

# Endocrinology Subspecialty Fellowship Program

## Consult Rotation: Goals and Objectives

### Description

The University of Florida-Jacksonville Endocrinology Fellowship Program is a two-year program encompassing both clinical and research experiences. Fellows have acute care responsibilities at UF HEALTH Jacksonville Medical Center. The purpose of this rotation is to provide clinical encounters with acutely ill patients with a wide variety of endocrine disorders including endocrine emergencies such as diabetic ketoacidosis, gestational diabetes, thyroid storm and hypercalcemia. Pituitary, thyroid and parathyroid surgeries are also performed at this location. Teaching methods include direct observation and feedback, assigned readings, patient presentation by the fellow, didactic sessions with an endocrinology focus given by the fellow under the guidance of the faculty member. Fellows are instructed in the interpretation of diagnostic testing. Use of electronic resources is required to support diagnostic and treatment decisions. Additional instruction and experience is acquired by working through the multiple disciplines and health systems required in taking care of acutely ill patients. Fellows are evaluated at the time of the patient encounter receiving immediate feedback, at the rotational evaluation by the preceptor and through multisource assessments.

### Overall Program Goals

The goals of the University of Florida Jacksonville Endocrinology Consultation Rotation are:

1. Provide comprehensive instruction and experience in clinical endocrinology of acutely ill patients, including evaluation and treatment of disorders of the hypothalamus, pituitary, parathyroid, thyroid, endocrine pancreas, gonadal and adrenal glands, as well as diabetes mellitus, dyslipidemias, hypertension, bone diseases, neuroendocrine diseases, and metabolic disorders sufficient for the fellow to acquire the competency of a specialist in the field.
2. Competently manage patients after surgical procedures.

### Medical Knowledge

#### Goal

Fellow must acquire and employ knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care.

Specific objectives:

1. First year fellows
  - a. Define and review biochemistry and physiology, including cell and molecular biology, as related to endocrinology, diabetes, and metabolism:
  - b. Categorize genetics as it relates to endocrine diseases.

- c. Describe developmental endocrinology, including growth and development, sexual differentiation, and pubertal maturation.
- d. Describe endocrine physiology and pathophysiology in systemic diseases and principles of hormone action.
- e. Acquire the concepts of signal transduction pathways and biology of hormone receptors.
- f. Describe immunologic aspects of diabetes and other endocrinologic diseases.
- g. Describe pathogenesis and epidemiology of diabetes mellitus.
- h. Conduct cost-effective evaluation and management of type-1 and type-2 diabetes, including:
  - i. acute, life-threatening complications of hyper- and hypo-glycemia;
  - ii. intensive insulin management in critical care and surgical patients;
  - iii. intensive management of glycemic control in the inpatient setting;
  - iv. diabetes detection and management during pregnancy; and
  - v. multidisciplinary diabetes education and treatment program
- i. Appraise the role and principles of intensive diabetes management, as well as the role of whole organ and islet cell pancreatic transplantation.
- j. Render safe and effective management of disorders of fluid, electrolyte, and acid-base metabolism; disorders of bone and mineral metabolism, with particular emphasis on the diagnosis and management of osteoporosis; calcium, phosphorus, and magnesium imbalance; diagnosis and management of ectopic hormone production; endocrine adaptations and maladaptations to systemic diseases; endocrine aspects of psychiatric diseases; parenteral nutrition support; nutritional disorders of obesity, anorexia nervosa, and bulimia; diagnosis and management of lipid and lipoprotein disorders.
- k. Implement effective strategies in the evaluation and management of hormonal problems including diseases, infections, neoplasms and other causes of dysfunction of the following endocrine organs:
  - i. hypothalamus and pituitary;
  - ii. thyroid;
  - iii. adrenal cortex and medulla;
  - iv. pancreatic islets;

- v. ovaries and testes; and
  - vi. parathyroid.
- I. Identify appropriate utilization and interpretation of clinical laboratory, radionuclide, and radiologic studies for the diagnosis and treatment of endocrine and metabolic diseases, as well as knowledge of basic laboratory techniques, including quality control, quality assurance, and proficiency standards.
2. Second Year Fellows:
    - a. Under faculty observation and guidance, the fellow will master biochemistry and physiology, including cell and molecular biology, as related to endocrinology, diabetes, and metabolism, to colleagues and trainees including:
    - b. Apply genetic concepts as they relate to endocrine diseases. Employ effective genetic testing when appropriate and utilize genetic counseling for individuals at risk.
    - c. Discuss developmental endocrinology, including growth and development, sexual differentiation, and pubertal maturation. Implement this knowledge in stepwise evaluation of patients.
    - d. Illustrate endocrine physiology and pathophysiology in systemic diseases and principles of hormone action.
    - e. Describe signal transduction pathways and biology of hormone receptors.
    - f. Illustrate immunologic aspects of diabetes and other endocrinologic diseases.
    - g. Apply knowledge of pathogenesis and epidemiology of diabetes mellitus in developing treatment plans.
    - h. Complete cost-effective and safe evaluation and management of diabetes mellitus, including:
      1. acute, life-threatening complications of hyper- and hypo-glycemia;
      2. intensive insulin management in critical care and surgical patients;
      3. intensive management of glycemic control in the inpatient setting;
      4. prevention and surveillance of microvascular and macrovascular complications;
      5. diabetes detection and management during pregnancy; and
      6. multidisciplinary diabetes education and treatment program.
    - i. Apply the appropriate utilization and principles of intensive diabetes management, as well as the role of whole organ and islet cell pancreatic transplantation.

- j. Execute appropriate algorithms in disorders of fluid, electrolyte, and acid-base metabolism; disorders of bone and mineral metabolism, with particular emphasis on the diagnosis and management of osteoporosis; calcium, phosphorus, and magnesium imbalance; diagnosis and management of ectopic hormone production; endocrine adaptations and maladaptations to systemic diseases; endocrine aspects of psychiatric diseases; parenteral nutrition support; nutritional disorders of obesity, anorexia nervosa, and bulimia; diagnosis and management of lipid and lipoprotein disorders.
- k. Complete the evaluation and management of hormonal problems including diseases, infections, neoplasms and other causes of dysfunction of the following endocrine organs in a comprehensive and safe manner:
  - 1. hypothalamus and pituitary;
  - 2. thyroid;
  - 3. adrenal cortex and medulla;
  - 4. pancreatic islets;
  - 5. ovaries and testes; and
  - 6. parathyroid.
- l. Select appropriate utilization and interpretation of clinical laboratory, radionuclide, and imaging studies for the diagnosis and treatment of endocrine and metabolic diseases. Presentations of clinical cases will describe basic laboratory techniques, including quality control, quality assurance, and proficiency standards.

## **Patient Care**

### Goal

Fellows must be able to provide inpatient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

### Specific objectives:

Fellows must develop an evaluation and management plan for endocrinologic diagnosis and treatment and must order and interpret appropriate laboratory tests and imaging procedures with the following specific objectives:

- 1. First year fellows will develop skills and second year fellows will effectively evaluate and manage hormonal disorders including diseases, infections, neoplasms and other causes of dysfunction of the following endocrine organs:
  - a. Hypothalamus and pituitary
  - b. Thyroid gland
  - c. Adrenal cortex and medulla

- d. Pancreatic islets
  - e. Ovaries and testes
  - f. Parathyroid glands
2. First year fellows will develop skills and second year fellows must effectively evaluate and manage type 1 and type 2 diabetes including:
- a. Acute, life-threatening complications of hyper- and hypo-glycemia
  - b. Intensive insulin management in critical care and surgical patients
  - c. Intensive management of glycemic control in the ambulatory setting
  - d. Diabetes detection and management during pregnancy
  - e. Principles of patient diabetes education and management programs
3. First year fellows will develop skills and second year fellows will effectively evaluate and manage multifactorial disorders associated with hormonal regulation including:
- a. Disorders of fluid, electrolyte, and acid-base metabolism
  - b. Disorders of bone and mineral metabolism with particular emphasis on the diagnosis and management of osteoporosis
  - c. Calcium, phosphorus, and magnesium imbalance.
  - d. Diagnosis and management of ectopic hormone production
  - e. Endocrine adaptations and maladaptations to systemic diseases
  - f. Endocrine aspects of psychiatric diseases
  - g. Parenteral nutrition support
  - h. Nutritional disorders of obesity, anorexia nervosa, and bulimia
  - i. Diagnosis and management of lipid and lipoprotein disorders
  - j. Genetic screening and counseling for endocrine and metabolic disorders

*Technical and Other Skills:*

1. First year fellows will develop skills and second year fellows will effectively employ:
- a. Interpretation of laboratory studies, including the effects of nonendocrine disorders on these studies.
    - 1. Interpretation of hormone assays

2. Interpretation of stimulation and suppression tests (including tests of the adrenal-pituitary-hypothalamic axis, water deprivation tests, growth hormone stimulation and suppression tests, renin-aldosterone suppression and stimulation tests 72 hour fast for hypoglycemia, and glucose tolerance tests for diabetes and metabolic syndromes)
- b. Interpretation of radiologic and imaging studies for diagnosis and treatment of endocrine and metabolic diseases including:
  1. radionuclide uptake and localization studies of endocrine tissue
  2. ultrasonography of the soft tissues of the neck
4. First year fellows must develop skills and second year fellows will effectively utilize interpretation of the following:
  - a. Radiologic measurement of bone density and other tests used in the management of osteoporosis and other metabolic bone diseases.
  - b. Radiologic studies used in the evaluation of patients with endocrine disorders, such as CT, and MRI.

### **Practice- Based Learning and Improvement**

#### Goal

Fellows must investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to improve continuously patient care based on constant self-evaluation and lifelong learning. Fellows are expected to develop skills and habits to be able to:

#### Specific objectives:

1. First year fellows
  - a. Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems and use information technology to optimize learning (e.g., computer based information systems).
  - b. Describe ways to systematically analyze practice, using quality improvement methods, and implement changes with the goal of practice improvement.
2. Second year fellows
  - a. Design and implement a quality improvement project regarding the inpatient population.
  - b. Incorporate formative evaluation feedback into daily practice competencies.
5. First and second year fellows are expected to review current literature and apply evidence-based medical practices in the care of patients.

6. Fellows will receive formative written evaluations by faculty at the end of rotations, following conference presentations, and quarterly summary 360-degree evaluations, and are expected to use feedback for self-improvement.
7. Identify strengths, deficiencies, and limits in one's knowledge and expertise;
8. Set learning and improvement goals; identify and perform appropriate learning activities;
9. Systematically analyze practice, using quality improvement methods, and implement changes with the goal of practice improvement;
10. Participate in the education of patients, families, fellows and other health professionals.

### **Systems Based Practice**

#### Goal

Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

#### Specific objectives:

1. First year fellows
  - a. Locate, appraise, and assimilate evidence from scientific studies related to a systems based issue that influences patient care.
  - b. Describe ways to analyze systematically the elements in the process, using quality improvement methods.
2. Second year fellows
  - a. Design and implement a systems based quality improvement project regarding hospital or clinic population.
  - b. Incorporate formative evaluation feedback into systems based practice.
3. All fellows are expected to:
  - a. Recognize and utilize medical, surgical, and psychological consultation services available within UF and Shands Jacksonville, as well as methods for patient referral to diabetes education, nutrition, rehabilitation, and social services.
  - b. Identify patient resources within the community relevant to needs of patients with diabetes and disorders of the endocrine system (e.g., educational resources, consumer organizations, advocacy and support groups, and professional societies).
  - c. Retrieve patient records and laboratory data from within the local system, and from referring health care providers, or previous and concurrent sites of patient care.

- d. Identify avenues for obtaining laboratory and imaging tests and recommended therapies for patients belonging to contracted health management organizations and insurance providers.
- e. Participate as a team member in situations requiring interdisciplinary patient care in outpatient settings.

### **Professionalism**

#### Goal

Fellows must execute professional responsibilities and an adherence to ethical principles. Fellows are expected to practice during the first year and second year:

1. Show compassion, integrity, and respect for others
2. Respond to patient needs that supersedes self-interest
3. Respect for patient privacy and autonomy
4. Bear accountability to patients, society, and the profession
5. Show sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation
6. Commit to scholarship through presentations of conferences, literature reviews, or publications related to personal research and clinical cases.
7. Develop effective teaching skills for instruction of patients, peers, and other health care professionals through conference presentations and on an individual level.

### **Interpersonal and Communication Skills**

#### Goal

Residents must practice interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates.

Specific objectives:

1. Fellows are expected to:
2. Communicate effectively with patients and families across a broad range of socioeconomic and cultural backgrounds
3. Use simple non-technical language for oral and written communications and instructions with patients
4. Use appropriate interpreters for language barriers and sensory impairments
5. Document use of interpreters.



6. Communicate effectively with physicians, other health professionals, and health related agencies
7. Write timely, appropriately comprehensive consultation notes and letters with clear assessments and management plans.
8. Write or relay unambiguous orders, instructions, and recommendations.
9. Maintain comprehensive, timely, and legible medical records
10. Present effective teaching conferences using logical organization and appropriate audio-visual media.
11. Effectively teach and share literature resources with students, other residents, and referring physicians on an individual basis.