FELLOWSHIP PROGRAM IN ENDOCRINOLOGY
Section of Endocrinology and Diabetes
Department of Medicine
University of Oklahoma Health Sciences Center
Oklahoma City

Goal: The goal of this Fellowship Program is to provide comprehensive training in the pathophysiology, evaluation, diagnosis, and management of the broad spectrum of endocrine diseases and diabetes. There is a strong emphasis on research and scholarly activity. A third Fellowship year devoted to research is actively encouraged, and a four year, joint, adult-pediatric Fellowship is available to those trained in combined Internal Medicine and Pediatrics. The Program will prepare and qualify trainees for subspecialty Board Certification, and for a successful academic and/or clinical career in Endocrinology.

Methods: The Program seeks applicants with a strong commitment along with direct clinical and research experience to academic medicine and research. The program provides didactic and self-directed teaching for clinical and research skills.

Clinical training. Clinical training in both in-patient and out-patient settings is based on a mentoring system. As experience is gained and proficiency develops, Fellows are permitted greater independence.

Each Fellow is assigned a Mentor who is member of the Section’s Clinical Competency Committee (CCC). CCC Faculty meet with their mentees every quarter and report to the Program Director bi-annually, prior to milestone reporting. In addition, Fellows are discussed and assessed at a meeting of the Section of Endocrinology Clinical and Fellowship Meetings (held quarterly). The CCC is charged with addressing potential issues that are brought up during those meetings with individual Fellows. In addition, Fellows provide regular feedback to Faculty about the quality of their educational experience. Entrustable Professional Activities (EPAs) and Fellows’ progress through each milestone described for graduate medical education are routinely addressed in clinical settings as well as other venues.

The clinical training program covers all areas of Endocrinology, including thyroid, adrenal, pituitary, and gonadal diseases, and also calcium and bone metabolism, GI hormones, and adipose tissue hormones. There is a major focus on diabetes, dyslipidemia, and obesity. During the Fellowship, elective periods in related areas are encouraged and can be arranged according to the interests of the Fellow; such areas include Pituitary Disease, Pediatric Endocrinology, Ambulatory Endocrinology, Cystic Fibrosis Clinic etc....

In addition, and in order to meet requirements by the ACGME for procedure training and accreditation, mandatory Thyroid Biopsy, Insulin Pump and Bone Density rotations are offered to develop skill proficiency in each of those required procedures.

Research training. All Fellows are expected to become involved with the Section’s research activities, to publish at least one case report per year, and all are encouraged to present their work at a regional or national professional meeting. An additional (third) Fellowship year for research is negotiable and is strongly encouraged; this research year may be incorporated as the first, second, or third year of the Fellowship. Most research conducted in the Section focuses on the complications of diabetes, but there are also abundant opportunities in other areas. These involve both clinical and laboratory-based research. In addition, Fellows participate in Clinical Trials through the Harold Hamm Diabetes Center which is housed in the Clinical Trials Unit of the Harold Hamm Diabetes Center, and is under direct faculty supervision.
**Quality Improvement**: Fellows are expected to participate in and complete a Quality Improvement (QI) project during their training. This may involve any area of endocrinology or diabetes and can be an outpatient or inpatient project, under faculty supervision.

**Core Competencies**: The six core competencies are listed below. Each activity the fellows engage in will cover at least one of these competencies.

1. Medical knowledge.
2. Interpersonal skills and the ability to communicate
3. Professionalism
4. Patient care
5. Practice based learning
6. Systems based practice

**Joint Adult/Pediatric Endocrine Fellowship**: A four-year program leading to Board Certification in both adult and pediatric Endocrinology is available. This program is organized in conjunction with the Section of Pediatric Endocrinology, Department of Pediatrics, at OUHSC. In order to qualify for this program, a potential candidate has to be trained in a combined Internal Medicine/Pediatrics Program.

**SPECIFIC PROGRAM CONTENT**

**A. Clinical Care**

**Endocrinology and Diabetes**

The training program provides opportunities for the Fellow to develop clinical competence in the field of Endocrinology and Diabetes. Clinical experience includes opportunities to diagnose and manage in-patients and out-patients with a wide variety of endocrine and metabolic diseases. As experience is gained, Fellows have the opportunity to function in the role of an endocrinology consultant for other physicians and services in both inpatient and outpatient settings. Specific teaching relating to clinical care is as follows:

1. Fellows receive formal instruction through weekly didactic sessions provided by faculty on:
   a. Endocrine, paracrine and autocrine dysfunction of endocrine tissues
   b. Disorders of all endocrine glands, including the parathyroids, pituitary, thyroid, pancreas, adrenal and gonads and endocrine function of brain, kidney, skin and other “non-endocrine” tissues
   c. Thyroid disorders including:
      1) Hyperthyroidism and hypothyroidism
      2) Nodular thyroid disease
      3) Thyroid cancer
      4) Goiter
      5) All varieties of thyroiditis, including silent, subacute, autoimmune and chronic thyroiditis
      6) Use of thyroid ultrasound for diagnosis and follow-up of thyroid pathology and as a guide to more accurate FNA biopsy of nodular lesions
      7) Thyroid storm
   d. Hypothalamic and pituitary tumors including:
1) Prolactinoma
2) Alpha subunit secreting pituitary tumors
3) Acromegaly
4) Cushing’s disease
5) Gonadotropin-secreting pituitary tumors
6) Thyrotropin-producing pituitary tumors
7) Nonfunctioning tumors
8) Metabolically active lesions
9) Craniopharyngioma

e. Type 1 and type 2 diabetes mellitus, including
   1) Patient monitoring and treatment objectives in children and adults
   2) Acute and chronic complications including:
      a.) Diabetic ketoacidosis
      b.) Hyperosmolar coma
      c.) Hypoglycemia, and
      d.) Microvascular and macrovascular disease including
         1) Diabetic retinopathy
         2) Diabetic nephropathy
         3) Diabetic neuropathy
         4) Diabetic dermopathy
         5) Coronary heart disease
         6) Peripheral vascular disease
         7) Cerebral vascular disease
      e.) Intensive insulin therapy including insulin pump candidate selection, initiation
         of pump therapy and adjustments for optimal control (to that effect, a specific
         insulin pump rotation was established).
      f.) Use of continuous blood glucose monitoring devices.
      g.) Diagnosis and management of infections common in diabetic patients
      h.) Diagnosis and management of diabetic foot disease
   3) Gestational diabetes mellitus and diabetes mellitus complicated by pregnancy
   4) The surgical patient with diabetes
   5) Patient education
   6) Psychosocial issues
   7) Genetics and genetic counseling
   8) Hypoglycemic syndromes
   9) Dietary principles including caloric restriction, therapeutic diets for dyslipidemia,
      carbohydrate counting for intensive insulin regimes and adjustments for periods
      of tube feedings or parenteral nutrition
f. Disorders of calcium and skeletal metabolism
   1) Hyperparathyroidism and other causes of hypercalcemia
   2) Hypoparathyroidism and other causes of hypocalcemia
   3) Metabolic bone diseases
   4) Evaluation and treatment of kidney stones

h. Disorders of blood pressure
i. Neuroendocrinology and endocrine aspects of psychiatric diseases
j. Endocrine aspects of aging, including menopause
k. Endocrine emergencies, including:
   1) Hypercalcemia and hypocalcemia
   2) Thyroid storm
   3) Myxedema coma
   4) Adrenal insufficiency
   5) Pituitary apoplexy
l. Nutritional disorders including obesity
m. Hormone-producing neoplasms
n. Disorders of lipid, carbohydrate and protein metabolism, evaluation and management
o. Appropriate use and interpretations of nuclear medicine studies for endocrine disease states
p. Endocrine adaptation and maladaptations to systemic diseases
q. Disorders of reproductive endocrinology and endocrinologic aspects of sexual dysfunction.
r. Genetic disorders of metabolism
s. Disorders of growth and development
t. Evaluation, diagnosis and management of ambiguous genitalia and other enzyme defects
u. Particulars of thyroid disorders and diabetes in children.

2. Fellows are given opportunities to assume responsibility for and follow patients throughout the training period in both inpatient and outpatient settings in order to observe the evolution and natural history of disease, as well as the efficacy of therapeutic interventions. The educational program includes, on average, a minimum of three half-days each week in ambulatory care. Fellows gain experience of patients who have diabetes, as well as thyroid, neuroendocrine, reproductive and metabolic bone diseases and other general endocrine problems.

3. The curriculum emphasizes biochemistry and physiology, including cell and molecular biology, as they relate to endocrine disorders. The appropriate utilization and the interpretation of clinical laboratory data, radionuclide and radiologic studies for the diagnosis and treatment of endocrine and metabolic diseases are emphasized.

4. Through the Harold Hamm Diabetes Center, Fellows have opportunities to participate in a multidisciplinary diabetes education and treatment program. This experience directly relates to Systems Based Practice Core Competency. Specifically, Fellows participate monthly in an Insulin Pump Rotation. The purpose of this rotation is to allow Fellows to gain knowledge and experience in insulin pump therapy and continuous glucose monitoring and gain proficiency in adjusting settings and troubleshooting issues related to insulin management in this setting.

5. A formal Thyroid Ultrasound and Biopsy course is offered each year to First Year Fellows and all Fellows rotate through the VA Medical Center and the OUP Adult Endocrinology Clinic’s Thyroid Biopsy units. In addition, Fellows are encouraged to attend Tumor Board (a joint activity with the Section of Otolaryngology, which focuses on Thyroid Cancer) and are offered monthly joint conferences with the Section of Nuclear Medicine to discuss challenging cases.

6. Other clinical opportunities are offered to Fellows on an elective basis. Specifically, there are rotations in Pediatric Endocrinology, Pituitary Disease (multi-disciplinary clinic in conjunction with Neuro-Surgery), as well as general Endocrinology and Diabetes ambulatory rotations through the private attending clinics housed at the Harold Hamm Diabetes Center.
B. Teaching Experience
The program provides Fellows with the opportunity to teach medical students, physicians and other professional personnel.

Methods
The Fellow on the consultation Service will:
1) Be responsible for the preliminary review and discussion of consultations seen by students and house staff rotating through the Endocrinology service.
2) Plan, present and/or discuss the cases at the Endocrinology Clinical Case Conferences.

All Fellows will:
1) Present and discuss selected medical literature at Endocrinology Rounds (Tuesdays at 8am) and Endocrinology Research Conference/Journal Club (Wednesdays at 8am).
2) Participate in the conferences of the Department of Medicine.
3) Present research results at Endocrine Research Conference.
4) Fellows that have become competent in specific areas, they will assist with instruction of the other Fellow(s) and Residents in those areas.

Evaluation
A senior faculty member will observe each of these prepared lectures and/or seminars and evaluate the Fellow’s performance.

Resources
The Section of Endocrinology office space in the Harold Hamm Diabetes Center, Suite 2900 provides fellows with state-of-the-art facilities. This includes ample individual desk space, computing, scanning, projection facilities. Clinical work is conducted in the OU Medical Centers, the neighboring Veterans Affairs Medical Center and the Harold Hamm Diabetes Center.

C. Conferences
Conferences are conducted regularly as detailed below. Clinical Fellows are expected to attend all of these, except the Friday Research Conference, which is optional. Many other meetings and seminars are held on campus which is relevant to the Fellow’s education; attendance at these is strongly encouraged.

Endocrine Grand Rounds/Clinical Case conference (Weekly, Tuesdays 8-9 am)
Each Fellow will be responsible for at least one conference every semester. Cases discussed may be those seen on either the consultation or clinic service or during rotations in specialty areas. The Fellow, with the advice of the Attending Physician on the Consultation Service, will prepare and present the case(s) and review the relevant literature. Participation in this activity actively involves multiple sub-competencies. These include Medical Knowledge as the trainee must demonstrate what has been learned about the topic at hand. Clearly, Practice Based Learning is addressed as the topics are selected because of their educational value and interest. Most of these conferences have a direct bearing on the care of endocrinology patients; and, therefore, the Patient Care sub-competency is also a focus. Because trainees present to the group, this conference also can be used to enhance and assess the Interpersonal and Communication Skills sub-competency. Professionalism is assessed by the preparation by the trainee in terms of the knowledge imparted to the audience as well as the nature of the presentation and question-response session at the end of the presentation. At the Case Conference format, critical decisions points and patient care matters distinctly involve identification of system errors that potential led
to poor outcome in many patients. Thus, the Systems Based Practice Core Competency is commonly addressed.

Immediately after each conference by a fellow, the faculty reviews the performance with the fellow and makes recommendations for improvement. The sub-competencies of Professionalism and Practice-Based Learning are assessed in the way the Fellow accepts and integrates feedback.

**Endocrine Research Conference or Journal Club (Weekly, Wednesdays 8-9 am)** During the hour, a faculty member, post-doc, or Fellow will be assigned to present an in depth discussion of his/her research project, or a Basic Science article of his/her choice with potential broad interest and/or application. One research project or journal article is examined each session but supporting articles may also be included. The articles are appraised for methods and techniques as well as statistics. Presenters take into account previous and background data as well as other studies and the strengths and weaknesses of the particular article in order to determine the impact on clinical care. Trainees participating in this conference routinely address the Core Competencies of Medical Knowledge, Practice Based Learning, Professionalism, Patient Care and Interpersonal Skills and Communication in ways to those described above for Endocrine Grand Rounds.

**Endocrine Didactics Conference – Weekly – Variable Time**
This conference takes place every week and lasts 2 hours. During this conference, selected textbooks are reviewed during the first hour. Each week, portions of the textbook are assigned to be read by the group. Each fellow is expected to bring a reference from the current literature which covers an issue discussed in the text book in greater detail. The rotation of texts covered is designed to cover the breadth of endocrinology and includes a basic text of endocrinology, a text of diabetes, a thyroid text and a primer of metabolic bone diseases. In additional selected portions of texts covering fluids and electrolytes are reviewed. The rotation is designed to cover all of these texts every 2 years. The faculty as a group decides every 2 years on the texts to be reviewed. The second hour is spent reviewing the EASP online questions. Trainees participating in this conference routinely address all six Core Competencies. Fellows are strongly encouraged to provide feedback on these sessions and the format/curriculum is regularly updated based on Fellows’ feedback.

**Endocrinology Systems of Care Conference (Quarterly, Tuesdays, 8AM - 9AM)** – This will take place once a quarter during the Tuesday Endocrine Conference time slot and is moderated by a senior Fellow. This conference will focus on system errors and their solutions by using cases from the endocrine inpatient or outpatient practice at the HHDC, OUMC or the VA Medical Center. All six Core Competencies are addressed in this conference. This conference is protected by a non-disclosure agreement and is only open to members of the Section (Fellows and Faculty).

**Nuclear Medicine Conference (Monthly, 2nd Wednesday of the month – 11AM – Noon)**
This conference is a multidisciplinary conference during which the application of nuclear medicine imaging and treatment techniques are discussed. The patients are a mixed population of adult and pediatric patients seen in the clinics of the OUMC, OU Physicians as well as the VA Medical Center. It is attended by faculty in the Nuclear Medicine section of the Department of Radiologic Sciences as well as members of the endocrine faculty. Attendance is required. All six Core Competencies are addressed in this clinic.
Internal Medicine Grand Rounds (Weekly, Wednesdays, 12:15-1:15 pm)
Fellows are expected to attend Medicine Grand Rounds, as well as all other general Internal Medicine conferences that address endocrine related topics. During the course of a year, all six Core Competencies are subjects of Medicine Grand Rounds. During a campus-wide End-of-Life issues week, Medical Grand Rounds is devoted to issues surrounding end of life care.

Research Seminar (Weekly, Fridays 12:30-1:30 pm)
Work in progress in the basic science laboratories of the Section of Endocrinology is presented. Guest speakers are invited about once per month. Fellows are welcome and encouraged to attend.

ENT Tumor Board: Stephenson Cancer Tumor Board (1st and 3rd Fridays 7AM)
This conference is a multidisciplinary tumor board conference to discuss the care of patient with endocrine tumor of the head and neck. It deals primarily with thyroid cancer but other malignancies are discussed as they occur. Fellows will be expected to present the patients they follow and participate in the clinical discussion. They will then be responsible for implementing the treatment plans formulated by the group. Attendance is required once a quarter and if the fellow is involved in the care of the patient under discussion. Trainees participating in this conference routinely address all six Core Competencies.

Internal Medicine Resident Core Curriculum Conferences
Selected conferences each year cover specific topics that are to be addressed by the training program; including statistics, ethics, and quality of care issues. Fellows will be informed when conferences are presented which require their attendance. Trainees participating in this conference routinely address all six Core Competencies.

Internal Medicine Resident Systems of Care Conference
Fellows attend those dealing with patients involving endocrine problems. This conference has recently been altered in format by the parent internal medicine program such that it now focuses on system errors and their solutions. The Endocrine Program Director is a frequent participant. Trainees participating in this conference routinely address all six Core Competencies.

Annual Meetings organized by the Section
The Section of Endocrinology and Diabetes organizes three annual meetings, all related to diabetes, as follows:

1. Diabetes Management & Teaching Strategies. This is held every spring. Its target audience comprises diabetes educators from the state of Oklahoma, to whom it provides education to assist in gaining and maintaining CDE accreditation. Attendance and participation by Fellows is encouraged. Thus, the Core Competencies of Medical Knowledge, Professionalism, Interpersonal/Communication Skills, and Systems Based Practice, and Practice Based Learning all come into play.

2. Diabetes Update. This regional meeting is held in the fall. Its target audience comprises health care professionals of all types caring for patients with diabetes. Core Competencies addressed include Medical Knowledge, Professionalism, Interpersonal/Communication Skills, and Practice Based Learning.

3. Diabetes Research Symposium. For researchers (faculty, fellows, and students) studying any aspect of diabetes at OU or any other Oklahoma school. There is an external invited speaker. The meeting is held each fall. Oral and poster scientific
presentations are made by trainees at this venue. Therefore, Core Competencies include Medical Knowledge, Professionalism, Interpersonal/Communication Skills, and Practice Based Learning.

Fellows are expected to attend and to play an active role in each of these meetings.

**Regional and National Scientific Meetings**

During the course of the Fellowship Program, each Fellow will be provided with the opportunity to attend one regional and one national scientific meeting or conference. These may include the annual scientific meetings of the Endocrine Society, The American Association of Clinical Endocrinology, the American Thyroid Association, The American Diabetes Association, The American College of Physicians etc. The Section of Endocrinology and the Harold Hamm Diabetes Center have set-up funding for trainees to attend any national meeting in which he/she will have the opportunity to present his/her research work.

**D. Procedures**

Fellows must develop a comprehensive understanding of the indications, contraindications, limitations, complications, techniques, and interpretation of results of those technical procedures integral to the discipline. Fellows must acquire knowledge of and skill in educating patients about the technique, rationale and ramifications of procedures and in obtaining procedure-specific informed consent. Faculty supervision of Fellows in their performance is required, and each Fellow’s experience in such procedures will be documented by the program director. Trainees participating in this activity routinely address the Core Competencies of Medical Knowledge, Practice Based Learning, Professionalism, Patient Care and Interpersonal Skills and Communication.

**PROCEDURES and SKILLS**

Each fellow must keep a log of thyroid gland ultrasounds and biopsies performed and each Fellow may keep a log of other procedures observed and performed, the indications for the procedure, any complications, and the interpretation of the results.

<table>
<thead>
<tr>
<th>Indications/Interpretation</th>
<th>Performed</th>
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<tbody>
<tr>
<td>1. Fine needle aspiration biopsy of the thyroid gland under ultrasound guidance</td>
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<td>2. Performance of common endocrine stimulation and suppression tests as well as interpretation</td>
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<td>a) ACTH or cosyntropin (Cortrosyn)</td>
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<td>b) Dexamethasone suppression</td>
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<td>c) Clonidine suppression test</td>
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<td>d) Insulin hypoglycemia</td>
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<td>3. Understanding of the indications, limitations and interpretation of the following endocrine dynamic tests</td>
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<td>a) TRH</td>
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<td>b) GnRH</td>
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<td>c) GHRH</td>
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<td>d) Corticotropin-releasing factor</td>
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<tr>
<td>e) Arginine-infusion</td>
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f) HCG test for Leydig cell function  
g) Intravenous glucose tolerance test  
h) Metyrapone  
i) Clomiphene citrate test  
j) Glucagon stimulation test

3. Insulin Pump and Continuous Glucose Monitoring
4. Management of intravenous insulin delivery
5. Continuous Glucose Monitoring Device
6. Understanding of the technical aspects of hormone assays
7. Understanding of the indications, limitations and technical aspects bone biopsy
8. Pituitary tumors (work-up protocol)
9. Primary aldosteronism (screening and diagnostic work-up)
10. Instructions for the 24-hour urine collection
11. Management of diabetic patients
12. Management of diabetic emergencies
    a) Diabetic ketoacidosis
    b) Hyperosmolar nonketotic coma
13. Management of other endocrine emergencies
    a) Hypoglycemia
    b) Acute adrenal failure
    c) Thyroid storm
    d) Myxedema coma
    e) Hypercalcemia
    f) Hypocalcemia
    g) Hypertensive crisis
14. Bone Mineral Density

E. Critical Assessment and Decision Sciences

Fellows have instruction in the evaluation of medical literature, clinical epidemiology, clinical study design, relative and absolute risks of disease, medical statistics and medical decision-making.

Methods
Each Fellow will
a) Participate in the presentation and discussion of current literature at Endocrine Grand Rounds and Journal Club.

b) Attend the resident’s noon series of lectures (Evaluation of data-based medicine I & II), or attend the 2-day campus-wide seminar ‘Evidence Based Medicine.’

c) Attend the resident’s introductory lectures on work place safety (OSHA)
F. Continuous Quality Improvement

Residents have instruction and experience in the principles, objectives and processes of quality assessment and improvement and risk management.

Methods
Each Fellow will
a) Attend the Orientation session at which risk management issues are presented and undergo yearly training.
   b) Attend a presentation on the principles of quality assessment and improvement. The Department of Medicine periodically provides seminars on Quality Assessment issues in the hospital and practice setting.
   c) Participate in and complete a QI project under faculty supervision

Fellows should:
1) Become familiar with the tools of continuous quality improvement.
2) Become familiar with the 10 steps listed by the JCAHO for the continuous process of monitoring and evaluation of the quality of care.
3) Participate in a quality assessment/improvement project for the division.

References
1. OU Medical Centers Hospital and Clinics Quality Assessment and Improvement Plan 1995.

G. Psychosocial, Economic and Ethical Issues

Training includes cultural, social, family behavioral and economic issues, such as confidentiality of information, indications for life support systems, and allocation of limited resources. Residents must be taught the social and economic impact of their decisions on patients, the primary care physician and society.

Methods
Each Fellow will
a) Be expected to attend either ethics grand rounds, a local or regional conference on ethics in medicine or write a summary report on a problem relating to medical ethics.
   b) Become familiar with the Project Professionalism manual of the American Board of Internal Medicine.

H. Educational and Counseling Skills

Fellows receive instruction and experience in patient counseling skills and community education. This training emphasizes effective communication techniques for diverse populations, as well as organizational resources useful for patient and community education. This includes working with diabetes educators.
I. Research

As part of the academic environment, an active research component is included within the subspecialty program. The program ensures meaningful, supervised research experience with appropriate protected time for each Fellow while maintaining the essential clinical activities. Productivity by Fellows will be required, including publications in peer-reviewed journals. Fellows learn the design and interpretation of research studies, responsible use of informed consent, and research methodology and interpretation of data. The program provides instruction in the critical assessment of new therapies and of the medical literature. Fellows will be advised and supervised by qualified staff members in the conduct of research. There are abundant opportunities for both clinical and laboratory-based research, as outlined above. Please see individual faculty details for further information on research programs.

CLINICAL RESEARCH
Each Fellow will participate in at least one clinical research study to become familiar with:

- Research design
- Drafting a research proposal
- Research safety for human subjects, including informed consent, operations of the Institutional Review Board, and ethics of human experimentation.

Fellows will:

- Write draft of application to IRB and informed consent form
- Explain project to research subject and obtain informed consent
- Data collection and data analysis
- Research ethics and honesty
- Peer review process

Case Studies or Literature Reviews
Each Fellow will write up, for publication, a case study or literature review on a topic of his/her choice under Faculty supervision.

LABORATORY RESEARCH
As detailed under individual faculty research interests, our Section has a highly active research program. There are abundant opportunities for Fellow involvement in this work. We encourage applications for our 3 year, research-orientated clinical Fellowship program.

Bench Research
Each Fellow will become familiar with current methods of hormone assays, including radioimmuno- and immunoradiometric assays.

Research involving animals
Each Fellow participating in research involving animals is required to:

a) Become familiar with the Animal Care and Use Committee policies and federal guidelines by attending a session of the UMC Symposium on Humane Animal Care and Use or by viewing the videotape of the symposium.

b) Read the “Guide for the Care and Use of Laboratory Animals”

c) Become familiar with the pertinent Rules and Regulations of the OUHSC i.e. those relating to “Health and Medical surveillance Program for laboratory Animal Care Personnel” and “Care and Use of Vertebrate Animals as Subjects in Research and Teaching”, and ensue appropriate accreditation.
Research involving radioactivity
Each Fellow participating in research involving radioactive materials is required to:

a) Attend a Radiation Review session and obtain required accreditation
b) Work with an authorized user and receive appropriate instructions from him/her.

REFERENCES

J. Specific Curriculum of the Fellowship:
Academic year: July 1st to June 30th unless previous agreement is made.
Outpatient months: Minimum 12 in two years.
Inpatient consultation: 6-8 months in first year, 4-6 months in second year for clinical Fellows, or 2-4 months in 2nd year for Fellows doing a 3yr research-oriented Fellowship)

Methods:

Inpatient Consultation Rounds

Goal: To provide an experience in in-patient consultation for patients with diabetes, general endocrine or severe hypertensive diseases. All six Core Competencies are addressed while a fellow is participating on the in-patient consult service. These Competencies—in particular Medical Knowledge and Patient Care—are a universal part of the discussion about patients that occurs between the trainee and the attending physician. All patients are seen in a consultative role. Thus, Systems Based Practice is almost always a part of the process in that as a consultant, the Endocrinology service must work with the primary team. Naturally, such also involves direct and chart communication with other physicians and health care workers tending to the patient. Thus, the Interpersonal and Communication Skills Core Competency is a part of the experience. Frequently, complicated patients are encountered and their care involves review of pertinent medical literature. Thus, Practice Based Learning is addressed. Finally, as in all activities, Professionalism and Inter-Personal Skills are part of this aspect of the training. Fellows must interact with the primary team, nursing personnel as well as patients and their families in a professional manner. The attending physician directly observes these activities in most cases.
Sites: OU Medical Center (including Pediatric and Maternal-Fetal Units) and the VAMC.

Time: 2 hrs on a daily basis, M-F and on weekends when on call.

Patient material: Referral patients and patients admitted from the Endocrine clinics. This may include patients with diabetic ketoacidosis in the intensive care units or Glycemic Unit, patients with complicated endocrine problems, and patients with complicated or confusing diagnostic or management problems. The Fellow will keep a logbook of patients followed on consult. Copies of consultation reports and correspondence with referring physicians will be kept in the patient’s chart.

Teaching Style: Supervised primary patient contact.

Supervisors: Endocrinology faculty on a monthly rotation

Text: William’s Endocrinology, 9th Ed, Principles and Practice of Endocrinology and Metabolism and Joslin’s Diabetes Mellitus, and other text as necessary

Evaluation: Biannual written evaluation and monthly verbal evaluation by the attending in the middle and at the end of the rotation

Attendance: One fellow in a monthly rotation

Weekly Clinics

General Considerations for all clinics: The clinic experiences address the six core competencies at almost every patient encounter. The six core competencies and how they relate to the clinic are:

1. **Medical knowledge** is assessed by direct observation of the attending faculty who observed the trainee presenting patients and by review of chart notes. Virtually every patient encounter expands upon and tests the trainees’ medical knowledge. Much of the teaching in the clinic by attending physicians is directly related to this competency.

2. **Interpersonal skills and the ability to communicate** with patients, families, staff and other physicians are evaluated by direct faculty observation as well as feedback solicited from staff, students, and patients including informally and as part of 360 degree evaluations. Similar to the Medical Knowledge Core competency, this Core Competency is addressed at virtually every patient encounter in the clinics as well as interactions with nursing and ancillary personnel as well as with other physicians. There is a wide range of socioeconomic status represented in our clinics such that trainees must learn to communicate with individuals of various backgrounds.

3. **Professionalism** is assessed by direct faculty observation in both the clinic settings, and by observing the trainee’s performance in the academic setting. The comments of staff, students and peers are weighed in evaluating a trainee’s professionalism. Many patients are seen together with faculty physicians at whom the Professionalism Core Competency can be assessed directly.

4. **Patient care** is evaluated by direct faculty observation in the clinic and listening to presentations of patients to the attending. At every patient encounter, the Patient Care Core Competency is addressed and assessed.

5. **Practice based learning** is evaluated by direct observation by attending faculty who correlate the trainee’s recognition of areas that need improvement with subsequent performance in the clinic throughout the year. Computers are available in the clinics for contemporaneous searches of Medline via OVID, PubMed, Web of Science, Up-to-Date
(among others) via direct connection to the OUHSC Bird Library. In addition, internet access is available for resources such as thyroidmanager.com and other on-line resources.

6. **Systems based practice** is assessed by faculty with input from other members of the healthcare team including clinic supervisors, and nursing staff. Familiarity with systems of care including order writing, accessing assistance from nursing and ancillary staff, obtaining physician and ancillary consultations, and obtaining diagnostic tests. In addition, familiarity with the systems available to obtain medications for patients across the insurance spectrum - from no insurance to Medicare part D is assessed throughout the fellowship. Frequently, trainees coordinate care with not only referring primary care physicians but also with surgical disciplines. For example in order to facilitate care for patients, trainees commonly contact neurosurgeons for patients with pituitary disease, ORL surgeons for patients thyroid or parathyroid disease, and urological surgeons for patients with adrenal disease. Many patients undergo nuclear medicine studies and these physicians are also routinely interacted with.

**Complicated Diabetes Mellitus: VA Medical Center**

**Goal:** This is a consultative practice on patients referred from primary care physicians. Patient issues include poor glycemic control, complications of diabetes, and establishment of a rational therapeutic program. A faculty member observes this interaction to provide a second layer of control over patient care. Care of diabetes patients in this setting requires a team effort such that the Core Competencies of Systems Based Practices and Interpersonal and Communications Skills are addressed routinely.

| Site: | VAMC subspecialty clinic |
| Time: | 8-12 Monday mornings |
| Patient material: | Patients with type 1 or type 2 diabetes referred from primary care sites in the VAMC. |
| Teaching Style: | Supervised primary patient contact. |
| Supervisor: | Niyaz Gosmanov, MD, Associate Professor of Medicine and David Kem, MD, Professor of Medicine |
| Text: | Joslin’s Diabetes Mellitus, 13 Ed. and other as appropriate. |
| Evaluation: | Biannual written evaluation. |
| Attendance: | All fellows except the fellow on the consultation service |

**General Endocrinology Clinic: VA Medical Center**

**Goal:** To develop experience and skills in a primarily consultative service for patients with miscellaneous endocrine disorders within an adult population. As discussed above, all six Core Competencies are addressed with most every patient encounter.

| Site: | VAMC subspecialty unit |
| Time: | 8-12 Thursday mornings |
| Patient material: | Adult veterans. While predominantly male, the number of female patients is increasing rapidly as the US army is incorporating and subsequently discharging more females. |
| Teaching Style: | Supervised primary patient contact. |
| Supervisors: | Endocrinology senior faculty on monthly rotations. |
General Endocrinology Clinic: OU Medical Centers
Goal: To develop experience and skills in a primarily consultative service for patients and those with other endocrine disorders within a mixed adult population. Primary care experience with selected patients will also be established during the two years of Fellow contact with this clinic. Again, all six Core Competencies are addressed in this clinic.

Site: The OU Medical Center subspecialty Clinic.
Time: 8-12 Friday mornings
Patient material: This population is a mixture of males and females referred from primary and consultative practices from the whole state of Oklahoma.
Teaching Style: Supervised primary patient contact.
Supervisors: Endocrinology faculty on monthly rotations.
Evaluation: Biannual written evaluation.
Attendance: All fellows except the fellow on the consultation service.

General Endocrinology Clinic: HHDC Adult Endocrinology Clinic
Goal: To develop experience and skills in a primarily consultative service for patients with endocrine disorders within an adult population. As discussed above, all six Core Competencies are addressed with most every patient encounter. Fellows will see patients supervised one on one by an endocrine faculty member. All six Core Competencies are addressed in this clinic.

Site: HHDC Adult Endocrinology Clinic
Time: Friday afternoons (1-5PM)
Patient material: Adults of both sexes.
Teaching Style: Supervised primary patient contact.
Supervisors: Endocrinology faculty
Text: William’s Endocrinology, 9th Ed, Principles and Practice of Endocrinology and Metabolism, Joslin’s Diabetes Mellitus, 13 Ed. and other as appropriate.
Evaluation: Monthly written evaluation
Attendance: One fellow in a monthly rotation

Thyroid Biopsy Clinic: HHDC Adult Endocrinology Clinic
Goal: To develop experience with performing ultrasound guided thyroid biopsies within a mixed adult population. Fellows will gain expertise in performing ultrasound guided thyroid biopsies and slide preparation. All six Core Competencies are addressed in this clinic.

Site: HHDC Adult Endocrinology Clinic
Time: Tuesday morning (9-12)
Patient material: Adults of both sexes.
Teaching Style: Supervised primary patient contact.
Supervisors: Albina Gosmanova, MD
Multidisciplinary Pituitary Clinic: Stephenson Cancer Center

**Goal:** To develop experience and skills in a primarily consultative service for patients with pituitary tumors within an adult population. As discussed above, all six Core Competencies are addressed with most every patient encounter. Fellows will see patients supervised one on one by Dr. Jonea Lim. The clinic is also attended by members of the Neurosurgery faculty as well. All six Core Competencies are addressed in this clinic.

- **Site:** Stephenson Cancer Center
- **Time:** Tuesday afternoon
- **Patient material:** Adults of both sexes.
- **Teaching Style:** Supervised primary patient contact.
- **Supervisors:** Dr. Jonea Lim
- **Text:** *William’s Endocrinology, 9th Ed, Principles and Practice of Endocrinology and Metabolism* and other as appropriate.
- **Evaluation:** Monthly written evaluation.
- **Attendance:** One fellow in a monthly rotation

Thyroid Biopsy Clinic: VA Medical Center

**Goal:** To develop experience with performing ultrasound guided thyroid biopsies within a mixed adult population. Fellows will gain expertise in assessing biopsy adequacy as well as developing a preliminary pathologic diagnosis under the direct supervision of members of the VA pathology department who also attend the clinic. All six Core Competencies are addressed in this clinic.

- **Site:** VAMC subspecialty unit
- **Time:** 8-12 first Wednesday morning of every month
- **Patient material:** Adult veterans of both sexes.
- **Teaching Style:** Supervised primary patient contact.
- **Supervisors:** Mary Zoe Baker, MD
- **Text:** *William’s Endocrinology, 9th Ed, Principles and Practice of Endocrinology and Metabolism* and *Endocrinology and Metabolism, 2nd Ed.*
- **Evaluation:** Monthly written evaluation.
- **Attendance:** All fellows

Cystic Fibrosis Clinic: The Children’s Hospital

**Goal:** To become familiar with the presentation, evaluation and management of specific endocrine issues of the patient with cystic fibrosis – CF-related diabetes, GH deficiency, vitamin D deficiency and decreased bone mass, as well as hypogonadism. All six Core Competencies are addressed in this clinic.

- **Site:** The Children’s Hospital
- **Time:** First Thursday afternoon of every month
Patient material: This population is a mixture of males and females with cystic fibrosis.

Teaching Style: Supervised primary patient contact.

Supervisors: Endocrinology faculty on a monthly rotation and Med/Peds faculty involved with the general medical care of patients with CF.

Text: *William’s Endocrinology, 9th Ed, Principles and Practice of Endocrinology and Metabolism, 2nd Ed. and Joslin’s Diabetes Mellitus, 13 Ed.* and other text as

Evaluation: Annual written evaluation.

Attendance: One fellow in a monthly rotation

**Other Scheduled Activities:**

**Pediatric Endocrinology**

**Genetics, Endocrinology, and Metabolism Clinic**

Goal: To become familiar with the pathophysiology, evaluation, diagnosis, and management of the broad spectrum of endocrine diseases, including diabetes. All six Core Competencies are addressed in this experience.

Site: The Childrens Hospital

Time: 1 month during the second year of fellowship either during the month of October, February or June

Patient material: age 0-18 yrs.

Teaching Style: Direct patient contact, mentoring, algorithm directed.

Supervisors: Kenneth Copeland, MD, Professor of Pediatrics, Steve Chernausek, MD, Professor of Pediatrics

Resources: The Turners Clinic one day per month, Brain Tumor Clinic 2 ½ days, Disorders of Sexual Differentiation Clinic 2 full days, Children’s Endocrine Consult Service daily, General Pediatric Endocrine Clinic 6 ½ day per week.

Evaluation: Written evaluation by Clinic supervisor.

Attendance: One fellow

**Endocrinology and Metabolism**

**Metabolic Bone Disease**

Goal: To become familiar with the technology and application of bone densitometry to conditions of low bone mass and osteoporosis. The Core Competencies addressed are medical knowledge, interpersonal skills and the ability to communicate, professionalism and practice-based learning. Each fellow will interpret at least 50 DEXA scans.

Site: Bone densitometry Unit, Section of Endocrinology and Diabetes, Dept. of Medicine

Time: ½ day per month

Patient material: Patients referred for bone densitometry from the clinics; participants in clinical studies.
Teaching Style: Didactic instruction in the physics, performance, analysis and interpretation of DEXA scanning techniques of lumbar, hip and whole body densitometry. Faculty lectures on osteopenic syndromes, self study of scan teaching files.

Supervisor: Mary Zoe Baker, MD, Professor of Medicine and Endocrinology

Resources: Elaine Clay, Bone densitometer technician.
Hologic Discovery A instrument with software for vertebral, hip and whole body scanning.

Primer on the Metabolic Bone Diseases and Disorders of Mineral Metabolism, 3rd Ed, ASBMR

Evaluation: Proof reading of scan interpretations by supervisor. Written evaluation by supervisor.

Attendance: All fellows

Insulin pump rotation: HHDC Adult Endocrine Clinic and HHDC Diabetes Education Clinic
Goal: To develop experience and skills in the use of insulin pumps and continuous glucose monitors (CGMs). This will includes understanding the indications for starting a pump, recognizing appropriate patients who might benefit from a pump as well as those in whom a pump would not be appropriate. The fellow will work with the endocrine faculty and diabetes education staff to initiate pump and CGM starts in the outpatient setting including developing individual treatment plans of basal rates as well as bolus and correction insulin dosing. The fellow will guide the patient through the process under the supervision of the faculty and educator.

Site: HHDC Adult Endocrine Clinic and HHDC Diabetes Education Clinic.
Time: Variable. A general training session for all fellows will be held every July with the Diabetes Life Clinic staff.
Patient material: This population is a mixture of males and females referred from primary and consultative practices from the whole state of Oklahoma.
Teaching Style: Supervised primary patient contact.
Supervisors: Endocrinology faculty involved with the care of the individual patient.
Text: Joslin’s Diabetes Mellitus, 13 Ed. and other text as appropriate.
Evaluation: Biannual written evaluation.
Attendance: One fellow in a monthly rotation

Clinical Trials Research: HHDC Clinical Trials Unit
Goal: To learn about the development, implementation, and structure of clinical trials. This could include attending regional meetings related to the performance of the trial, as well as participating at the local center in the recruitment, evaluation, and treatment of patients entered into the trial.

Site: HHDC Clinical Trials Unit
Time: Variable – dependent upon fellow availability
Patient material: Adults of both sexes referred to the clinical trials unit from within the HHDC Adult Endocrine Clinic practice, The OUHSC OKC campus and through outreach efforts throughout the state.
Teaching Style: Supervised primary patient contact.
Supervisors: James Lane, MD, Professor of Medicine and Jonea Lim, MD, Assistant Professor of Medicine
Evaluation: Biannual written evaluation. The evaluation will be based on participation, with timely appearance, support of staff, and interaction of the team.

Attendance: One fellow in a monthly rotation

Optional Rotations (available):

**Nuclear Medicine**

**Clinical Nuclear Medicine**
Goals: Become familiar with the diagnosis and therapy of patients with thyroid neoplasms and those with hyperthyroidism. Observation of RAI Rx of > 10 patients with hyperthyroidism. Examination and reading of > 50 thyroid scans. All six Core Competencies are addressed in this experience.

Site: Nuclear Medicine, the OU Medical Centers and the VAMC
Time: ½ day per week (min 2 mos)
Patient material: Patients referred with thyroid abnormalities
Teaching Style: Mentoring, review of thyroid imaging teaching file
Supervisor: Charles Arnold, MD, and other staff from Radiology and Nuclear Medicine
Resources: Nuclear imaging laboratory with Anger Camera, Spect imaging, etc.
Evaluation: Written evaluation by Supervisor.

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