issues that must be addressed by the parents or care givers. The trainee will be expected to be available to see these patients in conjunction with the staff in the Clinic and to develop an understanding of the tools used to assess outcome and development. Each trainee will spend a 4-week rotation (in one block or in the equivalent time in shorter periods) in the Clinic working with the staff.

CCN (step down unit of the NNICU at Parkland) rotation: Year 2 or 3

Goal: To increase the trainee's knowledge and experience in planning and preparing a neonate for discharge from the neonatal intensive care unit and in communicating the information with the family, the follow-up team and the primary care provider

Transport rotation: Love Field Airport, Year 3

Goal: To develop knowledge and experience in triage, stabilization and transportation of neonates requiring transport. The trainee will learn concepts of altitude physiology and its impact on transport. He/she will be required to demonstrate an investigatory and analytic approach to clinical situations encountered on transport. She/he will learn to work closely with team members in a transport environment.

IN HOUSE CALL

NICU

Since the schedule for patient coverage is limited to a maximum of 80 hr per week with no continuous period of patient care greater than 30 hr, a program using a night float system has been instituted and will be strictly adhered to in order to abide by the rules of the ACGME and the RRC of the Sub-Board of Neonatal-Perinatal Medicine. Trainees assigned to the NICU will share night call with at least two trainees assigned to night float. All night call will be in the hospital unless discussed with the attending and approved beforehand, this is generally for short periods. When a trainee assigned to the NICU is **not** on-call, they are expected to be in the NICU between 7:00 am and 5:00 pm. Sign out to the on-call trainee will start at 4 PM, who will make evening rounds with the attending faculty between 4 pm and 5 pm. If a trainee assigned to the NICU is on-call, they will no longer be assigned new patients after 7:00 am the morning after in-house call and *will* complete their patient care assignments **by 1:00 pm** after completing patient care rounds. The residents and interns will check out their patients verbally to the person assigned to cover their patients for the night. The night float fellow will only have the 4 p.m. evening check out rounds with the attending, on-call team and on service fellows. The night float will complete their call at 7:00 am the next morning, at which time they can return to their laboratory assignments.

Weekend night call will end at 7:00 am on Saturday, Sunday and Monday, generally extending for 24 hrs. The "goal" on Saturday and Sunday is to complete patient care rounds by 12:00 pm. The trainee will be responsible for determining the order of work rounds, seeing patients on both patient-care teams, and making plans for the next 24 hrs.

CVICU

The CVICU functions with a night float system. Neonatal-Perinatal Medicine (NPM) fellow rotation was established to maximize learning and exposure to postoperative patients. NPM fellows shifts will include the following:

- Monday -day shift 7a-4p

- Tuesday -day shift 7a-4p (3:45 during statistical class, i.e. August 25th-December 10th)
- Wednesday -short call -7a-9p
- Thursday -day shift 7a-4p (3:45 during stats class)
- Friday short call 7a-9p for 2 weeks and overnight call 7a until 1pm next day for 2 weeks

CORE CURRICULUM

The ACGME and RRC for Neonatal-Perinatal Medicine have mandated that all trainees complete their education by addressing 6 core competencies. These include: Patient Care, Medical Knowledge, Interpersonal and Communication Skills, Practice-based Learning and Improvement, Professionalism, and Systems-based Practice. To accomplish this goal, various topics must be covered and include Bioethics, Biostatistics, Evidenced-based medicine, Achievement in education and teaching, Critical review of the literature, preparation of grants, and understanding experimental design. To achieve this, the Department of Pediatrics at UT Southwestern Medical School has established a conference for all postdoctoral subspecialty trainees that will address in part the core competencies. Although several of these requirements will be achieved through Division activities, e.g., Journal Club, Research Conferences, Course on Evidence-based Medicine, etc, others require that the trainee attend the Fellows' Conference and sign in to receive credit during the 3 year training program. Satisfactory completion of the training program requires that the core competencies be completed.

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LPB, MHW, RH, MJ, PK, DS, RS, LF, RS, DS, CRR, RH