

Goals and Objectives  
Fellowship: Pediatric Endocrinology  
Thomas A. Wilson, M.D.  
Director  
Pediatric Endocrinology  
Department of Pediatrics  
SUNY  
Stony Brook, NY  
11794-8333

I. Overall Goals and Objectives:

1. The fellow will become proficient and competent in the pathophysiology and management of pediatric endocrine problems. These include but are not limited to: Type 1 diabetes mellitus, type 2 diabetes mellitus, maturity onset diabetes of youth, neonatal diabetes, short stature, growth failure, hypopituitarism, diabetes insipidus, hypothyroidism, hyperthyroidism, thyroid nodules and malignancy, precocious puberty, delayed puberty, congenital adrenal hyperplasia, adrenal insufficiency of all types, disorders of calcium metabolism including rickets, hypo- and hyper-parathyroidism, hyperlipidemia and obesity, endocrine neoplasia and autoimmune polyendocrinopathy syndromes, and multiple endocrine neoplasia syndromes.
2. The fellow will develop skills in researching topics in the literature and will gain experience in writing a case report.
3. The fellow will acquire skills in developing a research project and carry out the project to completion. The fellow will analyze the results, present the results to the scholarly oversight committee and division and at a scientific meeting and write up the project for publication.
4. The fellow will gain computer skills to carry out literature searches, utilize word processor software, prepare PowerPoint presentations, utilize databases for organizing data and utilize computer statistical packages for analyzing data.
5. The fellow will gain experience in presenting a topic at a local and national level.
6. The fellow will gain competency as a communicator and educator.

II. Competencies

Throughout the three year program, fellows will be expected to gain competency in the following areas:

1. Patient Care
  - a. History and physical examination
  - b. Procedure skills (see addendum)
  - c. Diagnostic and therapeutic decision making
    - i. Differential diagnosis
    - ii. Organizing an evaluation of a particular disorder
  - d. Organization skills
  - e. Function under stress
2. Medical Knowledge
  - a. Knowledge of physiology and endocrine feedback loops
  - b. Knowledge of the genetics, pathophysiology and molecular biology of disease
  - c. Knowledge of treatment options, advantages and disadvantages and potential complications of each
  - d. Ability to independently pursue knowledge through use of computerized databases and literature searches
  - e. Use of evidence based medicine
3. Practice-based Learning and Improvement
  - a. Ability to perform self evaluation and self directed improvement
  - b. Response to feedback
  - c. Use of information technology (Library, databases, internet sources)
4. Interpersonal and Communication Skills
  - a. Relationships with patients and families
  - b. Education and counseling skills. The role of the physician as a patient educator
  - c. Chart work: clarity, conciseness, readability, timeliness
  - d. Teamwork and collaboration (how well fellow works with other healthcare providers)
  - e. Leadership skills. The ability of the fellow to lead residents and students in the proper evaluation and treatment of a particular disease state

5. Professionalism
  - a. Fellow demonstrates honesty, integrity, reliability, respectfulness, compassion and punctuality
  - b. Fellow evidences self awareness and self improvement: the ability of the fellow to improve his/her capabilities and respond to criticism
  - c. Fellow applies principles of risk management and limiting liability
  - d. Fellow completes tasks required in a timely fashion
6. Systems-based Practice
  - a. Fellow demonstrates the ability to network with other health care providers (general practitioners, various specialists, social workers, nutritionists, laboratory personnel, nursing personnel, physical or occupational therapists) to insure good patient care
  - b. Fellow actively implements improvements in systems of care, methods of patient management, forms, etc.
7. Teaching
 

Fellow organizes and imparts medical information to peers, team members, trainees, patients and family members in a level appropriate fashion.
8. Research
  - a. Fellow applies skills in research methodology, design, data acquisition, analysis and summarization
  - b. Fellow adheres to ethical and institutional requirements for protection of humans or animals in research
  - c. Fellow communicates the aim and results of research in the form of grants, abstract presentations and manuscript submission

### III. Objectives of Specific Activities

#### 1. Inpatient Rotation & Consult Service

The specific objectives of the inpatient rotation are to become proficient at diagnosing and treating endocrine disorders which might be seen in an inpatient setting. A second goal is to oversee and coordinate care among a variety of services.

- a. Year 1
  - i. Fellow demonstrates knowledge of common Pediatric Endocrine disorders requiring hospitalization including:
    1. Uncontrolled diabetes
    2. Diabetes insipidus (central and nephrogenic)
    3. Adrenal insufficiency
    4. Hypopituitarism
    5. Disorders of sexual differentiation
  - ii. Fellow gains skill in Endocrine physical diagnosis including:
    1. Tanner staging
    2. Thyroid exam
    3. Funduscopy
    4. Clinical recognition of signs and symptoms of diabetic ketoacidosis
    5. Adrenal insufficiency
    6. Thyroid disorders
  - iii. Fellow develops simple differential diagnoses for common Pediatric endocrine disorders.
  - iv. Fellow learns teaching methodologies for Type I Diabetes Mellitus
  - v. Fellow orders and interprets diagnostic studies appropriately including:
    1. Laboratory measurement of hormones & different methodologies
    2. Radiographic evaluation of endocrine disorders determination of skeletal age
    3. Pituitary function testing and imaging
- b. Year 2
  - i. Fellow expands knowledge base of Pediatric Endocrine Disorders.
  - ii. Fellow becomes adept at patient teaching including:
    1. Diabetes education
    2. Hypopituitarism
    3. Diabetes insipidus
    4. Adrenal insufficiency
    5. Education about administration of insulin and hydrocortisone
  - iii. Fellow becomes adept at Endocrine physical diagnosis
  - iv. Fellow assumes supervisory and teaching role for Residents/Students

c. Year 3:

- i. Fellow assumes an increasing supervisory role of Residents/Students
- ii. Fellow assumes more teaching responsibilities of Residents/Students
- iii. Fellow takes increasing role of communicator to referring physicians. This will be accomplished by:
  1. The fellow evaluating new patients admitted to the endocrine service and fielding consults from other services
  2. Fellows will take the history and perform a pertinent physical exam, organize a differential diagnosis and formulate an evaluation and treatment plan
  3. Fellows expected to organize and communicate with ancillary services to accomplish the care and evaluation of the patient
  4. Fellow summarizes each inpatient case at the weekly Pediatric Endocrine conference for the remainder of the division who will also evaluate the fellow's capabilities
  5. Feedback will be provided "on the spot" and as well as formally every quarter

2. Continuity clinic:

The objectives of this activity are to provide Fellows with an opportunity to follow specific patients through the three years of fellowship. This has several goals:

- a. To acquaint the Fellow with the evolution of the disease and its response to treatment over time
- b. To allow the fellow to develop long term communication skills necessary in the management of patients with chronic illness
- c. To allow the fellow to assume a gradual increase in responsibility for the care of particular patients over the fellowship.
  - i. Year 1:
    - A. Fellow becomes acquainted with a panel of patients which will continue to build through the 3 year fellowship
    - B. Fellow is identified as the primary contact person for patients in his/her continuity panel
    - C. Fellow builds communication skills with patient, family and referring physician.
    - D. Fellow discusses patient's condition with patient / family after presenting and reviewing findings and plans with attending.
  - ii. Year 2: Fellow's continuity panel expands.
    - A. Fellow assumes more responsibility as primary communicator with patient & family.
    - B. Fellow discusses findings and plans with patient/family upon encounter with patient.
    - C. Patient's details are reviewed with attending who sees patient and concurs or adds or modifies.
  - iii. Year 3:

Fellow evaluates and communicates findings with patient/family then reviews with mentor who sees patient for any final points that must be made.

Each continuity clinic is supervised by a faculty member who assumes the role of clinical mentor for the fellow in that setting. The mentor oversees each encounter and provide immediate feedback to the fellow on the outcome of the encounter as well as comments on the quarterly evaluation regarding the Fellow's performance.

3. Outpatient clinic

In this setting Fellows are exposed to a variety of faculty members as they participate in the ongoing management of ambulatory patients with endocrine disorders. The primary goal of this learning activity is to provide the Fellow with exposure to a wide range of endocrine disorders and presentations, and to provide the Fellow with exposure to a range of clinical approaches to these problems. In this setting, patients are not pre-assigned but are seen by Fellows as they present. Each patient is precepted by the attending Pediatric Endocrinologist.

a. Year 1:

- i. Fellow evaluates patient, formulates differential diagnosis and presents to precepting faculty.
- ii. Fellow builds communication skills with patient, family and referring physician.

- iii. Fellow observes attending communicate findings and recommendations to patient and family.
- b. Year 2: Fellow builds diagnostic skills.
  - i. Fellow discusses findings and plans with patient/family upon encounter with patient.
  - ii. Patient's details are reviewed with attending who sees patient and concurs or adds as needed.
- c. Year 3:
  - i. Fellow evaluates and communicates findings with patient/family then reviews with mentor who sees patient for any final points that must be made
  - ii. Fellows are evaluated upon their ability to extract pertinent clinical information, to carry out an accurate physical examination and to come up with a differential diagnosis and management plan.

#### 4. Pediatric Endocrine Conference

This conference takes place weekly and is attended by the entire division of Pediatric Endocrinology and begins by the clinical fellow presenting inpatients of the week. The remainder of the hour rotates between: case review, journal club, research topic and core curriculum topic review given by Fellow, Faculty or rotating Resident or Student. In addition in this venue, issues of systems based practice or quality assurance / improvement are discussed. The objectives of this activity are:

- a. To keep Fellows on research rotations aware of clinical inpatient issues
- b. To review topics of Pediatric Endocrinology, particularly those not covered in the combined Adult/Pediatric Endocrine Conference
- c. To allow Fellows an opportunity to organize and deliver a presentation, usually using PowerPoint
- d. To allow Fellows an opportunity to present progress on their research project to the Research Oversight Committee
- e. To teach Fellows how to critically review a research manuscript using principles of evidence based medicine.
- f. To provide a venue for airing issues of quality assurance and improvement.
- g. Fellows are given prompt feedback on their presentations as well as evaluated upon their abilities to carry out these tasks at the quarterly evaluation.

#### 6. Combined Pediatric / Adult Endocrine Conference

This conference takes place weekly. Each conference lasts 1.5 hr and is divided into two 45 min sessions. Topic categories are:

- a. Core curriculum conference
- b. Rotating didactic conference, journal club, research seminar. The objectives of this activity are:
  - i. Allow Fellows to interact with colleagues in adult endocrinology
  - ii. Expose Fellows to adult and pediatric endocrine issues
  - iii. Gain experience making presentations to a larger group.
- c. Fellows will be evaluated on the ability to organize and deliver a presentation "on the spot" as well as formally in the quarterly evaluations.

#### 7. Research Seminars

Research seminars take several formats:

- a. Formal course provided by Dept. of Preventive Medicine and generally are taken in the 1<sup>st</sup> or 2<sup>nd</sup> year of training. This course introduces Fellows to the methodology of research, hypothesis development, research planning, data acquisition and management and application of statistical tools for analysis. The goal is to provide the Fellow with a broad introduction to research design and technique.
- b. Periodic seminar provided by a fellow outlining research project and its progress. The objectives are to:
  - i. Review progress in research projects
  - ii. Provide experience in organizing & presenting a research seminar.
  - iii. Gain experience in public presentation.

#### 8. Research:

Fellows will be paired with a clinical mentor in the first year. Mentors will meet with fellows a minimum of twice a year, but informally, more often and as needed to monitor progress of the mentee in terms of

clinical competencies. Progress will be evaluated by the Program Director and the research mentor quarterly.

a. Research 1

The objectives of this rotation are for the Fellow to:

i. Year 1:

- A. Identify a research mentor and project
- B. Carry out background literature research related to the topic utilizing electronic data bases and search engines
- C. Develop and write up a research proposal
- D. Fellow presents literature review and research proposal to scholarly oversight committee (SOC)
- E. Fellow obtains approval to carry out the proposal from appropriate regulatory agencies (IRB, etc).

ii. Year 2:

- A. Fellow carries out the organizational work required to get the project started.
- B. Fellow meet periodically with the research mentor.
- C. Fellows will be evaluated upon their progress in this endeavor in their quarterly evaluation and annually by a presentation to the SOC.

b. Research 2

The objectives of this rotation are for the Fellow to:

Year 3:

- A. Complete the research project under the supervision of the mentor
- B. Analyze data
- C. Present results locally to SOC and at a regional or national meeting

9. Diabetes camp

The objective of this 2 week rotation is to introduce Fellows to the day to day management of type 1 diabetes in a setting outside of the traditional outpatient area. The camp takes place for 2 weeks during the month of July. Fellows participate with other health care professionals in the oversight of managing blood sugars in this population of children. Performance is evaluated by the staff of the camp who relay impressions to the Program Director who will then provide feedback to the Fellow.

10. Teaching:

The objectives of this part of the curriculum is to train Fellows as teachers:

a. Year 1: Teaching retreat / seminar:

- i. The goal of this seminar is to acquaint Fellows with current concepts and techniques of adult education.
- ii. Fellows begin to assume role of teacher of students/Residents rotating on service
- iii. Fellow presents first journal club.

b. Year 2:

- i. Fellow assumes greater role in teaching students/Residents rotating on service
- ii. Fellow gains proficiency in reviewing literature and summarizing for journal club
- iii. Fellow presents research project

c. Year 3:

- i. Fellow's role as teacher of Residents/students expands
- ii. Fellow becomes proficient at reviewing & presenting articles
- iii. Fellow gains proficiency at reviewing a topic at conference