PEDIATRIC ENDOCRINOLOGY AND DIABETOLOGY FELLOWSHIP PROGRAM

Indiana University School of Medicine
James Whitcomb Riley Hospital for Children
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission</td>
<td>1</td>
</tr>
<tr>
<td>Pediatric Endocrinology and Diabetology Fellowship Program</td>
<td>1</td>
</tr>
<tr>
<td>Faculty and Section Expertise</td>
<td>2</td>
</tr>
<tr>
<td>Clinical Responsibilities</td>
<td>2</td>
</tr>
<tr>
<td>Research</td>
<td>3</td>
</tr>
<tr>
<td>Coursework</td>
<td>3</td>
</tr>
<tr>
<td>Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>Past History and Accomplishments</td>
<td>4</td>
</tr>
<tr>
<td>Diabetes Clinical Service</td>
<td>4</td>
</tr>
<tr>
<td>Outpatient Diabetes Clinic</td>
<td>4</td>
</tr>
<tr>
<td>Inpatient Diabetes Education</td>
<td>5</td>
</tr>
<tr>
<td>Diabetes Camp</td>
<td>5</td>
</tr>
<tr>
<td>Insulin Pump Program</td>
<td>5</td>
</tr>
<tr>
<td>Endocrine Clinical Service</td>
<td>6</td>
</tr>
<tr>
<td>Inpatient and Outpatient</td>
<td>6</td>
</tr>
<tr>
<td>Endocrine Stimulation Testing Clinic</td>
<td>7</td>
</tr>
<tr>
<td>Newborn Screening Program for Congenital Hypothyroidism</td>
<td>7</td>
</tr>
<tr>
<td>and Congenital Adrenal Hyperplasia</td>
<td>7</td>
</tr>
<tr>
<td>Obesity Clinic</td>
<td>7</td>
</tr>
<tr>
<td>Endocrine and Diabetes Research Opportunities</td>
<td>7</td>
</tr>
<tr>
<td>Living in Indianapolis</td>
<td>8</td>
</tr>
<tr>
<td>Applications and Information</td>
<td>10</td>
</tr>
<tr>
<td>Pediatric Endocrinology and Diabetology Faculty</td>
<td>11</td>
</tr>
</tbody>
</table>
MISSION

The mission of the Section of Pediatric Endocrinology and Diabetology is to promote the health of children with endocrine disorders and to advance knowledge through research and other scholarly activities, providing cutting edge clinical services, child advocacy and medical education.

The Section of Pediatric Endocrinology and Diabetology is dedicated to the goal of biomedical education through instruction of medical, graduate, and post-doctoral level students, as well as residents and fellows.

The Section of Pediatric Endocrinology and Diabetology is committed to performing important clinical and basic laboratory research. State-of-the-art research projects are ongoing in the areas of diabetes, bone disorders, neuroendocrinology, reproductive endocrinology and molecular endocrinology.

The Section of Pediatric Endocrinology and Diabetology provides comprehensive services for infants, children and adolescents with dysfunction of the endocrine glands. It also offers extensive, multi-disciplinary educational services for newly diagnosed patients and parents requiring specialized instruction. Family education, empowerment, and psychosocial support are emphasized. All of the Section's clinical faculty are Board Certified in Pediatrics. They are also Board Eligible or Board Certified in Pediatric Endocrinology and Diabetology by having completed a minimum of three years of subspecialty training.

PEDIATRIC ENDOCRINOLOGY AND DIABETOLOGY FELLOWSHIP PROGRAM

Indiana University School of Medicine
James Whitcomb Riley Hospital for Children

The Fellowship Program is an ACGME accredited fellowship training program for pediatric endocrinologists. It is a young, vibrant, and thriving fellowship experience that offers extensive clinical training as well as outstanding clinical research and basic research training for future pediatric endocrinologists.

The comprehensive fellowship is a three-year program. Six
months of the first year and three months in each of the subsequent two years are devoted to clinical training, while the remaining time is dedicated to basic laboratory and/or clinical research. Throughout protected research periods, the fellow continues to attend a half-day fellows’ continuity clinic.

**Faculty and Section Expertise**
The faculty is nationally recognized in their respective areas of clinical or basic research and they are also accomplished clinicians. Their areas of expertise are complementary to one another so that there is excellence in most clinical areas of pediatric endocrinology including general endocrinology, growth and pubertal development, diabetes, and metabolic disorders.

As teachers, the faculty has been recognized by medical students, graduate students and residents as being outstanding. They are extremely popular with students and residents and are highly sought after to serve as mentors and advisors. Each faculty member has made a sincere commitment to teaching and they have received special recognition for these teaching efforts.

**Clinical Responsibilities**
The clinical service is busy. Currently, there are 29 half-day endocrine or diabetes clinics per week and the outpatient service averages 300 patients per week. The inpatient service typically averages between three and ten patients. Because the program is based in the only full service children's hospital in the state (population of 5 million), there is a wealth of clinical activity. Fellows are also welcome to attend the section’s satellite clinics in South Bend, Evansville, Fort Wayne, North Side, and St. Francis Hospital South Campus.

While on the clinical service, the fellow is responsible for managing the care of inpatients. In addition, the fellow often attends outpatient clinic sessions. During the week, the fellow is expected to be available between 7:30 am and 5:30 pm daily. During the clinical rotations, the fellow takes call every other day and every other weekend on average. This schedule is designed so that the trainee has at least two nights off each week and has no program duties every other weekend. The fellowship program is in full compliance with the ACGME duty hours requirements.

Each fellow attends a bimonthly endocrine continuity clinic and a monthly diabetes continuity clinic. In these clinics, the fellow acquires a group of patients that are followed for the duration of the fellowship. Fellows remain actively involved in ongoing outpatient care of these clinic patients via telephone calls and communication with referring physicians. The staff coverage for this clinic includes at least four different faculty members, so that the fellow is exposed to different styles.

The fellow is expected to participate in the education of housestaff and medical students when performing clinical service time. On the inpatient service, there is always at least one pediatric resident. The fellow is
expected to develop supervisory experience in directing the activities of the other trainees. The fellow will present informal teaching sessions to these trainees weekly and formal conferences to the entire Pediatric Endocrinology team monthly. In addition, annually the fellow is required to deliver lectures to the pediatric residents, conferences at the campus-wide Endocrinology Grand Rounds, and journal club presentations.

**Research**
The fellow has great flexibility in selecting a research project. During the first six months of the clinical program, the fellow is exposed to the research activities of the Section’s faculty and may elect to work with anyone within the Section or in the Adult Endocrinology Section. The trainee is closely mentored by the senior investigator on every project; however, the fellow is expected to participate actively in the scientific design, execution and interpretation of results from each experiment. Regardless of whether the project is clinical or basic research, the trainee is expected to meet twice a week with the research mentor and to present a weekly update of progress to the rest of the specific research team. In addition, the fellow is expected to present an annual review of his or her research to the other members of the Section. At this meeting, progress is critically reviewed and constructive suggestions are made to ensure future productivity.

**Coursework**
There is a standard curriculum of Pediatric Endocrinology topics that is covered each year during weekly section conferences. In addition, each fellow is encouraged to attend several courses that are offered on the Indiana University campus. These courses include a three week-long workshop on Molecular Biology, a semester-long course in Clinical Research techniques, a Summer Endocrine Didactic course, and a two-year course in Statistics and Epidemiology. There is also an opportunity to earn a Masters Degree in clinical research through the School of Medicine.

**Evaluation**
The fellows meet monthly with the staff physician on the inpatient service to evaluate their clinical skills. Trainees are formally evaluated twice per year by the entire Section Faculty who meet to discuss the fellows’ clinical and research progress. Written records are kept by the Director of the training program who reviews the evaluation with the fellow. Constructive comments are always expected and progress in any areas of weakness is reviewed most carefully at subsequent evaluations.
The residents, students and fellows also regularly evaluate the faculty. These evaluations are forwarded to the Department Chairman who reviews them with the Section Director, who subsequently shares them with the faculty. Evaluation of the faculty and the overall training program is also actively sought from the fellows. Each year, the fellows are asked to evaluate the program, and their comments are utilized in the continuing reassessment of the program structure and content.

**Past History and Accomplishments**

The program graduated its first fellow in 1991, and former fellows now have faculty positions at major university medical centers. During their fellowships, trainees have been awarded NIH National Research Service Awards and have consistently received competitive grant funding. Many fellows have received travel awards to national and international scientific meetings. Each fellow has been invited to present his or her research findings at national meetings, and each fellow has publications in peer-reviewed scientific journals.

**DIABETES CLINICAL SERVICE**

**Outpatient Diabetes Clinic**

The Pediatric Diabetes Clinical Service provides multi-disciplinary services for children and adolescents with diabetes. Patients followed in these clinics are seen every 3-4 months for comprehensive evaluation of their metabolic control. Patients are seen by a physician and usually by a pediatric nurse practitioner at each visit and are also frequently seen by a dietitian and social worker. All patients...
followed in the Outpatient Clinics have access to 24-hour per day consultation with a nurse practitioner or physician. Clinics are located at Riley Hospital for Children, North Side, Riley Subspecialty Clinic at St. Francis Hospital, and the Fort Wayne and South Bend satellite clinics.

**Inpatient Diabetes Education**

All patients referred to Riley Hospital with newly diagnosed Type 1 diabetes mellitus are hospitalized for approximately three days of medical evaluation and individual instruction in basic survival aspects of diabetes management. Over 100 patients enter the program annually by this route. Patients are treated in the Parent Care Unit whenever possible, and parents begin participating in their child’s care from the time of diagnosis.

All families are evaluated and educated by a multi-disciplinary team that includes at least one faculty level physician, endocrine fellow, pediatric resident, nurse practitioner, dietitian, and social worker. Patients are discharged when they demonstrate adequate competence in the technical skills they have learned. They are then followed by phone at least twice per week by a nurse practitioner until the patient's blood sugars stabilize. They are also scheduled for further education in the ADAPT outpatient education program.

**Diabetes Camp**

Members of the Riley Diabetes Team have played an integral role in the administration and personnel of Camp John Warvel, the American Diabetes Association-sponsored summer camp. Fellows are strongly encouraged to attend this camp, as it provides a unique insight into the lives of their children with diabetes. This annual weeklong, sleep-away camp for children with diabetes provides fun and educational experiences for children from 7-18 years of age. The camp also provides diabetes training experiences for medical students, nursing students, parents, dietary interns, and other individuals and medical professionals with an interest in diabetes.

**Insulin Pump Program**

Continuous Subcutaneous Insulin Infusion (CSII) through the use of an insulin pump represents an alternative method of insulin administration for motivated and compliant patients. Recognizing the advantages of insulin pump therapy, the Riley Diabetes Team has greatly expanded its use of insulin pumps for selected children with diabetes. Eligible insulin pump candidates are usually on intensive injection therapy (MDI) and have demonstrated proficiency with carbohydrate counting and a high level of responsibility with daily diabetes management. Two full time dedicated pump educators perform the initial education in pump use and provide telephone follow up for questions and adjustments. Many children using insulin pumps are followed together in pump clinics. Pump clinics are structured according to a
group format, in which the patients and parents meet as separate groups with members of the diabetes team.

**ENDOCRINE CLINICAL SERVICE**

**Inpatient and Outpatient**
The Pediatric Endocrine Service treats all endocrine problems of infancy, childhood and adolescence. These include growth disorders, Turner syndrome, ambiguous genitalia, delayed and precocious sexual development, goiters, congenital and acquired disorders of thyroid function, hypoglycemia, disorders of calcium metabolism, metabolic bone disease, adrenal disorders including congenital adrenal hyperplasia and adrenal insufficiency, diabetes insipidus and anterior pituitary dysfunction. Faculty and fellows also provide consultative support to other clinical services at Riley Hospital for Children. Outpatient pediatric endocrine clinics are held at Riley Hospital for Children, North Side, Riley Subspecialty Clinic.
at St. Francis, and the Fort Wayne, Evansville, and South Bend satellite clinics.

**Endocrine Stimulation Testing Clinic**
A comprehensive outpatient endocrine testing clinic provides for state-of-the-art evaluation of a broad range of endocrine conditions. Provocative serial tests done on an outpatient basis include growth hormone stimulation, dexamethasone suppression, GnRH, ACTH, low dose ACTH, glucose tolerance, insulin tolerance test, water deprivation studies, GHRH, and mixed meal stimulation. This facility is supervised by the Section’s faculty and is staffed by nurse specialists in Pediatric Endocrinology. These pediatric endocrine nurses provide pre-testing verbal and written education and psychosocial preparation for the procedure to the families of patients. Testing is performed in an area where there are appropriate diversional materials and a calm, quiet environment. The presence of parents and support objects is encouraged. Nursing education is also often completed in this setting.

**Newborn Screening Program for Congenital Hypothyroidism and Congenital Adrenal Hyperplasia**
The Section of Pediatric Endocrinology and Diabetology is the site of the Indiana Congenital Hypothyroidism Follow-up Program. The primary goal of the program is to ensure that every baby born with congenital hypothyroidism in the State of Indiana receives appropriate and expedient treatment. We provide initial and ongoing consultative services for primary care physicians throughout the state, and we provide similar services to the families and health care providers of babies diagnosed with CAH. We also offer educational services to families and physicians through written materials and formal lectures.

**Obesity Clinic**
This clinic was created to help deal with the increasingly prevalent problem of obesity in children. The clinic utilizes a team approach including: physicians, pediatric dietitians, exercise physiologists, psychologists, nurses, and social workers. The evaluation includes assessment of insulin sensitivity in obese children and the effect of early intervention with a comprehensive weight management program.

**ENDOCRINE AND DIABETES RESEARCH OPPORTUNITIES**
Members of the Section of Pediatric Endocrinology and Diabetology actively participate in numerous clinical and basic research studies, and section members successfully compete for both governmental and non-governmental research funding. Clinical research interests in diabetes include the study of innovative strategies to prevent diabetes in susceptible patients, new methods of insulin provision, and the vascular effects of insulin. Faculty members in several university divisions conduct basic science research related to diabetes.
Clinical endocrine research interests of section members range from bone metabolism and phytoestrogen effects to McCune-Albright syndrome and novel uses of growth hormone. The section has ongoing basic science projects investigating growth hormone releasing hormone-related peptide, the pathogenesis of granulosa cell tumors, mutations in the FSH receptor, abnormalities of G proteins, and the genetic control of parturition. Faculty members also participate in a large number of sponsored clinical trials.

Living in Indianapolis

Indianapolis, the nation's twelfth largest city, is known as the Crossroads of America. With a metropolitan population of over one million people, Indianapolis offers the advantages of a city with a diverse, thriving economy, combined with small-town friendliness.

The downtown area became a focal point of the city with the opening of Circle Centre. This is a major downtown shopping mall and entertainment complex. Downtown landmarks include the Soldiers and Sailors Monument, Union Station, the Indiana Repertory Theater, the Indianapolis Zoo in White River State Park and the Eiteljorg Museum of American Indian and Western Art.

Indianapolis is considered the "Automobile Racing Capitol of the World." In addition to the Indianapolis 500 race held each May, the National Hot Rod Association's U.S. Nationals, the Brickyard 400 Nascar and the Formula 1 U.S. Grand Prix races are held here yearly. Professional sports teams include the Indiana Pacers of the NBA and the Indianapolis Colts of the NFL. The Triple-A Indianapolis Indians play baseball in Victory Field, a new downtown stadium. The IHL Indianapolis Ice games are readily available to hockey fans. Professional soccer is represented by the Indiana Blast. The Indiana University Natatorium, site of the 1996 Olympic swimming and diving trials, is conveniently located near the IUSOM campus. Big Ten Conference athletics at Indiana University and Purdue University are within an hour's drive. Recreational possibilities abound at Eagle Creek Park, which offers biking, sailing, swimming, fishing and cross-country skiing. Major tennis complexes and over 30 public golf courses are conveniently located throughout the city.

The Children's Museum and Indianapolis Museum of Art are world renowned. The world's largest children's museum features numerous exhibits for children of all ages. Cultural events are offered at Clowes Hall on the Butler University campus, at Verizon Wireless Music Center, at the restored
Murat Theater, and at the Circle Theater, home of the Indianapolis Symphony Orchestra. The Indianapolis Museum of Art is the seventh largest in the U.S. Other cultural activities include dance and opera companies, professional and amateur theater, jazz clubs, comedy clubs, and art leagues and galleries.

Indiana University-Purdue University at Indianapolis (IUPUI; www.iupui.edu) offers 170 degree programs. Part-time or graduate students can complete studies here or at other local universities such as Butler University (www.butler.edu), the University of Indianapolis (www.uindy.edu) or Marian College (www.marian.edu). The city also has a variety of public, private and parochial schools to meet the educational needs of family members. There are affordable new and renovated apartment complexes downtown and in neighborhoods near Eagle Creek Park as well as other locations within 20 minutes of the hospital. House rentals are also available. Housing costs are reasonable and many fellows find they can purchase a home. These are only some of the attractions that make Indianapolis an ideal place to live. The facilities and resources are typical of those of a large city, but without the
crowding, congestion and other problems that have troubled many large cities. The people of Indianapolis are proud of their community and treasure it as a great city in which to live, work, play, and raise a family.

**APPLICATIONS AND INFORMATION**

Physicians who will have completed residency training in a program approved by the American Board of Pediatrics or will be Board eligible may apply. Submit applications through ERAS after November 15. We request 3 letters of recommendation from physicians familiar with the applicant’s graduate training, a medical school transcript, and a curriculum vitae to be submitted through ERAS.

Foreign medical graduates should also submit their ECFMG certificate number and visa information.

For further information, please contact Dr. J. Fuqua or Dr. E. Eugster, co-directors of the program at:

Section of Pediatric Endocrinology
Riley Hospital for Children
Room 5960
702 Barnhill Drive
Indianapolis, IN 46202

Telephone: (317) 274-3889
Fax: (317) 274-3882
jsfuqua@iupui.edu
eeugster@iupui.edu
www.rileyhospital.org

Contact ERAS at: [http://www.aamc.org/students/eras](http://www.aamc.org/students/eras)
PEDIATRIC ENDOCRINOLOGY AND DIABETOLOGY FACULTY

Linda A. DiMeglio, M.D.  
Associate Professor of Pediatrics

Erica A. Eugster, M.D.  
Professor of Pediatrics  
Section Director Pediatric Endocrinology/Diabetology  
Co-Director Fellowship Program

John S. Fuqua, M.D.  
Associate Professor of Pediatrics  
Co-Director Fellowship Program

Nadine Haddad, M.D.  
Associate Professor of Pediatrics

Erik Imel, M.D.  
Assistant Professor of Pediatrics and Medicine

Nancy B. Johnson, M.D.  
Assistant Professor of Pediatrics

Peter A. Lee, M.D., Ph.D.  
Professor of Clinical Pediatrics

Raghu Mirmira, M.D., Ph.D.  
Associate Professor of Pediatrics and Medicine  
Director, Pediatric Diabetes Research

Zeina Nabhan, M.D.  
Assistant Professor of Pediatrics

Todd D. Nebesio, M.D.  
Assistant Professor of Pediatrics

Henry Rodriguez, M.D.  
Associate Professor of Pediatrics  
Director, Pediatric Diabetes Clinical Program

Alan D. Rogol, M.D., Ph.D.  
Professor of Clinical Pediatrics

Juan Sanchez, M.D.  
Associate Professor of Pediatrics

Emily C. Walvoord, M.D.  
Associate Professor of Pediatrics