Neonatal / Perinatal Fellowship Program at Cedars-Sinai Medical Center

Introduction

The fellowship program in Neonatal / Perinatal Medicine at Cedars-Sinai Medical Center combines opportunities for training in clinical perinatal, fetal and neonatal medicine, and in various areas of perinatal research. The Fellowship is designed for postdoctoral training of individuals with an MD, MD/Ph.D., or equivalent degrees, who are highly motivated toward academic careers in the field of Neonatal/Perinatal Medicine.

The training program offers a large number of clinical and basic science research mentors in neonatology thereby providing a wide scope of research opportunities in the field of cell & molecular biology, neurosciences, perinatal endocrinology & metabolism, perinatal pulmonology & immunology, developmental biology, genetics, and epidemiology.

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Overview of Cedars-Sinai Medical Center and Educational Program

Cedars-Sinai Medical Center (CSMC) is affiliated with the University of California at Los Angeles (UCLA) and is a general hospital with 800 beds. Its Pediatric Residency Program is considered of top quality among the pediatric residencies available in the greater Los Angeles area. UCLA medical students rotate through regular introductory clerkships in pediatrics, and in the past few years the neonatal elective program has been considered among the best of all electives in the UCLA system.

The Department of Pediatrics is chaired by Dr. Charles F. Simmons, Jr., who is also the Director of the division of Neonatology and Director of the NICU at Cedars-Sinai Medical Center. Dr. Ricardo Azziz, a superb perinatologist widely recognized nationally and internationally, chairs the OB/GYN department and The Maternal-Fetal Medicine division is headed by Dr. Calvin Hobel, a world renowned clinician and investigator in the area.

Facilities Available for Training at Cedars-Sinai Medical Center:

Cedars-Sinai Medical Center (CSMC) has approximately 750 beds and two large research buildings. The Pediatrics Department in-patient ward has 40 beds, a Pediatric intensive care unit of 8 beds and 70 beds in the Well Baby Nursery. There are 4 meeting/classrooms within the Pediatrics Department itself and an ample number of other meeting facilities available throughout the hospital. The Pediatric Ambulatory Care serves a population from a wide variety of cultural and ethnic backgrounds. There are approximately 3,000 patients seen each year with a total of 7,000 patient visits.

There are approximately 7000 deliveries per year at CSMC, the largest delivery service in the state of California. A new, state-of-the-art Newborn Unit has opened. There are approximately 650 admissions to the NICU per year, of which about 110 are VLBW infants. The Unit has state of the art ventilatory equipment including HFJV, HFO, and bedside pulmonary function capabilities. Also available for patient care is nitric oxide, still under investigational use. Major collaboration exists with Genetics and Neonatal-Fetal Medicine. In addition, there is a new NICU transport program here at Cedars.
Research Facilities at Cedars-Sinai

The Steven Spielberg Pediatric Research Center has approximately 12,600 square feet in total for research laboratories (collagen research, molecular hematology, skeletal dysplasia research, a cell line repository), which includes a common equipment room as well as liquid nitrogen and tissue storage, three offices and a copy room. The Cytogenetics Laboratory is about 1,200 sq. ft. with a newly acquired computer assisted karyotyper. The HLA laboratory has 1,132 square feet on the second floor of this building. There are 2,500 sq. feet of office and computer space on the third floor of the Spielberg Building, the home of the common disease research unit. There are also computers, support staff, and a genetics library available. The new Davis Research Building houses an additional two molecular laboratories and has 2,561 sq. ft.

Steven Spielberg Pediatric Research Center  The Davis Research Building

The division of Neonatology has 500 square feet of lab space, and is equipped to perform experiments in molecular biology and protein biochemistry. This includes protein gel electrophoresis, western blotting, PCR, gene cloning, sequence analysis, and southern and northern blotting. In addition, the lab is equipped to perform careful immunohistchemical analysis and in situ hybridization analysis. The lab space is in the Davis Research Building at The Cedars-Sinai Medical Center, and is in close proximity to the animal housing facility, which will house the animals. The Lab is also equipped to measure Nitric Oxide both in the liquid and gas phase. Electron Microscopy is shared with Genetics.
Charles F. Simmons, Jr., M.D. Dr. Simmons' major areas of research interest include: 1) Developmental Biology of Myofibroblasts and Smooth Muscle - his laboratory is interested in the developmental biology of two specialized cell types found in virtually every organ of the body, the myofibroblast and the smooth muscle cell. These ubiquitous cells are involved in disease states that involve inflammation and abnormal muscle reactivity in blood vessels or hollow organs such as the reproductive tract, GI tract, and lung. Of note, disease states involving these cell types include such diverse diseases as asthma, pulmonary hypertension, atherosclerosis, preterm labor, chronic lung disease, retinopathy, inflammatory bowel disease, cirrhosis, and congestive heart failure. Indeed, many of these diseases significantly contribute to morbidity and mortality in the newborn period. The long-range goal is to use the transgenic mouse model, which Dr. Simmons' laboratory team developed, to discover strategies that can modulate myofibroblast and smooth muscle development, allowing new approaches to prevent or treat common disease in the newborn and adult. 2) Neonatal-Perinatal Fellowship Training - Major challenges will confront Neonatal-Perinatal fellowship training over the next decade, including changes in steady-state vs. growth mode manpower requirements, diversification of research fields and career trajectories, and the neonatology content of general pediatrics residency training curricula. Continued future success in our field will depend upon wise decisions regarding the scope and focus of fellowship training. These decisions will, in turn, rely upon accurate data regarding career choices and career development of recent trainees. Dr. Simmons is internationally recognized for his academic career development of over 85 trainees in Neonatal-Perinatal Medicine during the last 12 years, thus providing a framework for leading local, regional, and national trends in fellowship training. 3) Human Genetic Research and Therapy - In order to reap the fruits of the Human Genome Project, consistent and ethical review of human genetic research protocols must be performed by Institutional Review Boards. Genetic screening of newborns will create an increasingly important interface between basic knowledge about our genetic makeup and the societal mores that guide the ethical use of this vital information. Dr. Simmons has led local and regional efforts to educate IRBs about the challenges and opportunities posed by IRB review of human genetic research protocols.

Representative Publications:


Books, Chapters


Crisitina Bertolotto, M.D.
Dr. Bertolotto studies the development of hearing and causes of deafness during development. Synaptogenesis, biochemistry and morphology in neurons and sensory cells during development. Morphological study of the neural fibers during development, adulthood and aging in central and peripheral nervous system.

Representative Publications:

Andre Vanderhal, M.D.
Dr. Vanderhal's areas of interest include high frequency ventilation, patient triggered ventilation, and pulmonary mechanics and function monitoring, especially as related to teaching optimal management of patients maintained on and weaning from ventilators. He is also responsible for interpretation of cardio respiratory control studies during sleep, home apnea monitoring and support services after ALTE. His other interest is calcium and phosphorus retention during TPN for preterm and sick infants.

Representative Publications:
Arie Leon Alkalay, M.D.
Dr. Alkalay is the Associate Director of the Well Baby Nursery and Clinical Professor of Pediatrics UCLA School of Medicine. A recipient of the "humanitarian award" and the "teaching award" from CSMC and the Department of Pediatrics, he is the primary creator of the following guidelines for the WBN and NICU: Neonatal non-persistent hypoglycemia, Neonatal Hyperbilirubinemia, Infants of substance abuse mothers, Discharge guidelines from WBN, Intrauterine growth retarded infants, Neonatal universal hearing screen, Pain management for non-ritual neonatal circumcision. He is the author of over 30 papers.

Research interests:
Remodynamic of anemia of prematurity researched by echocardiography and Doppler studies
Neonatal non-persistent hypoglycemia
Hypothalamic-pituitary-adrenal axis in newborns
The research in these three areas is clinical-type research.

Representative Publications:
13. Alkalay AL, Sharon Galvis, David Ferry, Richard Krueger. Hemodynamic changes in anemic premature infants: are we allowing the hematocrits to fall too low? 2002 (submitted)
Soledad D. Austin, M.D.
Dr. Austin has been involved in clinical research grants from the Immunex Corporation as a participating principal investigator investigating the use of Granulocyte-Macrophage Colony-Stimulating and from Cedars-Sinai Medical Center to evaluate predictive indices of end-stage liver disease in infants with TPN cholestasis. Currently initiating a clinical protocol to determine if “Parathyroid Hormone-Related Protein Levels are Predictive of the severity of RDS and Chronic Lung Disease in the newborn infant” (in association with John Torday, Ph.D. and C. Hobel, M.D.)

Asha Puri, M.D.
Dr. Puri is the Associate Clinical Director of the NICU. She has been the leader for application of new strategies of ventilation and has been responsible for introducing and establishing Neonatal Pulmonary Function testing and Inhaled Nitric Oxide Therapy. She has also been involved in several multicenter research protocols. She has an ongoing research project, measuring Nitric Oxide metabolites in the neonate, and INO for prevention of CLD.

Representative Publications:


**Sabitha Sehgal, M.D.**

Dr. Sehgal is the Co-Director of the Infant Progress Clinic and is responsible for all morbidity and mortality conferences, as well as the Neonatal/Maternal-Fetal Medicine Conferences. She will also be focusing on Proposition 10 endeavors about Infant Progress Clinic services within the community.
Clinical Training

Our program offers extensive training in all aspects of clinical neonatal perinatal medicine including maternal fetal exposure to patients with in vitro diagnosis of various and diverse conditions and all clinical problems seen in neonatology, including extreme low gestation age, lung disorders, congenital heart disease, surgical anomalies, etc.

Dr. Charles Simmons has been recently appointed as the Director of the Division, having been the Director of the NICU at Children's Hospital in Boston and the Director of the Neonatal-Perinatal Fellowship Training Program at Children’s Hospital, Brigham & Women’s Hospital, Beth Israel Deaconess Medical Center, and Massachusetts General Hospital for the past 13 years.

As a division, we have implemented a program of nitric oxide treatment and all techniques for mechanical ventilation are available for infants treated in this nursery. We conduct weekly clinical conferences with about three hours of program and weekly educational activities for members of the division. Furthermore, while on clinical services there are daily x-ray rounds with pediatric radiologists and active interaction with inter-consultants from all pediatrics subspecialties.

Research Training

The organization and large number of patients allow for excellent learning and research opportunities. According to the fellows' interest, the research programs are tailored. In general, topics include general epidemiological perinatal issues, clinical research related to pulmonary disease, central nervous system and gastrointestinal abnormalities, and outcomes research. Collaboration with clinical and laboratory facilities from the maternal fetal division are related to maternal stress and early labor, and stress and adrenal function in the immediate neonatal period. The genetic laboratories in the Steven Spielberg Research Center are state of the art and can provide fellows exposure to all relevant research in basic science and subcellular molecular technologies. Current and potential studies include effects of nitric oxide on small airway muscle, changes in the extracellular matrix of the developing brain in response to injury, changes in brain oxygenation during acute illness, ischemic hypoxic events, high frequency mechanical ventilation, and CO2 changes.

Core Curriculum Lecture Series

Clinical Neonatology Core Lecture Series covering all systems
Physiology Lecture series covering all systems
Journal Club sessions – include latest developments in Neonatology
Research Lecture series – to cover ethics in research, study design, biostatistics, introduction to cellular and molecular biology, how to write an abstract, how to present an abstract, how to write a manuscript, how to write a grant application. In addition, fellows will be expected to take the necessary radiation safety, animal care, and IRB-related courses offered by the institutions. The core curriculum will consist of assigned speakers with expertise in the different areas, the speakers will arise from the division of Neonatology and beyond. Attending conferences at UCLA are supported and encouraged.
Research Experience and Funding

All fellows will be exposed to a mentor-based program. Fellows will be expected to develop a research project, apply for IRB or animal care approval, formulate a grant application to offset their salary during year 2 & 3. (Upon success with an institutional training grant, some of the fellows will be eligible for funding through this mechanism.) During the three years, the fellows will be expected to present their results at National meetings, and formulate manuscripts. It is expected that they will be assimilated into the culture of the mentor’s laboratory/clinical research program. The fellows will be expected to attend regularly scheduled laboratory meetings/clinical research project meetings.

Overview Of The Three-Year Program

The 36 months are divided into 39 “periods” of 4 weeks each

1. Clinical:
   A. Neonatal clinical service Primary patient care responsibility: up to 11 periods. In addition, during the third year of training the residents may be asked to spend one period as acting attending neonatologist (“junior neonatologist”). “back-up” patient care responsibility: up to 6 periods (night call, high-risk resuscitation).

   B. Infant Progress Clinic
      20-30 clinics, Thursdays 7:30 a.m. - 1:00 p.m.

1Research: A total of 18 periods (plus partially protected time in 5 - 6 periods)
Administration:
At least 54 hours (divided in 1 1/2 hours per week during 3 months per year and during 1 period in 3rd year of training).
2Vacation: Three periods over the 3 year program
3Attendance to regional and national clinical and research meetings 5-8 during the entire 3 year program.
Summary of distribution of major activities during the three-year program Eligibility

<table>
<thead>
<tr>
<th>Fellowship year</th>
<th>1st Year</th>
<th>2nd Year</th>
<th>3rd Year</th>
<th>Total Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESEARCH</td>
<td>6-7 periods</td>
<td>7-8 periods</td>
<td>7-8 periods</td>
<td>21-23 periods</td>
</tr>
<tr>
<td>CLINICAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary patient care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue team</td>
<td>3 periods</td>
<td>1 period</td>
<td>1 period</td>
<td>5 period</td>
</tr>
<tr>
<td>Gold team</td>
<td>2 periods</td>
<td>1-2 period</td>
<td>1 period</td>
<td>4-5 period</td>
</tr>
<tr>
<td>“Junior Attending”</td>
<td></td>
<td></td>
<td>1 period</td>
<td>1 period</td>
</tr>
<tr>
<td>“Back-up” patient care</td>
<td>1 period</td>
<td>1 period</td>
<td>1-2 periods</td>
<td>3-4 periods</td>
</tr>
<tr>
<td>“Second call”</td>
<td>1 period</td>
<td>1 period</td>
<td>0-1</td>
<td>2-3 periods</td>
</tr>
<tr>
<td>On call</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nights</td>
<td>31</td>
<td>25</td>
<td>20</td>
<td>76 nights</td>
</tr>
<tr>
<td>Weekends</td>
<td>15</td>
<td>1</td>
<td>16</td>
<td>46 week days</td>
</tr>
<tr>
<td>Infant Progress</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>25-30 clinics</td>
</tr>
<tr>
<td>Clinic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUCATIONAL</td>
<td>1-2/yr</td>
<td>1-3/yr</td>
<td>1-3/yr</td>
<td>4-8</td>
</tr>
<tr>
<td>MEETINGS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VACATION</td>
<td>3-4 wk</td>
<td>3-4 wk</td>
<td>4 wk</td>
<td></td>
</tr>
</tbody>
</table>

All candidates should have completed a three-year American Board accredited Pediatric Residency training program and become eligible for the American Board of Pediatrics. In addition, the candidates should have an aptitude for an academic career or have demonstrated experience in research (e.g. previous publications, abstract presentations, hold a Ph.D, etc.). Finally, the candidate must have or be eligible for a California medical license. Application procedures require submission of a curriculum vitae, and three letters of recommendation, including one from your Residency Director or his Associate. If you have any questions, please do not hesitate to contact us.

Contact Information
All information should be sent to:

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