

# Division of Endocrinology, Diabetes and Metabolism

## University of Tennessee, Memphis

### Goals:

To prepare trainee physicians to practice clinical endocrinology and diabetes in a scholarly fashion, with an aim of obtaining certification in the subspecialty of endocrinology, diabetes and metabolism.

### Objectives:

#### 1. Diabetes mellitus:

- Recognize differences in the pathogenesis and clinical presentation of type 1 and 2 diabetes. Develop the skills to diagnose and treat acute complications of diabetes such as diabetic ketoacidosis (DKA), hyperglycemic hyperosmolar syndrome (HHS) and hypoglycemia. Recognize different pathophysiology of Insulin Resistance Syndrome including various components of this syndrome and how to treat each one.
- Recognize the important recent studies and various treatment modalities for prevention of diabetes including lifestyle modification and medical therapy and their rationale.
- Recognize various treatment modalities for therapy for type 2 diabetes utilizing sulfonylurias, biguanides,  $\alpha$ -glucosidase inhibitors, and thiozolidinediones, and the site of action of each agent in the pathogenesis of type 2 diabetes.
- Recognize the importance of recent clinical trials on the use of Ace inhibitors and angiotensin receptor blockers in prevention of deterioration of nephropathy in diabetes as well as their role in prevention of type 2 diabetes in those patients with impaired glucose tolerance.

#### 2. Thyroid disorders:

- Interpret thyroid function tests for various forms of thyroid pathology.
- Evaluate how various aspects of thyroid function may affect cardiac function and the theory behind such actions.
- Apply the knowledge from clinical trials for treatment of thyroid cancer and measurement of the outcome of such therapies.
- Evaluate thyroid storm and Myxedema coma and their etiopathology and treatment.
- Evaluate theories behind alteration of lipid metabolism in various forms of thyroid disorders.

#### 3. Lipid disorders:

- Recognize the pathogenesis of various classes of dyslipidemias and what aspects are important in the evolution of the Metabolic Syndrome.
- Manage dietary and pharmacological therapies of dyslipidemias and the recent NCEP guidelines for such.
- Recognize various hypotheses for the development of atherosclerosis, oxidative stress, and the role of antioxidants in the prevention of atherogenesis and the controversy regarding the use of vitamin C and vitamin E.

#### **4. Hypertension:**

- Recognize various endocrine organs dysfunction that leads to the development of hypertension and the pathogenesis of each etiologic factor.
- Use the latest advances and diagnostic maneuvers to differentiate between hypertension due hyperaldosteronism, Cushing's, and pheochromocytoma as well as hypercalcemia and hyperthyroidism.

#### **5. Metabolic bone disorders:**

- Recognize the important role of diet and hormones in the genesis of osteopenia and osteoporosis.
- Recognize indications for bone densitometry and how to interpret the results.
- Describe treatment options for various forms of osteoporosis (postmenopausal, corticosteroid-induced).
- Diagnose vitamin D intoxication and vitamin D deficiency describing the clinical features of each and the management of each disorder.
- Recognize Vitamin D intoxication in both children and adults.
- Recognize the metabolic pathway of Vitamin D, the active form of this vitamin, and the site in the body where this vitamin is converted to its active form.
- Recognize the important molecular mechanism of PTH in bone and other tissue. Diagnose various forms of hypo and hyperparathyroidism.

#### **6. Calcium:**

- Distinguish between hypercalcemia of neoplastic origin versus hypercalcemia associated with parathyroid adenoma.
- Diagnose by imaging method between hyperparathyroid and thyroid disease; the medical versus surgical management; and theory behind each method.
- Describe the management of hyper and hypocalcemic crises and the theory behind such therapies.

#### **7. Adrenal disorders:**

- Recognize the physiology and pathophysiology of adrenal disorders as well as the hypothalamic pituitary adrenal axis disturbances resulting in the over-activity or the under-activity of the adrenal in Cushing's and Addison's.
- Diagnose and manage Cushing's syndrome and adrenal insufficiency
- Describe how to utilize radiological methods to distinguish and locate the site of the tumor.
- Describe how to recognize and manage Addisonian crisis.
- Describe methods to distinguish between primary and secondary hyperaldosteronism and bilateral adrenal hyperplasia
- Describe the clinical signs and differential diagnosis of pheochromocytoma and the pathogenesis of this tumor in multiple endocrine adenomatosis (MEA).
- Describe the latest advancements in the understanding of the metabolic pathway of adrenomedullary hormones and various metabolites.
- Describe how various medicines may interfere with urinary tests in the work-up of pheochromocytoma and what may be done to avoid these problems.

## **8. Pituitary disorders:**

- Recognize the clinical symptoms and signs of hypopituitarism and hyperpituitarism (acromegaly, Cushing's disease, prolactinoma), and be able to distinguish the etiopathologic pathways for development of each.
- Describe the pathogenic pathways for the development of Cushing's disease and how to diagnose by use of radiological manipulation.
- Be able to tell the percent surgical success for the major pituitary tumors (acromegaly, Cushing's, and prolactinoma).
- Describe the alternative methods to surgical procedures in the above-mentioned pituitary tumors. Distinguish between a pituitary apoplexy and empty Sella and propose a work-up for each.

## **9. Gonadal dysfunction:**

- Diagnose male hypogonadism and prevalence in the general population versus individuals with type 2 diabetes.
- Diagnose and treat impotency and anorgasmia.
- Diagnose hypogonadism in the female including primary and secondary amenorrhea and how to distinguish, diagnose, and treat such conditions.
- Explain the latest theory regarding the evolution of the polycystic ovary syndrome (PCOS) and the effect of insulin on the evolution of such a syndrome.
- Explain the role of PCOS in the development of metabolic syndrome and the latest theory on managing such patients by medical intervention.

## **10. Other Aspects of Endocrine and Metabolic Disease Management:**

- Recognize the controversy regarding hormone replacement therapy and the data presented to justify or discourage the use of such hormones in different populations.
- Describe the use of appropriate medications in regard to efficacy, cost, and side effects in various endocrine disorders.

# Description of the Curriculum for Endocrinology, Diabetes and Metabolism Residency Training Program at The University of Tennessee Health Science Center

## Objective

The University of Tennessee Endocrinology Subspecialty Training Program is a two-year program that offers progressive experience and expertise in the scientific and clinical foundations of endocrinology, diabetes and metabolism. The ultimate mission of our program is to inculcate a habit of scholarship, continuing medical education, and excellence in the mastery of the principles and practice of endocrinology among graduates. The program curriculum encompasses core competencies in evidence-based clinical practice as well as clinical and basic science research. The clinical curriculum provides opportunities for acquisition of skills in the diagnosis, management and follow-up of a broad range of endocrine and metabolic disorders, sufficient to earn board certification in the subspecialty of endocrinology, diabetes and metabolism. This program is supported by institutional funds and involves two years of clinical training, integrated with the opportunity to conduct clinical or basic research. The overall curriculum consists of didactic lectures, seminars, and presentations on the pathophysiological basis of endocrine disease as well as hands-on experience in the diagnosis and management of diabetes and diverse endocrine- metabolic disorders. The clinical training sites are based at the following University of Tennessee affiliated health institutions: the UT Bowld Hospital/ Regional Medical Center (400 beds), the Methodist University Hospital (840 beds), and the Memphis VA Medical Center (293 beds). In addition, trainees have access to Le Bonheur Children's Hospital (225 beds) for acquisition of clinical experience in pediatric endocrinology. Training in ambulatory medicine is provided at the following outpatient clinics: 1) the Memphis V A Endocrine Clinic, 2) the MedPlex Endocrine Clinic at Regional Medical Center, 3) the MedPlex Diabetes Clinic at Regional Medical Center, 4) Pediatric Endocrine Clinic at Le Bonheur Children's Hospital, 5) Reproductive Endocrinology Clinic at Rout Center for Women, 6) private practices of faculty members at the UTMG Adult Endocrinology Clinics on Eastmoreland, 7) the Lipid Outpatient Clinic at the UTMG Germantown facility, 8) A.M. Diabetes Center (a community clinic run by Kashif Latif, M.D.) and 9) The West Clinic. **There is also opportunity for trainees to participate in advanced endocrinology courses held in institutions outside the University of Tennessee, where they acquire additional hands-on experience in thyroid ultrasonography, fine needle aspiration biopsy, and bone densitometry.**

**A. Didactic Program: This program consists of three components.**

1. Tutorial lectures are presented weekly by the faculty or guest speakers that cover a wide range of topics including:
  - a. Principles of hormone action and assay methodology
  - b. Adrenal disorders
  - c. Thyroid disorders
  - d. Diabetes Mellitus- Epidemiology and pathogenesis
  - e. Diabetes Mellitus- complications
  - f. Diabetes Mellitus- Management
  - g. Diabetes and Thyroid disease in Pregnancy
  - h. Molecular biology for the endocrinologist
  - i. Hypothalamic/Pituitary disorders
  - j. Hypercalcemia
  - k. Hypoglycemia
  - l. Thyroid Disease
  - m. Calcium & Parathyroid disorders
  - n. Multiple Endocrine Neoplasia
  - o. Atherosclerosis
  - p. Metabolic Bone Disease
  - q. Sexual differentiation & Gonadal disorders
  - r. Endocrine adaptations during systemic illness
  - s. Principles of Nutrition
2. The trainees are also required to participate in the Endocrine core curriculum lectures for the housestaff that are given once a month and cover all areas of endocrinology, diabetes and metabolism.
3. The trainees are also required to attend the endocrinology module of the pathophysiology course offered to 2nd year medical students. An updated syllabus (written by the faculty) containing all topics covered during the course is provided for the trainees to study. The trainees are given pre and post-tests based on the lecture material and syllabus at the beginning and end of each academic year.

## **B. Clinical Program**

### **Hospital Block #1**

**Methodist University Hospital/Regional Medical Center  
842 Jefferson Avenue  
Memphis, TN 38103**

#### **Overview on Structure of this rotation for the fellows in training**

Fellows rotate through this block of hospitals for a minimum of 6 months during each year to acquire training in ambulatory endocrinology and inpatient consultative skills. The ambulatory clinics at these locations specifically provide opportunity for diagnosis, treatment, and follow-up of patients with type 1 and type 2 diabetes, metabolic syndrome, thyroid disorders, adrenal disorders, metabolic bone disease, and pituitary disorders, among others. A major focus at these clinics is the development of practical experience 1) the performance of fine needle aspiration biopsy of thyroid nodules, 2) assessment of endocrine images (ultrasound, CT and MRI), 3) evaluation of laboratory tests, and 4) performance and interpretation of provocative and suppressive endocrine tests, under the supervision of training faculty and attending physicians. Examples of dynamic endocrine tests that are routinely carried out in these facilities include Cosyntropin Stimulation Test, Dexamethasone Suppression Test, Saline Suppression Test for Hyperaldosteronism, Insulin Tolerance Tests, and Endometrial Stimulation/Withdrawal Tests using progesterone with or without estrogen priming. Evaluation will be completed at the end of this rotation. Evaluations of performance are performed on-line by a member of the clinical faculty each month. These on-line evaluations are based on the New Innovation software and are regulated by the university's GME office according to ACGME guidelines.

#### **GOALS AND OBJECTIVES:**

The rotation at Methodist University Hospital/Regional Medical Center is designed to provide a setting where trainees in the UT Health Sciences Center endocrinology fellowship program can obtain hands-on experience in the diagnosis, management and follow-up of patients with endocrine and metabolic disorders, under the supervision of expert faculty. In addition, this rotation provides a clinical setting for the acquisition of skills in provocative and suppressive diagnostic procedures, performance and interpretation of fine needle aspiration biopsy of the thyroid, and related specialized diagnostic procedures during the endocrinology fellows training program at the UT Health Sciences Center.

#### **AIMS:**

1. To provide a hospital site/environment to the University of Tennessee Health Science Center for training of fellows in the Division of Endocrinology, Department of Medicine.
2. To provide access to a diverse group of patients with a broad spectrum of endocrine/metabolic disorders that complements the training structure at the University of Tennessee Health Science Center, Memphis, Tennessee, in a manner that complies with ACGME regulations.
3. To provide a hospital site in conjunction with the University of Tennessee Health Science

Center training program where the business, ethical, and humanistic aspects of the practice of medicine are taught, and where appropriate skills are transferred to trainees.

## **DESCRIPTION:**

These facilities consist of a) Methodist University Hospital; and b) Regional Medical Center. Both the Methodist University Hospital and the Regional Medical Center are full-service institutions with a comprehensive slate of inpatient and outpatient multi-specialty disciplines and expertise in surgical and medical services.

- **Outpatient Clinics.** Located at the MedPlex wing of the Regional Medical Center, these clinics consist of one half-day Endocrine Clinic (Thursday afternoons) and a half-day Diabetes Clinic (Friday mornings). Each MedPlex clinic is designated as one of the Continuity Clinic as required by ACGME regulations. In addition to faculty members, two nurse practitioners, a Certified Diabetes Educator and a nutritionist attend these clinics for instantaneous deployment, as indicated by patient-care needs.

The methodology for training and education in the diagnosis and management of endocrine-metabolic disorders in this setting consist of:

- Performance of a history and physical examination on patients with endocrine-metabolic disorders.
- Presentation to a faculty member of the historical data and physical findings and pertinent pre-existing or accompanying laboratory data. The faculty member confirms and/or corrects the clinical data following a brief evaluation of the patient in the examination room.
- Progressive, graduated responsibility for the development of diagnostic plans based on available clinical data.
- Progressive, graduated responsibility for the selection and conduct of various provocative (or suppressive) diagnostic endocrine tests and performance and interpretation of fine needle aspiration biopsy of the thyroid gland, under the supervision of a staff endocrinologist
- Progressive, graduated responsibility for the development of treatment plans based on clinical data and results from ancillary diagnostic testing.
- Progressive, graduated responsibility for communication of the findings with the patient and the referring physician.
- Progressive, graduated responsibility for integration of new information from the patient, the referring primary care physician, the patient's course, and emerging laboratory results.
- Progressive, graduated responsibility for implementation of systematic follow-up, including skillful determination of appropriate follow-up intervals and final disposition and discharge from follow-up, as appropriate.

**Inpatient Rotation:** The objective of the inpatient component of the endocrinology fellowship training program is to enable trainees develop into expert consultants in the field of endocrine-metabolic disorders. Inpatient consultations requests for expert endocrine opinion are fielded from the general medical floors as well as from a broad array of medical

and surgical specialty services. The inpatient rotation provides opportunity for acquisition of skills in the practice of specialist consultative endocrinology, interdisciplinary interactions, intellectual exchange, and advanced diagnosis and management of endocrine-metabolic disorders. Each endocrinology fellow spends a total of 8 months on the inpatient rotation, spread over two years. Consultation requests are called in to our division's office by needy services and are responded to by the fellow on service, usually accompanied by a medical resident and one or more medical students rotating through endocrinology service. After initial assessment, the fellow presents the patient to the attending endocrinologist on service during daily Inpatient Consult Rounds followed by bedside assessment of the patient by the attending physician. The methodology for teaching clinical skills in endocrinology, diabetes and metabolism during the inpatient rotation includes:

- Performance of a history and physical examination on patients with endocrine-metabolic disorders.
- Presentation to endocrinology faculty member of the historical data and physical findings and pertinent pre-existing laboratory data.
- Bedside demonstration by the faculty member of the proper methods for elicitation of pertinent history and performance of focussed physical examination to confirm and/or corrects the clinical data presented by residents.
- Progressive, graduated responsibility for the development of diagnostic plans based on available clinical data.
- Progressive, graduated responsibility for the selection of basal and dynamic endocrine diagnostic tests.
- Progressive, graduated responsibility for the development of treatment plans based on clinical data and laboratory results.
- Progressive, graduated responsibility for communication of the findings with the patient and the referring physician.
- Progressive, graduated responsibility for integration of new information from the patient, the patient's clinical course, and emerging laboratory results.
- Directed reading based on patient encounters and references provided by faculty members individually and through conferences.

Fellows are supervised by faculty in all patient encounters. While fellows are given progressively increasing levels of responsibility, each patient they see is also seen by a faculty member. Fellows are expected to read about their patients' problems and incorporate the new information gleaned into the care of their patients. This background study is facilitated by the ready availability of a variety of online services, including Up-to-Date, Medline, and PubMed. References to specific patient-related issues are provided by the faculty working with the fellow in inpatient and outpatient settings and references to specific topics are provided during conferences and lectures and summarized in handouts.

Examples of reading materials recommended to endocrinology fellows include:

Consultations: Goldman L, Lee T, Rudd P. The Ten Commandments of Effective Consultations. *Ann Intern Med* 143:1755, 1983.

Diabetes: American Diabetes Association, Standards of Medical Care in Diabetes, *Diabetes Care* 27 (suppl 1):S15-S35, 2004.

DCCT/EDIC Research Group. Sustained effect of intensive treatment of type 1 diabetes mellitus on development and progression of diabetic nephropathy: the Epidemiology of Diabetes Interventions and Complications (EDIC) study. JAMA 290:2159-2167, 2003.

UK Prospective Diabetes Study (UKPDS) Group. Glycemic control with diet, sulfonylurea, metformin, or insulin in patients with type 2 diabetes mellitus: progressive requirement for multiple therapies (UKPDS 49). JAMA 281:2005-2012, 1999.

Hyperlipidemia: National Cholesterol Education Program/Adult Treatment Panel III. Cardiol Clin 21(3):393-8, 2003.

Bone metabolism: Primer on the Metabolic Bone Diseases and Disorders of Mineral Metabolism. Lippincott Williams & Wilkins.

Thyroid: Arbelle JE, Porath A. Practice guidelines for the detection and management of thyroid dysfunction. Clin Endocrinol 51:11, 1999.

General endocrinology: William's Textbook of Endocrinology.

**The above is not an exhaustive list; fellows are always encouraged to update their knowledge base in endocrinology through constant review of the current journal literature. The University of Tennessee Medical Library provides all faculty, fellows, residents, and medical students direct access to online versions of the leading biomedical journals through institutional subscription.**

### **Nutrition In-Service Duties:**

Each Resident will rotate for two weeks with the In-Patient Medical Nutrition Service during the months that they are on consult service for the Endocrine Division. A pre-and posttest evaluating knowledge of the principles of Medical Nutrition Therapy will be administered.

*A copy of all consultation notes written by trainees are kept in a Log Book and maintained in the Divisional Office for evaluation and documentation. Each resident is also required to log all procedures online in the New Innovation System that is maintained by the GME office of the University of Tennessee.*

### **EVALUATION:**

Evaluations of the resident are based on:

1. Direct observation by the attending physicians.
2. Performance as providers in clinics.
3. Evaluation of computer/electronic data management skills.

4. Interpersonal interaction with patients as well as with the staff and attending/supervising physicians.
5. Evaluation of comprehension of electronic data management and evaluation.
6. Evaluation of appreciation and comprehension of disease management programs.
7. Evaluation of understanding of financial aspects of practice management as well as coding/billing capabilities.

The trainees are evaluated systematically in the following areas: Patient Care, Medical Knowledge, Practice-Based Learning Improvement, Interpersonal and Communication Skills, Professionalism, System-Based Learning, Overall Clinical Competence, and Chart review Audit. Competency in each domain is graded on an ascending scale of 1-9. Every evaluation contains an indication as whether it has been reviewed with the resident. (RRC REQUIREMENTS). The domains of evaluation and defined ranges are indicated below:

### 1. PATIENT CARE

Incomplete, inaccurate medical interviews, physical examinations, and review of other data; incompetent performance of essential procedures; fails to analyze clinical data and consider patient preferences when making medical decisions; Superb, accurate, comprehensive medical interviews, physical examinations, review of other data, and procedural skills; always makes diagnostic and therapeutic decisions based on available evidence, sound judgment, and patient preferences

### 2. MEDICAL KNOWLEDGE

Limited knowledge of basic and clinical sciences; minimal interest in learning; does not understand complex relations, complex relations, mechanisms of disease; Exceptional knowledge of basic and clinical sciences; highly resourceful development of development of knowledge; comprehensive understand of complex relationships, mechanisms of disease

### 3. PRACTICE-BASED LEARNING IMPROVEMENT

Fails to perform self-evaluation; lacks insight, initiative; resists or ignores feedback; fails to use information technology to enhance patient care or pursue self-improvement; Constantly evaluates own performance, incorporates feedback into improvement activities; effectively uses technology to manage information for patient care and self-improvement

### 4. INTERPERSONAL AND COMMUNICATION SKILLS

Does not establish even minimally effective therapeutic relationships with patients and families; does not demonstrate ability to build relationships through listening, narrative or nonverbal skills; does not provide education or counseling to patients, families, or colleagues; Establishes a highly effective therapeutic relationship with patients and families; demonstrates excellent relationship building through listening, narrative and nonverbal skills; excellent education and counseling of patients, families, and colleagues

## 5. PROFESSIONALISM

Lacks respect, compassion, integrity, honesty; disregards need for self-assessment; fails to acknowledge errors; does not consider needs of patients, families, colleagues; does not display responsible behavior --- Always demonstrates respect, compassion, integrity, honesty; teaches/role models responsible behavior; total commitment to self-assessment; willingly acknowledges errors; always considers needs of patients, families, colleagues

## 6. SYSTEM-BASED LEARNING

Unable to access/mobilize outside resources; actively resists efforts to improve systems of care; does not use systematic approaches to reduce error and improve patient care; Effectively accesses/utilizes outside resources; effectively uses systematic approaches to reduce errors and improve patient care; enthusiastically assists in developing systems' improvement

## 7. OVERALL CLINICAL COMPETENCE

Resident's overall clinical competence on rotation

## 8. CHART REVIEW AUDIT

Maintains poor charts reflecting inappropriate format, poor legibility, poor clinical judgment and diagnostic reasoning, and less desirable patient outcomes; Maintains superb charts reflecting appropriate format, excellent legibility, excellent clinical judgment and diagnostic reasoning, and high quality patient outcomes

Evaluations are completed at the end of this rotation. Evaluations of performance are performed on-line by the clinical faculty each month. These on-line evaluations are based on the New Innovation software and are regulated by the university's GME office according to ACGME guidelines.

## Hospital #2

**Memphis VA Medical Center  
1030 Jefferson  
Memphis, TN 38104**

### **Overview on Structure of this rotation for the fellows in training**

Fellows rotate through the Memphis VA Medical Center for a minimum of 6 months in each year of training, during which they receive exposure to inpatient medicine and attend one weekly outpatient endocrinology clinic. Each clinic session begins with a teaching conference (8 a.m. - 9 a.m.), followed by patient care clinic (9 a.m. – noon). The VA clinic is considered one choice for the required Continuity Clinic as required by ACGME regulations.

The Memphis VA Medical Center offers opportunity for exposure to patients with a wide variety of endocrine-metabolic disorders, including thyroid and parathyroid disorders, pituitary tumors, hypopituitarism, type 1 and type 2 diabetes, metabolic syndrome, obesity, adrenal disorders, osteoporosis, multiple endocrine disorders, hypogonadism, and polyendocrine syndromes. Provocative and suppressive diagnostic procedures as well as FNA for thyroid nodules are routinely performed by residents under supervision of one of the attending physicians.

Structured evaluations are completed at the end of this rotation. The evaluations are completed online by the VA Attending Endocrinologist of the month. These online evaluations are based on the New Innovation software and are regulated by the university's GME office according to ACGME guidelines.

### **GOALS AND OBJECTIVES:**

The rotation at the Memphis VA Medical Center is designed to provide a setting that offers endocrinology fellows access to patients with a wide variety of endocrine-metabolic disorders, including thyroid and parathyroid disorders, pituitary tumors, hypopituitarism, type 1 and type 2 diabetes, metabolic syndrome, obesity, adrenal disorders, osteoporosis, multiple endocrine disorders, hypogonadism, and polyendocrine syndromes.

In addition, this rotation provides a clinical setting for the acquisition of skills in provocative and suppressive diagnostic procedures as well as FNA for thyroid nodules, during the endocrinology fellows training program at the UT Health Sciences Center. The endocrinology residents will interview, examine, evaluate and gain experience in developing treatment plans for patients with diverse endocrine-metabolic conditions, under the supervision of faculty members.

### **AIMS:**

1. To provide a hospital site/environment to the University of Tennessee Health Science Center for training of fellows in the Division of Endocrinology, Department of Medicine.
2. To provide training in a wide spectrum of patients of varying age and race to the fellows in a structured manner to complement the training structure at the University of Tennessee Health Science Center, Memphis, Tennessee and to comply with the ACGME regulations.
3. To provide a hospital site in conjunction with the University of Tennessee Health Science Center training program where the business of medicine is taught and explained to the trainees.

## DESCRIPTION:

**Outpatient Clinic:** This consists of one day a week preceded by a one hour Clinical (teaching/review) Conference. Trainees see a variety of endocrine disorders, including pituitary tumors, type 1 and type 2 diabetes, metabolic syndrome, adrenal disorders, osteoporosis and multiple endocrine neoplasia, and other endocrinopathies. The trainees also receive hand-on training and acquire experience in the performance of dynamic endocrine diagnostic procedures.

**Inpatient Rotations:** **Fellows are assigned to the inpatient consultation service on a rotating basis, spending a total of 8 months spread over the 2 years of training.** During this rotation, the endocrine fellow serves a role model and team leader for a small group of medical residents and medical students on endocrine elective. Each request for endocrine consultation is first handled by medical residents and endocrine fellow and then presented to the attending endocrinologist during regular work/teaching rounds. These rounds are held 3 or more times each week, depending on volume of consult requests. Following presentation of the history, physical examination and laboratory data, the attending physician confirms or corrects pertinent aspects of the patients' findings by the bedside. This is followed by synthesis of available, development of a plan for confirmation of the diagnosis, and further management. Fellows are encouraged to generate a list of differential diagnoses and formulate provisional management plans and defend the rationale for their choices using evidence-based medicine. However, teaching physician makes the final decision regarding patient care. The medicine resident and endocrine resident make daily follow-up rounds and updates the attending physician until the reason for the consultation resolves.

*A copy of all consultation notes written by trainees are kept in a Log Book and maintained in the Divisional Office for evaluation and documentation. Each resident is also required to log all procedures online in the New Innovation System that is maintained by the GME office of the University of Tennessee.*

## EVALUATION:

Evaluations of the resident will be based on:

1. Direct observation by the attending physicians.
2. Performance as providers in clinics.
3. Evaluation of computer/electronic data management skills.
4. Interpersonal interaction with patients as well as with the staff and attending/supervising physicians.
5. Evaluation of comprehension of electronic data management and evaluation.
6. Evaluation of appreciation and comprehension of disease management programs.
7. Evaluation of understandings of financial aspects of practice management as well as coding/billing capabilities.

The trainees are evaluated systematically in the following areas: Patient Care, Medical Knowledge, Practice-Based Learning Improvement, Interpersonal and Communication Skills, Professionalism, System-Based Learning, Overall Clinical Competence, and Chart review Audit. Competency in each domain is graded on an ascending scale of 1-9. Every evaluation contains

an indication as whether it has been reviewed with the resident (RRC REQUIREMENTS). The domains of evaluation and defined ranges are indicated below:

## 1. PATIENT CARE

Incomplete, inaccurate medical interviews, physical examinations, and review of other data; incompetent performance of essential procedures; fails to analyze clinical data and consider patient preferences when making medical decisions; Superb, accurate, comprehensive medical interviews, physical examinations, review of other data, and procedural skills; always makes diagnostic and therapeutic decisions based on available evidence, sound judgment, and patient preferences

## 2. MEDICAL KNOWLEDGE

Limited knowledge of basic and clinical sciences; minimal interest in learning; does not understand complex relations, complex relations, mechanisms of disease; Exceptional knowledge of basic and clinical sciences; highly resourceful development of development of knowledge; comprehensive understand of complex relationships, mechanisms of disease

## 3. PRACTICE-BASED LEARNING IMPROVEMENT

Fails to perform self-evaluation; lacks insight, initiative; resists or ignores feedback; fails to use information technology to enhance patient care or pursue self-improvement; Constantly evaluates own performance, incorporates feedback into improvement activities; effectively uses technology to manage information for patient care and self-improvement

## 4. INTERPERSONAL AND COMMUNICATION SKILLS

Does not establish even minimally effective therapeutic relationships with patients and families; does not demonstrate ability to build relationships through listening, narrative or nonverbal skills; does not provide education or counseling to patients, families, or colleagues; Establishes a highly effective therapeutic relationship with patients and families; demonstrates excellent relationship building through listening, narrative and nonverbal skills; excellent education and counseling of patients, families, and colleagues

## 5. PROFESSIONALISM

Lacks respect, compassion, integrity, honesty; disregards need for self-assessment; fails to acknowledge errors; does not consider needs of patients, families, colleagues; does not display responsible behavior --- Always demonstrates respect, compassion, integrity, honest; teaches/role models responsible behavior; total commitment to self-assessment; willingly acknowledges errors; always considers needs of patients, families, colleagues

## 6. SYSTEM-BASED LEARNING

Unable to access/mobilize outside resources; actively resists efforts to improve systems of care; does not use systematic approaches to reduce error and improve patient care; Effectively accesses/utilizes outside resources; effectively uses systematic approaches to reduce errors and improve patient care; enthusiastically assists in developing systems' improvement.

## 7. OVERALL CLINICAL COMPETENCE

Resident's overall clinical competence on rotation

## 8. CHART REVIEW AUDIT

Maintains poor charts reflecting inappropriate format, poor legibility, poor clinical judgment and diagnostic reasoning, and less desirable patient outcomes; Maintains superb charts reflecting appropriate format, excellent legibility, excellent clinical judgment and diagnostic reasoning, and high quality patient outcomes

Evaluations are completed at the end of this rotation. Evaluations of performance are performed on-line by the clinical faculty each month. These on-line evaluations are based on the New Innovation software and are regulated by the university's GME office according to ACGME guidelines.

### **Hospital #3**

**LeBonheur Children Medical Center  
50 North Dunlap  
Memphis, TN 38103**

#### **Overview on Structure of this rotation for the fellows in training**

The LeBonheur Children Medical Center is the principal site for acquisition of clinical skills in pediatric endocrinology by fellows in our program. Fellows are assigned to the Endocrinology Outpatient Clinic at LeBonheur Children Medical Center one day per week (Wednesdays) for a period of one month, typically during the second year of fellowship training. Specific strengths of this rotation include exposure to developmental endocrinology and diverse endocrinopathies of childhood and adolescence, including growth retardation, precocious puberty, delayed puberty, primary amenorrhea, hypopituitarism, septo-optic dysplasia, endocrine complications of radiation therapy for childhood cancer, congenital adrenal hyperplasia, type 1 and type 2 diabetes, polycystic ovarian syndrome (PCOS), hypo- and hyperthyroidism, hypo- and hyperparathyroidism, vitamin D deficiency or resistant states, multiple endocrine neoplasia, and numerous heredity metabolic diseases of infancy, childhood, and adolescence. Our fellows see and work-up children with these disorders under the supervision of pediatric endocrinology faculty members. The LeBonheur Children Medical Center is a University of Tennessee-affiliated teaching institution and the clinical staff, including members of the pediatric endocrinology division hold joint academic appointments.

Evaluation of fellows' performances is completed at the end of the rotation by one of the pediatric endocrinology faculty members, usually Dr. Burghen, who has the most contact with our fellows rotating through pediatrics. The evaluations are completed online based on the New Innovation software and are regulated by the university's GME office in accordance with ACGME guidelines.

#### **GOALS AND OBJECTIVES:**

The rotation at this location is designed to provide a setting where trainees enrolled in the UT Health Sciences Center endocrinology fellowship training program can receive specific skills and training in the diagnosis and management of common endocrine-metabolic disorders of childhood and adolescence. In addition, this rotation provides a clinical setting for the acquisition of skills in provocative and suppressive procedures as used in the diagnosis of growth and developmental disorders, treatment of common pediatric endocrine disorders, and experience in the use of human growth hormone in clinical therapeutics.

#### **AIMS:**

1. To provide a hospital site/environment to the University of Tennessee Health Science Center for training of fellows in the Division of Endocrinology, Department of Medicine.
2. To provide hands-on experience and training for endocrinology fellows in the elicitation of history and performance of physical examination, diagnostic evaluation, and management of patients with pediatric endocrinopathies in a manner that complements the training structure at the University of Tennessee Health Science Center, Memphis, Tennessee and complies with the ACGME regulations.

3. To provide a hospital site in conjunction with the University of Tennessee Health Science Center training program where the business of medicine is taught and explained to the trainees.

### **DESCRIPTION:**

This is a 400-bed multi-disciplinary pediatric hospital with a large number of outpatient clinics located adjacent to the hospital. There are presently three pediatric endocrinologists who admit patients to this hospital and maintain outpatient clinics at this location. Dr. George Burghen, Professor and Chief of Pediatric Endocrinology, manages approximately 600 pediatric patients with diabetes, metabolic disorders, and other endocrine diseases. Endocrinology residents rotate through Dr. Burghen's outpatient clinic one half day per week for one month. Patients are interviewed, examined and evaluated by the endocrine resident and then are presented to Dr. Burghen for discussion and final disposition. A consultant letter is dictated by the endocrine resident with concurrence of Dr. Burghen and sent to the referring physician.

There are a variety of endocrine cases in this outpatient clinic including growth retardation, central hypothyroidism secondary to radiation for cancer, as well as congenital adrenal hyperplasia, type 1 and type 2 diabetes, polycystic ovarian syndrome (PCOS), metabolic syndrome, Graves disease, hyperparathyroidism and numerous heredity metabolic diseases.

### **EVALUATION:**

Evaluations of the resident will be based on:

1. Direct observation by the attending physicians.
2. Performance as providers in clinics.
3. Evaluation of computer/electronic data management skills.
4. Interpersonal interaction with patients as well as with the staff and attending/supervising physicians.
5. Evaluation of comprehension of electronic data management and evaluation.
6. Evaluation of appreciation and comprehension of disease management programs.
7. Evaluation of understandings of financial aspects of practice management as well as coding/billing capabilities.

The trainees are evaluated systematically in the following areas: Patient Care, Medical Knowledge, Practice-Based Learning Improvement, Interpersonal and Communication Skills, Professionalism, System-Based Learning, Overall Clinical Competence, and Chart review Audit. Competency in each domain is graded on an ascending scale of 1-9. Every evaluation contains an indication as whether it has been reviewed with the resident (RRC REQUIREMENTS). The domains of evaluation and defined ranges are indicated below:

#### **1. PATIENT CARE**

Incomplete, inaccurate medical interviews, physical examinations, and review of other data; incompetent performance of essential procedures; fails to analyze clinical data and consider patient preferences when making medical decisions; Superb, accurate, comprehensive

medical interviews, physical examinations, review of other data, and procedural skills; always makes diagnostic and therapeutic decisions based on available evidence, sound judgment, and patient preferences

## 2. MEDICAL KNOWLEDGE

Limited knowledge of basic and clinical sciences; minimal interest in learning; does not understand complex relations, complex relations, mechanisms of disease; Exceptional knowledge of basic and clinical sciences; highly resourceful development of development of knowledge; comprehensive understand of complex relationships, mechanisms of disease

## 3. PRACTICE-BASED LEARNING IMPROVEMENT

Fails to perform self-evaluation; lacks insight, initiative; resists or ignores feedback; fails to use information technology to enhance patient care or pursue self-improvement; Constantly evaluates own performance, incorporates feedback into improvement activities; effectively uses technology to manage information for patient care and self-improvement

## 4. INTERPERSONAL AND COMMUNICATION SKILLS

Does not establish even minimally effective therapeutic relationships with patients and families; does not demonstrate ability to build relationships through listening, narrative or nonverbal skills; does not provide education or counseling to patients, families, or colleagues; Establishes a highly effective therapeutic relationship with patients and families; demonstrates excellent relationship building through listening, narrative and nonverbal skills; excellent education and counseling of patients, families, and colleagues

## 5. PROFESSIONALISM

Lacks respect, compassion, integrity, honesty; disregards need for self-assessment; fails to acknowledge errors; does not consider needs of patients, families, colleagues; does not display responsible behavior --- Always demonstrates respect, compassion, integrity, honest; teaches/role models responsible behavior; total commitment to self-assessment; willingly acknowledges errors; always considers needs of patients, families, colleagues

## 6. SYSTEM-BASED LEARNING

Unable to access/mobilize outside resources; actively resists efforts to improve systems of care; does not use systematic approaches to reduce error and improve patient care; Effectively accesses/utilizes outside resources; effectively uses systematic approaches to reduce errors and improve patient care; enthusiastically assists in developing systems' improvement

## 7. OVERALL CLINICAL COMPETENCE

Resident's overall clinical competence on rotation

## 8. CHART REVIEW AUDIT

Maintains poor charts reflecting inappropriate format, poor legibility, poor clinical judgment and diagnostic reasoning, and less desirable patient outcomes; Maintains superb charts reflecting appropriate format, excellent legibility, excellent clinical judgment and diagnostic reasoning, and high quality patient outcomes

Evaluations are completed at the end of this rotation. Evaluations of performance are performed on-line by the clinical faculty each month. These on-line evaluations are based on the New Innovation software and are regulated by the university's GME office according to ACGME guidelines.

## Clinic #1

**UTMG Endocrine Clinic  
Outpatient facilities  
1325 Eastmoreland, Suite 360  
Memphis, TN 38105**

### **Overview on Structure of this rotation for the fellows in training**

Fellows attend the UTMG Endocrine Clinic a maximum of 2 half-days per week for a total of 8 months spread over two years. The UTMG Endocrine Clinic houses the private offices of clinical faculty members of the endocrinology division. Evaluations of fellows' performance during this rotation are completed online by the attending endocrinologist. These online evaluations are based on the New Innovation software and are regulated by the university's GME office according to ACGME guidelines.

### **GOALS AND OBJECTIVES:**

The UTMG Endocrinology Clinic rotation at the Memphis VA Medical Center is designed to provide a setting that offers endocrinology fellows access to a private consultative practice environment that attracts patients with various endocrine-metabolic disorders, including thyroid and parathyroid disorders, pituitary tumors, hypopituitarism, type 1 and type 2 diabetes, metabolic syndrome, obesity, adrenal disorders, osteoporosis, multiple endocrine disorders, hypogonadism, and polyendocrine syndromes. In addition, this rotation provides a clinical setting for the acquisition of skills in provocative and suppressive diagnostic procedures as well as FNA for thyroid nodules, during the endocrinology fellows training program at the UT Health Sciences Center. The endocrinology fellow interview, examine, evaluate and gain experience in developing treatment plans for patients with diverse endocrine-metabolic conditions, under the supervision of faculty members.

### **AIMS:**

1. To be an adjunct site to the University of Tennessee Health Science Center for training of fellows in the Division of Endocrinology, Department of Medicine.
2. To provide training in advanced clinical endocrinology to the fellows in a structured manner to complement the training structure at the University of Tennessee Health Science Center, Memphis, Tennessee, and to comply with the ACGME regulations.
3. To provide a site in conjunction with the University of Tennessee Health Science Center training program where the business of medicine is taught and explained to the trainees.

### **DESCRIPTION:**

This is the major site for private practice of the central core faculty, accommodating 4 endocrinologists: Dr. Samuel Dagogo-Jack (General Endocrinology), Dr. Murray Heimberg (Lipid), Dr. Abbas Kitabchi (General Endocrinology), and Dr. Beverly Williams-Cleaves (General Endocrinology).

The fellows interview and examine patients with a variety of endocrine-metabolic disorders, and formulate diagnostic and management plans (under supervision of faculty). Each attending

endocrinologist sees between 7 and 10 patients with the residents during each half-day clinic. Residents may be assigned up to 2 private outpatient clinics at this location per week; on average, each resident sees 1 new patient and 3 return patients. The patients are first seen by the endocrine resident, examined and evaluated, then presented to the endocrinologist who discusses the case with the resident for final disposition of the patient. The resident then dictates a complete outpatient note, which is supplemented by a brief note from the attending endocrinologist.

The methodology for teaching and education in this and all outpatient learning settings in our program consist of:

- Performance of a history and physical examination on patients with endocrine-metabolic disorders.
- Presentation to a faculty member of the historical data and physical findings and pertinent pre-existing or accompanying laboratory data. The faculty member confirms and/or corrects the clinical data following a brief evaluation of the patient in the examination room.
- Progressive, graduated responsibility for the development of diagnostic plans based on available clinical data.
- Progressive, graduated responsibility for the selection and conduct of various provocative (or suppressive) diagnostic endocrine tests and performance and interpretation of fine needle aspiration biopsy of the thyroid gland, under the supervision of a staff endocrinologist
- Progressive, graduated responsibility for the development of treatment plans based on clinical data and results from ancillary diagnostic testing.
- Progressive, graduated responsibility for communication of the findings with the patient and the referring physician.
- Progressive, graduated responsibility for integration of new information from the patient, the referring primary care physician, the patient's course, and emerging laboratory results.
- Directed reading based on patient encounters and references provided by faculty members individually and through conferences.

The attending endocrinologists complete online evaluations of the performance of residents assigned to their clinics on a monthly basis.

## **EVALUATION:**

The trainees will be evaluated on the following:

1. Performance as providers in the sub-specialized endocrine clinics.
2. Evaluation of computer/electronic data management skills.
3. Interpersonal interaction with patients as well as with the staff and attending/supervising physicians.
4. Evaluation of comprehension of electronic data management and evaluation.
5. Evaluation of appreciation and comprehension of disease management programs.
6. Evaluation of understanding of financial aspects of practice management as well as coding/billing capabilities.

## **Clinic #2**

**Ob-Gyn High Risk Pregnancy Clinic  
The Rout Center for Women  
853 Jefferson Ave  
Memphis, TN 38103**

### **Overview on Structure of this rotation for the fellows in training**

Fellows will rotate through the Ob-Gyn High Risk Pregnancy Clinic at the Rout Center for Women one day per week (Wednesday) for a period of one month. This clinic focuses on the screening, diagnosis and management of gestational diabetes; routine management of diabetes in pregnancy; prevention and management of acute metabolic complications of diabetes in pregnancy; and detection and management of thyroid disease and other endocrine disorders associated with pregnancy.

Evaluation will be done monthly as well as annually on an aggregate.

#### **GOALS AND OBJECTIVES:**

The rotation through the **Ob-Gyn High Risk Pregnancy Clinic is designed to** provide opportunity for the development of specific skill sets in reproductive endocrinology and pregnancy-related endocrine perturbations during the UT Health Sciences Center endocrinology fellows training program. An additional objective of this rotation is to provide trainees opportunity for hands-on experience in the diagnosis and management of diabetes, thyroid disease and other endocrine disorders associated with pregnancy (under supervision of faculty).

#### **AIMS:**

1. To be an adjunct site to the University of Tennessee Health Science Center for training of fellows in the Division of Endocrinology, Department of Medicine.
2. To provide training in sub-specialized areas of endocrinology to the fellows in a structured manner to complement the training structure at the University of Tennessee Health Science Center, Memphis, Tennessee and to comply with the ACGME regulations.
3. To provide a site in conjunction with the University of Tennessee Health Science Center training program where the business of medicine is taught and explained to the trainees.

#### **DESCRIPTION:**

The Ob-Gyn High Risk Pregnancy Clinic at the Rout Center for Women, UTHSC, receives approximately 2000 individual visits by pregnant patients each year, of which at least 20% are high risk (principally gestational diabetes and diabetes in pregnancy). The endocrine resident rotating through this service (one full day each week for one month) is supervised by 2 to 3 Ob-Gyn faculty. The endocrine resident examines and evaluates patients and discusses the cases with the attending physicians before discharging the patient. During this rotation, the residents acquire experience in the management of diabetes during pregnancy, gestational diabetes and other endocrine disorders associated with pregnancy.

**EVALUATION:**

The trainees will be evaluated on the following:

1. Performance as providers in the sub-specialized endocrine clinics.
2. Evaluation of computer/electronic data management skills.
3. Interpersonal interaction with patients as well as with the staff and attending/supervising physicians.
4. Evaluation of comprehension of electronic data management and evaluation.
5. Evaluation of appreciation and comprehension of disease management programs.
6. Evaluation of understandings of financial aspects of practice management as well as coding/billing capabilities.

### **Clinic #3**

**Lipid Clinic at Germantown Facility  
7945 Wolf River Bend  
Germantown, TN 38138**

#### **Overview on Structure of this rotation for the fellows in training**

Fellows rotate through the Lipid Clinic at Germantown Facility for one half-day per week for 4 weeks. This clinic specifically provides specialized care for patients with various heredity and acquired disorders of lipid and lipoprotein metabolism, as well as dyslipidemias associated with diabetes, obesity, thyroid disease and the metabolic syndrome.

Evaluation of fellows' performance is completed each monthly as well as annually.

#### **GOALS AND OBJECTIVES:**

The Lipid Clinic rotation is designed to provide a setting where the UT Health Sciences Center endocrinology fellowship training program can be complemented with a site geared towards specific skills in advanced diagnosis and management of a broad spectrum of lipid and lipoprotein disorders.

Another objective is to facilitate exposure of trainees to a large group of patients from a suburban demographic population with specific endocrine disorders. The fellows interview, examine, evaluate and develop treatment plans (under supervision of faculty) for patients with various lipid disorders.

#### **AIMS:**

1. To be an adjunct site to the University of Tennessee Health Science Center for training of fellows in the Division of Endocrinology, Department of Medicine.
2. To provide training in sub-specialized areas of endocrinology to the fellows in a structured manner to complement the training structure at the University of Tennessee Health Science Center, Memphis, Tennessee, and to comply with the ACGME regulations.
3. To provide a site in conjunction with the University of Tennessee Health Science Center training program where the business of medicine is taught and explained to the trainees.

#### **DESCRIPTION:**

The Endocrine resident assigned to the Lipid Clinic at Germantown Facility will attend one half-day clinic for one month, working with Dr. Thomas Hughes, MD. The patient load is about 10-15 per clinic and consists of persons with a variety of heredity and non-heredity dyslipidemias, often associated with other metabolic or cardiovascular comorbidities. Operationally, patients are initially interviewed and examined by the endocrine resident, then discussed with Dr. Hughes before disposition. A complete outpatient office note is dictated on each patient seen by the resident and is reviewed and approved by Dr. Hughes.

**EVALUATION:**

The trainees will be evaluated on the following:

1. Performance as providers in the sub-specialized endocrine clinics.
2. Evaluation of computer/electronic data management skills.
3. Interpersonal interaction with patients as well as with the staff and attending/supervising physicians at the A.M. Diabetes Centers.
4. Evaluation of comprehension of electronic data management and evaluation.
5. Evaluation of appreciation and comprehension of disease management programs.
6. Evaluation of understandings of financial aspects of practice management as well as coding/billing capabilities.

## **Clinic #4**

**The West Clinic  
1775 Mt Moriah Woods, Suite #5  
Memphis, TN 38117**

### **Overview on Structure of this rotation for the fellows in training**

Fellows will rotate through this clinic one half-day day per week for 2 months. This clinic deals specifically with disorders of bone and mineral metabolism, and affords our fellows opportunity to learn advanced specialist skills in the management of patients with these disorders. Dr. Palmieri, a member of our faculty and director of this clinic, completes a structured evaluation on each fellow rotating through this facility.

#### **GOALS AND OBJECTIVES:**

The educational goals of this rotation are to permit the fellow to understand the pathophysiology of metabolic bone diseases and other disorders of calcium, phosphorus and magnesium metabolism and to develop clinical expertise in the diagnosis and management of common and uncommon disorders of bone and mineral metabolism. The objectives of this rotation are to teach the fellows to become skilled in the cost-effective use and interpretation of conventional radiographs and sensitive measures of bone mineral density (e.g. dual energy x-ray absorptiometry, etc.) in the diagnosis, management and follow-up of patients with metabolic bone diseases. Fellows also are taught the principles of prevention of osteoporosis and osteoporotic fractures through dietary, exercise, fall prevention and other behavioral strategies. Fellows also learn to diagnose and treat common disorders such as osteoporosis, hyperparathyroidism, and hypoparathyroidism, and to recognize less common disorders such as the, osteomalacia, Paget's disease and osteogenesis imperfecta. The West Clinic rotation also offers valuable exposure of fellows to patients with endocrine malignancies.

#### **DESCRIPTION:**

Dr. Genaro Palmeri and Dr. Raed Imseis, the two full-time endocrinologists at this facility, hold adjunct faculty appointments in the Division of Endocrinology, Diabetes and Metabolism at the University of Tennessee. Patients seen at the West Clinic have a wide range of calcium, bone and parathyroid disorders. The West Clinic is a community referral site for patients with common disorders such as osteoporosis, hyperparathyroidism, hypo-parathyroidism, kidney stones, and other hyper- and hypocalcemic disorders, as well as less common disorders such as the secondary osteoporosis, osteomalacia, vitamin D deficiency/resistance, Paget's disease and osteogenesis imperfecta. The West Clinic also has a major interest in oncology and receives referrals for endocrine malignancies, including malignant hypercalcemia, parathyroid adenoma, and multiple endocrine neoplasia. Patients with non-endocrine malignancies who develop radiation-induced thyroid or pituitary dysfunction also are routinely referred to the endocrine clinic. Endocrine residents usually spend one half-day a week for two month at this clinic where they see an average of 5- 7 patients and attend inpatient rounds at Baptist Hospital with one of the endocrinologists. Each assigned patient is first seen by the endocrine resident, evaluated and then discussed with the attending endocrinologist for final disposition.

**EVALUATION:**

The trainees will be evaluated on the following:

1. Performance as providers in the sub-specialized endocrine clinics.
2. Evaluation of computer/electronic data management skills.
3. Interpersonal interaction with patients as well as with the staff and attending/supervising physicians.
4. Evaluation of comprehension of electronic data management and evaluation.
5. Evaluation of appreciation and comprehension of disease management programs.
6. Evaluation of understandings of financial aspects of practice management as well as coding/billing capabilities.

**Clinic #5:**

**A.M. Diabetic Center, P.L.L.C.  
2996 Kate Bond Road  
Bartlett TN 38133**

**Overview on Structure of the rotations at A. M. Diabetes Centers for the fellows in training**

Kashif A. Latif, M.D. and M. Nauman Quereshi, M.D., are the two teaching faculty members at the A. M. Diabetes and Endocrinology Centers, an important resource that complements our training program in three specific areas: The Monday clinic, the Friday clinic, and St. Francis Hospital Inpatient Consult Service. The Monday clinic is dedicated to practical aspects of the management of type-1 diabetes using traditional approaches and new technologies (including insulin pens and pumps, alternative site monitoring devices, Glucowatch Biotracker, etc). The Friday clinic is devoted to the comprehensive management of gestational diabetes, including pre-pregnancy planning and metabolic optimization, glycemic monitoring, and monitoring of fetal biophysical parameters and determination of optimal delivery time (in close collaboration with OB/GYN). Fellows on this rotation evaluate diabetic patients under the supervision of an attending endocrinologist, whom they also accompany on inpatient consult rounds at St. Francis Hospital. During this rotation, trainees have opportunity to experience inpatient consultative practice in a community hospital setting (either St. Francis Hospital East or St. Francis Hospital Bartlett). In addition to two half-day clinics, on Monday and Friday respectively, fellows have the opportunity to make inpatient rounds with the attending faculty member up to three days a week for one month and on weekends during the month as their schedule permits. A wide range of patients with common endocrine-metabolic disorders are seen during these inpatient consultative rounds.

**OBJECTIVES:**

The rotation at **A.M. Diabetic Center** provides access to an adjunct site where the UT Health Sciences Center endocrinology fellowship training program can be complemented with opportunity for the acquisition of practical skills in advanced diabetes management using traditional approaches and new technologies. This rotation also provides practical experience and training in medical coding, billing, and reimbursement issues as they relates to the practice of clinical endocrinology, while also providing additional experience in the management of gestational diabetes and general endocrinology in a community setting.

**AIMS:**

1. To be an adjunct site to the University of Tennessee Health Science Center for training of fellows in the Division of Endocrinology, Department of Medicine.
2. To provide training in sub-specialized areas of endocrinology to the fellows in a structured manner to complement the training structure at the University of Tennessee Health Science Center, Memphis, Tennessee.
3. To provide a site in conjunction with the University of Tennessee Health Science Center training program where the business of medicine is taught and explained to the trainees.

**DESCRIPTION:**

A.M. Diabetes and Endocrinology Centers specialize in treatment of patients with diabetes and endocrine disorders. At the A.M. Diabetes Centers, the environment is very conducive to evaluation of patients seen in specific subspecialty clinics (type-I diabetes clinics, insulin pump clinics, bone metabolism clinics including instruction in interpretation of DEXA scans, gestational diabetes clinics and training in thyroid ultrasonography and ultrasound guided procedures/biopsies) in addition to general endocrinology clinics. Along with the clinical experience, A.M. Diabetes Center has a program geared towards diabetes education for the patients in a structured fashion. During training and rotation through the A.M. Diabetes Centers the fellows will be able to rotate through these specific clinics in order to gain adequate experience towards treatment of specific endocrine disorders.

The A.M. Diabetes Centers provide a unique opportunity to manage groups of patients under disease management programs, especially for type-I diabetes and gestational diabetes. This program is backed by a state of the art information system that captures 100% of patient demographics, disease state, examination findings, laboratory results and clinical outcomes. This environment will provide the trainees with the opportunity to understand and be able to learn the intricate details of disease management, as well as the infrastructure that goes into the development of such a program. In addition to the clinical aspects and outcomes evaluation, the program is geared to educate trainees with the economical aspects of treating large population with chronic illnesses.

The infrastructure of this program is based on five clinics spanning a geographical area of West Tennessee staffed by extremely well trained diabetic educators, dietitians, nursing staff and medical billing personal. This program is supported by a network infrastructure that consists of comprehensive communication between the centers and an electronic medical record system that captures all of the clinical, laboratory and financial information and has the ability to report data on a per encounter basis as well as aggregate data for any variable in the description above.

**EVALUATION:**

The fellows are evaluated for the outcomes that they achieve while caring for their patients. For this to materialize it is planned that fellows will maintain a cohort of patients whom they follow long-term during the fellowship training period.

The trainees will be evaluated on the following:

1. Performance as providers in the sub-specialized endocrine clinics.
2. Evaluation of computer/electronic data management skills.
3. Interpersonal interaction with patients as well as with the staff and attending/supervising physicians at the A.M. Diabetes Centers.
4. Evaluation of comprehension of electronic data management and evaluation.
5. Evaluation of appreciation and comprehension of disease management programs.
6. Evaluation of understanding of financial aspects of practice management as well as coding/billing capabilities.

**Clinic #6**

**Veterans Administration (VA) Ob-Gyn Clinic  
Memphis VA Medical Center  
1030 Jefferson  
Memphis, TN 38014**

**Overview on Structure of this rotation for the fellows in training**

Fellows will rotate through the VA Ob-Gyn Clinic one day per week (Wednesday) for a period of one month. This clinic focuses on the screening, diagnosis and management of female reproductive disorders, including dysfunctional uterine bleeding, infertility, genital infections and diverse gynecological disorders.

Evaluation will be done monthly as well as annually on an aggregate.

**OBJECTIVES:**

1. To provide a setting where the UT Health Sciences Center endocrinology fellows training program can be complemented with a site geared towards the development of specific skill sets in female reproductive disorders.
2. To provide trainees opportunity for hands-on experience in the diagnosis and management of common gynecological problems, including dysfunctional uterine bleeding, hyperandrogenism, hirsutism/virilization, genital tumors and infections (under supervision of faculty).

**AIMS:**

1. To be an adjunct site to the University of Tennessee Health Science Center for training of fellows in the Division of Endocrinology, Department of Medicine.
2. To provide training in sub-specialized areas of reproductive endocrinology to the fellows in a structured manner to complement the training structure at the University of Tennessee Health Science Center, Memphis, Tennessee and to comply with the ACGME regulations.
3. To provide a site in conjunction with the University of Tennessee Health Science Center training program where the business of medicine is taught and explained to the trainees.

**DESCRIPTION:**

The Ob-Gyn Clinic at the Memphis VAMC receives approximately 25 outpatient visits daily by women with a wide variety of reproductive and gynecological disorders. The endocrine resident rotating through this service (one full day each week for one month) is supervised by Dr. Margaret Summitt, Ob-Gyn Clinic Director and Chief. Dr. Summitt also serves as a volunteer faculty member for the University of Tennessee. The endocrine resident examines and evaluates patients and discusses the cases with Dr. Summitt. After which, Dr. Summitt and the resident will jointly review diagnostic and management decisions with the patient before final disposition. During this rotation, the residents acquire experience in the elicitation of focused medical history and physical examination in women presenting with a variety of reproductive

and gynecological disorders, learn to formulate appropriate differential diagnosis, select pertinent laboratory tests, and acquire skills in management and follow-up decision-making. This clinic is a division of the VA Department of Surgery.

## **EVALUATION:**

The trainees will be evaluated on the following:

1. Basic skills in history taking, physical exam, differential diagnosis, judicious use of laboratory tests as they pertain to reproductive disorders
2. Performance as sensitive, empathetic, and competent providers of specialized health care delivery.
3. Interpersonal interaction with patients as well as with the staff and attending/supervising physicians.
4. Evaluation of competency in accessing and operating electronic data management.
5. Evaluation of appreciation and comprehension of disease management programs.
6. Evaluation of understandings of financial aspects of practice management as well as coding/billing capabilities.

## Clinic #7

**Reproductive Endocrinology**  
**Martin Center for Women's Health & Fertility**  
6215 Humphreys Boulevard, Suite 400  
Memphis, TN 38120

### Overview on Structure of this rotation for the fellows in training

Fellows will rotate through the Martin Center for Women's Health & Fertility (reproductive endocrinology, reproductive surgery, gynecology) one half day per week (choose day of week) for a period of one month. This clinic focuses on the screening, diagnosis and management of female reproductive disorders, including dysfunctional uterine bleeding, infertility, genital infections and diverse gynecological disorders.

Evaluation will be done monthly as well as annually on an aggregate.

#### **OBJECTIVES:**

1. To provide a setting where the UT Health Sciences Center endocrinology fellows training program can be complemented with a site geared towards the development of specific skill sets in female reproductive disorders.
2. To provide trainees opportunity for hands-on experience in the diagnosis and management of common gynecological problems, including dysfunctional uterine bleeding, hyperandrogenism, hirsutism/virilization, genital tumors and infections (under supervision of faculty).

#### **AIMS:**

1. To be an adjunct site to the University of Tennessee Health Science Center for training of fellows in the Division of Endocrinology, Department of Medicine.
2. To provide training in sub-specialized areas of reproductive endocrinology to the fellows in a structured manner to complement the training structure at the University of Tennessee Health Science Center, Memphis, Tennessee and to comply with the ACGME regulations.
3. To provide a site in conjunction with the University of Tennessee Health Science Center training program where the business of medicine is taught and explained to the trainees.

#### **DESCRIPTION:**

Martin Center for Women's Health & Fertility receives approximately 30 outpatient visits daily by women with a wide variety of reproductive and gynecological disorders. The endocrine fellow rotating through this service one half day each week for one month is supervised by Dr. Dan Martin, Clinical Professor, Department of Obstetrics and Gynecology, University of Tennessee Center for Health Sciences. Dr. Martin also serves as director of the second year reproductive endocrinology rotation for the ob-gyn residency. The endocrine fellow examines and evaluates patients and discusses the cases with Dr. Martin. After which, Dr. Martin and the fellow will jointly review diagnostic and management decisions with the patient before final disposition. During this rotation, the residents acquire experience in the elicitation of focused medical history and physical examination in women presenting with a variety of reproductive and gynecological disorders, learn to formulate appropriate differential diagnosis, select pertinent

laboratory tests, and acquire skills in management and follow-up decision-making.

## **EVALUATION:**

The trainees will be evaluated on the following:

1. Basic skills in history taking, physical exam, differential diagnosis, judicious use of laboratory tests as they pertain to reproductive disorders
2. Performance as sensitive, empathetic, and competent providers of specialized health care delivery.
3. Interpersonal interaction with patients as well as with the staff and attending/supervising physicians.
4. Evaluation of competency in accessing and operating electronic data management.
5. Evaluation of appreciation and comprehension of disease management programs.
6. Evaluation of understandings of financial aspects of practice management as well as coding/billing capabilities.

## **C. Research Program**

The details of research programs of individual faculty member are described in the enclosed brochure, which is sent to all endocrine resident applicants. As can be seen, the majority of the full-time faculty has peer-reviewed grant support and are engaged in either basic science or clinical investigation studies. An area of proteomics and genomics has been developed to supplement the ongoing research projects in diabetes and related topics.

Freshman fellows are required to spend time with each faculty member at the beginning of the academic year to discuss ongoing faculty research projects and explore the fellow's interests. After sampling the faculty members for their currently active research projects, fellows are at liberty to seek mentorship from a faculty member involved in a line of research that coincides with the fellow's interest. Subsequent research training and efforts are integrated with the clinical training program. To facilitate acquisition of research techniques or exploration of background necessary for the initiation of a new project, each fellow is allotted partially protected research time (up to 4 months per year). During this period, the fellow's clinical schedules are adjusted to free up time for research: fellows maintain their continuity-of-care clinics but are protected from inpatient rotations. Faculty members who attract fellows to their research projects are required to provide reports on the fellow's progress toward research accomplishment during monthly Division meetings. Fellows also are scheduled to give research seminars and submit abstracts of their work to professional meetings upon completion of their project, or attainment of significant milestones.