

Department of Medicine

Internal Medicine Residency Program Rotation Curriculum

I. Rotation Sites and Supervision

Rotation Name: ENDOCRINOLOGY

Site	Faculty Supervisor	Administrator	Phone
UCIMC	Ping Wang, M.D.	Debra Carreon	949-824-6887
LBVAMC	Ellis Levin, M.D.	Noah Wagner	562-826-5748

II. The educational rationale and goals for this rotation

Learn the diagnosis and treatment of common endocrine disorders including diabetes mellitus, thyroid disorders, osteoporosis, hyperlipidemia, pituitary and adrenal disorders, hypogonadism, hypertension, polycystic ovarian disease, diabetes insipidus, gynecomastia, hypoglycemia.

III. Competency-based Objectives for the Endocrinology Consult & Clinic Rotation

Educational Objectives: PGY1 Residents

1. Will be familiar with the history relevant to basic endocrinologic diseases: diabetes mellitus, thyroid disorders, osteoporosis, hyperlipidemia, pituitary and adrenal disorders, hypogonadism, hypertension, polycystic ovarian disease, diabetes insipidus, gynecomastia, hypoglycemia.
2. Will be familiar with the physical diagnosis relevant to these same conditions.
3. Will be familiar with some endocrinologic emergencies: DKA, hyperglycemic emergencies, diabetes insipidus, acute Addisonian crisis.
4. Will be familiar with the diagnosis and management of osteoporosis.
5. Will be familiar with the basic management of newly diagnosed type 1 and type 2 diabetes.

The Senior Resident

1. Will be familiar with the history relevant to basic endocrinologic diseases: diabetes mellitus, thyroid disorders, osteoporosis, hyperlipidemia, pituitary and adrenal disorders, hypogonadism, hypertension, polycystic ovarian disease, diabetes insipidus, gynecomastia, hypoglycemia.
2. Will be familiar with the physical diagnosis relevant to these same conditions.
3. Will be capable to manage endocrinologic emergencies: Pituitary apoplexy, DKA, hyperglycemic emergencies, thyroid storm, thyroid coma, diabetes insipidus, acute Addisonian crisis.
4. Will be capable with the diagnosis and management of osteoporosis.
5. Will be capable to provide basic management of newly diagnosed diabetes.
6. Will be capable to manage thyroid disease..
- 7.The management of hypothyroidism
- 8.The physical diagnosis of the thyroid gland

Competency-based Objectives for the Endocrine Consultation Service Rotation

Patient Care

1. Acquires accurate and relevant histories from patients (PC 1)
2. Performs accurate and appropriate physical exams (PC 1)
3. Synthesizes data to define a patient's central clinical problem(s) (PC 1)
4. Consistently develops an appropriate care plan (PC 2)
5. Efficiently organizes for the care of patients (PC3)
6. Recognizes situations requiring urgent or emergent care (PC 2)
7. Seeks additional guidance or consultation when appropriate (PC 2)
8. Provides consultation services for patients with basic and complex clinical problems (PC5)

Medical Knowledge

1. Possesses the scientific knowledge required to provide care for common medical conditions (MK1)
2. Able to interpret basic diagnostic tests accurately (MK 2)
3. Understands the rational and risks associated with common procedures (MK 2)

Systems Based Practice

1. Works effectively within the team (SBP1)
2. Advocates for safe patient care (SBP2)
3. Reflects upon and learns from own incidents that may lead to medical error (SBP2)
4. Minimizes unnecessary diagnostic and therapeutic tests (SBP 3)
5. Provides complete and appropriate verbal and written care plans to the primary team (SBP 4)
6. Communicates effectively with other caregivers during transitions in patient care (SBP 4)

Practice Based Learning

1. Consistently self-reflects upon one's practice and performance (PBL-1)
2. Solicits feedback and is open to unsolicited feedback (PBL 3)
3. Able to utilize information technology effectively (PBL 4)
4. Able to critically appraise clinical research studies and reports (PBL 4)

Professionalism

1. Is respectful of and responsive to needs and concerns of patients, caregivers and members of the team (PROF 1)
2. Completes tasks in a timely manner (PROF 2)
3. Is sensitive to each patient's unique characteristics and needs (PROF 3)

4. Demonstrates accountability for the care of patients (PROF 4)
5. Is honest and forthright in clinical interactions and documentation (PROF 4)

Interpersonal & Communication Skills

1. Engages patients in shared decision making (ICS 1)
2. Able to develop therapeutic relationships with patients and caregivers (ICS 1)
3. Engages in collaborative communication with appropriate members of the team (ICS 2)
4. Health records are organized and accurate (ICS 3)

IV. The principal teaching methods for this rotation

Inpatient and outpatient consultations and weekly and monthly conferences

V. Responsibilities for medical students, PGY1 residents (interns), PGY2 & PGY3 residents and attendings on this rotation

- Medical Student: Participate in patient evaluations and assist with consultations.
- Medical Resident: Each resident will see inpatient consultations as assigned by the service

Medical Residents: PGY 1 Residents

Patient Care Responsibilities:

Residents are responsible for following of a select number of patients on the consult service and in clinic. Patient selection is directed by the fellow or attending. All patient care activities of the consult resident are under direct supervision of the fellow.

Procedures:

The resident can perform procedures appropriate for their level of training on the consult service. All procedures will be performed under the direct supervision of the resident or fellow.

Education:

The residents are expected to contribute on rounds. They are expected to present their patients on rounds, and contribute to the discussion of diagnosis, management, pathophysiology, and any related basic science issues. They will present patients at conference. They are expected to review pertinent medical literature. Guidance from the fellows and senior residents will be provided.

Patient Care:

The PGY1 residents will perform full consultation H&P on all new consults under their care. They will be responsible for collecting all database information, reviewing prior records, following laboratory information, and writing recommendations under direct supervision of the fellow.

Senior Residents (PGY2 & 3)

Senior residents will be responsible for all activities noted for PGY1 residents. In addition, these residents will be responsible for coordinating teaching efforts for interns and medical students. The senior residents will place emphasis on Medical Knowledge Management in the context of consultation. The senior residents will participate in divisional conferences and present appropriate cases with literature review and critical appraisal. The senior residents will be available to teach medical students physical diagnosis.

The senior resident will be certified in basic procedures including thoracentesis, paracentesis, arterial blood gas procedures, and lumbar puncture, and will be responsible for teaching this procedure to the PGY1 residents.

- Fellow. The fellow, resident and consult attending will meet daily to discuss new and follow-up patients. All consults need to be signed by the attending staff. Weekly diabetes inpatient reaching rounds with the fellow and house staff occur on Wednesday at 8:30 am.
- The resident will attend the following four clinics weekly. The practice of endocrinology is largely in the outpatient area.

UCIMC

- Diabetes Clinic: 8:30 am – 12 noon, Tuesday.
- Endocrine Clinic: 1 pm – 5 pm, Wednesday.

VA

- Diabetes Clinic: 8:45 am – 12 noon, Thursday.
- Endocrine Clinic: 8:45 am – 12 noon, Friday.

A weekly grand rounds/journal club occurs on Thursday afternoon at 1 pm at the VA. Monthly clinical conferences in which the fellows present interesting management cases to the faculty occur on the UCI Campus, usually on the third Tuesday of each month at 4 pm.

Guest speakers present at the Endocrine Grand Rounds every other month at UCIMC.

The schedule should be obtained from the fellow and section secretary at UCIMC (Gail, 949-824-6887) or section secretary at the VA (Noah, x5748 at the VA). There is ample opportunity for reading during the endocrine section rotation. The residents should review at least the previous year's worth of clinical reviews in the Journal of Clinical Endocrinology and Metabolism (available in our library). Additional reading in endocrine texts and articles (provided by the fellows and staff) are required. A suggested reading syllabus of 30 key articles in the field will also be provided to the resident on the first day of the rotation.

Fellow:

The clinical endocrine fellow has a variety of responsibilities that focus on Supervising resident and students on the teaching service, arranging for the various conferences and attending clinics. He or she is the direct link between the inpatient wards and the consultation service. Listed below is an outline of the major duties of the clinical fellow and what exactly the fellow role entails.

1. The fellow should see all of the consult cases, including those primarily staffed by the resident on the endocrine rotation. At UCIMC, the consult fellow will round daily on the patient followed by the consult service. Rounds with the attending physician are usually on Monday, Wednesday, and Friday, but may occur more frequently as the need arises. At LBVAMC, the fellow will meet with one general medicine ward (two housestaff teams) every week, Monday at 8:30 am, to go over the detailed management of one or two diabetes patients under the care of the housestaff. Therefore, all ward teams will have met with the fellow over a month's time.
2. Cases should be assigned by the fellow to the housestaff on the consult service to evaluate and follow. The fellow will assist the resident in making sure the proper tests are ordered, carried out and evaluated, and that the discharge planning links the in-house and outpatient management.

3. The fellow should discuss each consult with the general medicine housestaff, provide them with articles and be sure that they do adequate follow-up. This will be overseen by the faculty attending.
4. The fellow should discuss each case with the attending on service for the month at formal attending rounds. Follow-up discussions are dictated by the ongoing nature of the care provided.
5. The fellow on the consult service should find cases to present at the clinical conferences. If no cases are in the hospital, out patient cases can be used. The fellow should also prepare and assign to the resident, responsibility for journal club articles, when at the VA.
6. Monthly case management conferences are held on the Monday of each month on the UCI Campus in the Gillespie Neuroscience Building. The fellows will present 2 endocrine cases to the faculty, and discuss their diagnosis and management.

Clinics:

1. Every Tuesday morning, the fellows need to be in the Diabetes Clinic at UCIMC. These clinics are primarily the responsibility of the fellows.
2. The fellow on elective covers the clinics mentioned and rotates through the Gyn-Endocrine Clinic and Pediatric Endocrine Clinics at the medical center. He/she also engages in a research project during this time.
3. The medical center fellow attends the Endocrine Clinic at UCIMC on Wednesday afternoons, as well as the Diabetes Clinic.
4. The VA-based fellow attends the Thursday morning Diabetes and Friday morning Endocrine Clinics, while the "elective" fellow should also attend Endocrine Clinic at the VA.
5. The fellow assigned to UCIMC is required to attend Dr. Wang's clinic at the Medical Plaza on Monday afternoon unless there is an emergent consult at the hospital
6. Attendance at the Lipid Clinic at the VA is optional, but suggested.
7. The senior fellow has responsibility for making out the year-long rotations and weekend schedules with concurrence by the junior fellows and Dr. Levin and Dr. Wang. The on-call schedule must be prepared monthly and provided to the hospital operators two days prior to the beginning of each month.

Research:

A research project with any of the faculty must be selected and initiated in the first year, with the selected faculty member as the mentor. The plan for the proposed research should be submitted to the Division Chief and the Fellowship Program Director. Research activity is mandatory for the first and second years, and is monitored by publication of scholarly work which includes basic or clinical research, as well as case reports.

Beepers:

1. All of the fellows share endocrine call. The on-call beeper needs to be carried 24 hours per day, 7 days per week, by a fellow. Most questions can be answered over the phone, although occasionally, the fellow needs to come in to see a DKA or to round on ill inpatients on the weekends.
2. The attending-of-the-month on the endocrine consult service should be available for back-up. However, if they are not available, feel free to call any attending you can find. Everyone is very willing to help.

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Constance Chen, M.D., 562/826/5748, pager 562-683-1286

Attending:
Supervise fellow, resident and students. Direct rounds and conferences

VI. Core primary resource readings

Basic Recommended Readings for this rotation come from **Current Medical Diagnosis and Treatment**, 2009. Access these readings at

<http://www.accessmedicine.com/resourceTOC.aspx?resourceID=1>

In addition, you should be familiar with basic practice guidelines in this discipline. Access these at

<http://www.accessmedicine.com/guidelines.aspx?type=1>

Select the appropriate chapters for review. These chapters can be accessed through the Grunigen Medical Library website.

<http://www.accessmedicine.com/resourceTOC.aspx?resourceID=1>

Chapters of specific relevance for this rotation are

Chapter 26	Endocrine Disorders
Chapter 27	Diabetes Mellitus & Hypoglycemia
Chapter 28	Lipid Disorders

Endocrinology Section Reading List:

ADH

Loh JA, Verbalis JG. Disorders of water and salt metabolism associated with pituitary disease. *Endocrinol Metab Clin North Am* 37:213-34, 2008.

Ellison DH, Berl T. The syndrome of inappropriate antidiuresis. *N Engl J Med* 356:2064-72, 2007.

Goldman MB et al. Mechanisms of altered water metabolism in psychotic patients with polydipsia and hyponatremia. *N Engl J Med* 318:397-403, 1988.

Holtzman et al. A molecular defect in the vasopressin V2-receptor gene causing nephrogenic diabetes insipidus. *N Engl J Med* 328:1534-36, 1538-41, 1993.

Adrenal

Gomez-Sanchez CE. Channels and pumps in aldosterone-producing adenomas. *J Clin Endocrinol Metab* 99:1152-56, 2014.

Stewart PM. Is subclinical Cushing's syndrome an entity or a statistical fallout from diagnostic testing? Consensus surrounding the diagnosis is required before optimal treatment can be defined. *J Clin Endocrinol Metab* 95:2618-20, 2010.

Funder JW, Carey RM, Fardella C, Gomez-Sanchez CE, Mantero F, Stowasser M, Young Jr WF, Montori VM. Case detection, diagnosis, and treatment of patients with primary aldosteronism: An endocrine society clinical practice guideline. *J Clin Endocrinol Metab* 93:3266-81, 2008.

Merke, DP. Approach to the adult with congenital adrenal hyperplasia due to 21-hydroxylase deficiency. *J Clin Endocrinol Metab* 93:653-60, 2008.

Young WF. The incidentally discovered adrenal mass. *N Engl J Med* 356:601-10, 2007.

Speiser PW, White PC. Congenital adrenal hyperplasia. *N Engl J Med* 349:776-88, 2003.

Aging

Lamberts SWJ, van der Beld AW, van der Lely A-J. The endocrinology of aging. *Science* 278:419-24, 1997.

Anorexia Nervosa

Warren MP. Endocrine manifestations of eating disorders. *J Clin Endocrinol Metab* 96:333-43, 2011.

Miller KK. Endocrine dysregulation in anorexia nervosa update. *J Clin Endocrinol Metab* 96:2939-49, 2011.

Autoimmune Polyendocrine Syndrome

Wolff ASB, Erichsen MM, Meager A, Magitta NF, Myhre AG, Bollerslev J, Fougner KJ, Lima K, Knappskog PM, Husebye ES. Autoimmune polyendocrine syndrome type 1 in Norway: Phenotypic variation, autoantibodies, and novel mutations in the autoimmune regulator gene. *J Clin Endocrinol Metab* 92:595-603, 2007.

Betterle C, Greggio NA, Volpato M. Autoimmune polyglandular syndrome type 1. *J Clin Endocrinol Metab* 83:1049-55, 1998.

Calcium Metabolism

Bauer DC. Calcium supplements and fracture prevention. *N Engl J Med* 369:1537-43, 2013.

Adams JS, Hewison M. Update in Vitamin D. *J Clin Endocrinol Metab* 95:471-78, 2010.

Holick MF. Vitamin D deficiency. *N Engl J Med* 357:266-81, 2007.

Shoback D. Hypoparathyroidism. *N Engl J Med* 359:391-403, 2008.

Bilezikian JP et al. (5 articles/Workshop) *J Clin Endocrinol Metab* 94:335-381, 2009.

Messa P, Alfieri C, Brezzi B. Cinacalcet: pharmacological and clinical aspects. *Expert Opin Drug Metab Toxicol* 4:1551-60, 2008.

Bilezikian JP, Potts JT Jr, Fuleihan E-H, Kleerekoper M, Neer R, Peacock M, Rastad J, Silverberg SJ, Udelsman R, Wells SA. Summary statement from a workshop on asymptomatic primary hyperparathyroidism: A perspective for the 21st century. *J Clin Endocrinol & Metab* 87(12):5353-61, 2002.

Rodan GA, Fleisch HA. Bisphosphonates: Mechanisms of action. *J Clin Invest* 97:2692-96, 1996.

Bilezikian J. Management of hypercalcemia. *J Clin Endocrinol Metab* 77:1445, 1993.

Bone H. Paget's disease of bone. *J Clin Endocrinol Metab* 75:1179, 1992.

Brown EM, Pollak M, Seidman CE, Seidman JG, Wu Chou J-H, Riccardi D, Hebert SC. Calcium-ion-sensing cell-surface receptors. *N Engl J Med* 333:234-40, 1995.

Cushing's Disease

Feelders RA, Hofland LJ. Medical treatment of Cushing's disease. *J Clin Endocrinol Metab* 98:425-38, 2013.

Aghi MK. Management of recurrent and refractory Cushing disease. *Nat Clin Pract Endocrinol Metab* 4:560-68, 2008.

Biller BM, Grossman AB, Stewart PM et al. Treatment of adrenocorticotropin-dependent Cushing's syndrome: a consensus statement. *J Clin Endocrinol Metab* 93:2454-62, 2008.

Findling JW, Raff H. Cushing's syndrome: important issues in diagnosis and management. *J Clin Endocrinol Metab* 91:3746-53, 2006.

Isidori AM, Kaltsas GA, Grossman AB. Ectopic ACTH syndrome. *Front Horm Res* 35:143-56, 2006.

Diabetes

Cryer PE. Mechanisms of hypoglycemia-associated autonomic failure in diabetes. *N Engl J Med* 369:362-72, 2013.

Odegaard JI, Chawla A. Pleiotropic actions of insulin resistance and inflammation in metabolic homeostasis. *Science* 339:172-77, 2013.

Heber D, Greenway FL, Kaplan LM, Livingston E, Salvador J, Still C. Endocrine and nutritional management of the post-bariatric surgery patient: An Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab* 95:4823-43, 2010.

Vinik A. The approach to the management of the patient with neuropathic pain. *J Clin Endocrinol Metab* 95:4802-11, 2010.

Hone J, Jovanovič. Approach to the patient with diabetes during pregnancy. *J Clin Endocrinol Metab* 95:3578-85, 2010.

Bluestone JA, Herold K, Eisenbarth G. Genetics, pathogenesis and clinical interventions in type 1 diabetes. *Nature* 464:1293-1300, 2010.

Reece EA, Leguizamón G, Wiznitzer A. Gestational diabetes: the need for a common ground. *Lancet*. 2009 May 23;373(9677):1789-97.

Purnell JQ, Flum DR. Bariatric surgery and diabetes: who should be offered the option of remission? *JAMA*. 2009 Apr 15;301(15):1593-5.

Nauck MA, Vilsbøll T, Gallwitz B, Garber A, Madsbad S. Incretin-based therapies: viewpoints on the way to consensus. *Diabetes Care*. 2009 Nov;32 Suppl 2:S223-31.

Camilleri M. Diabetic gastroparesis. *N Engl J Med* 356:820-29, 2007.

Utzschneider KM, Kahn SE. Review: The role of insulin resistance in nonalcoholic fatty liver disease. *J Clin Endocrinol Metab* 91:4753-61, 2006.

Hirsch IB. Insulin Analogues. *N Engl J Med* 352(2):174-83, 2005.

Yki-Jarvinen H. Thiazolidinediones. *N Engl J Med* 351(11):11-6-18, 2004.

Remuzzi G, Schieppati A, Ruggenti P. Nephropathy in patients with type 2 diabetes. *N Engl J Med* 346(15):1145-51, 2002.

Antonetti DA, Klein R, Gardner TW. Diabetic retinopathy. *N Engl J Med* 366(13):1227-39, 2012.

Sipirstein M. DKA and hyperosmolar coma. *Endo Metab Clin NA* 21:415, 1992.

Endocrine Hypertension

Sica DA. Endocrine causes of secondary hypertension. *J Clin Hypertens* 10:534-40, 2008.

O'Shaughnessy KM, Karet FE. Salt handling and hypertension. *J Clin Invest* 113(8):1075-81, 2004.

Fertility

Bulun SE. Uterine fibroids. *N Engl J Med* 369:1344-55, 2013.

McLachlan RI. Approach to the patient with oligozoospermia. *J Clin Endocrinol Metab* 98:873-80, 2013.

Kaunitz AM. Hormonal contraception in women of older reproductive age. *N Eng J Med* 358:1262-70, 2008.

Bhasin S. Approach to the infertile man. *J Clin Endocrinol Metab* 92:1995-2004, 2007.

Lobo RA. Potential options for preservation of fertility in women. *N Engl J Med* 353(1):64-72, 2005.

Genomic Medicine

Feero WG, Guttmacher AE. Genomic medicine – An updated primer. *N Engl J Med* 362:2001-11, 2010.

Growth Hormone

Allen DB, Cuttler L. Short stature in childhood – challenges and choices. *N Engl J Med* 368:1220-28, 2013.

Cohen P, Rogol AD, Deal CL, Saenger P, Reiter EO, Ross JL, Chernausek SD, Savage MO, Wit JM on behalf of the 2007 ISS Consensus Workshop participants. *J Clin Endocrinol Metab* 93:4210-17, 2008.

Molitch ME, Clemmons DR, Malozowski S, Merriam GR, Shalet SM, Vance ML, for the Endocrine Society's Clinical Guidelines Subcommittee. Evaluation and treatment of adult growth hormone deficiency: An endocrine society clinical practice guideline. *J Clin Endocrinol Metab* 91:1621-34, 2006.

Gynecomastia

Braunstein GD. Gynecomastia. *N Engl J Med* 357:1229-37, 2007.

Hair Conditions

Shapiro J. Hair loss in women. *N Engl J Med* 357:1620-30, 2007.

Rosenfield RL. Hirsutism. *N Engl J Med* 353:2578-88, 2005.

Hyperlipidemia

Kreisberg RA, Oberman A. Lipids and atherosclerosis: Lessons learned from randomized controlled trials of lipid lowering and other relevant studies. *J Clin Endocrinol Metab* 87(2):423-37, 2002.

Hypoglycemia

Perry RR, Vinik AI. Diagnosis and management of functioning islet cell tumors. *J Clin Endocrinol Metab* 80:2273-78, 1995.

Hoe FM. Hypoglycemia in infants and children. *Adv Pediatr* 55:367-84, 2008.

Service FJ. Hypoglycemic disorders. *N Engl J Med* 332:1144-52, 1995.

Hypokalemia

Gennari FJ. Hypokalemia. *N Engl J Med* 339:451-58, 1998.

Hypothalamus/Pituitary

Melmed S, Casanueva FF, Hoffman AR, Kleinberg DL, Montori VM, Schlechte JA, Wass AH. Diagnosis and treatment of hyperprolactinemia: An endocrine society clinical practice guideline. *J Clin Endocrinol Metab* 96:273-88, 2011.

Gordon CM. Functional hypothalamic amenorrhea. *N Engl J Med* 363:365-71, 2010.

Melmed S, et al. Guidelines for acromegaly management: an update. *J Clin Endocrinol Metab* 94:1509-17, 2009.

Schlechte JA. Approach to the patient: Long-term management of prolactinomas. *J Clin Endocrinol Metab* 92:2861-65, 2007.

Melmed S. Acromegaly. *N Engl J Med* 355:2558-73, 2006.

Dreijerink KMA, Hoppener JWM, Timmers HTM, Lips CJM. Mechanisms of Disease: multiple endocrine neoplasia type 1 – relation to chromatin modifications and transcription regulation. *Nat Clin Prac/Endoc & Metab* 2:562-70, 2006.

Carel J-C, Leger J. Precocious puberty. *N Eng J Med* 358:2366-77, 2008.

Vanhorebeek I, Langouche L, Van den Berghe G. Endocrine aspects of acute and prolonged critical illness. *Nature Clinical Practice* 2:20-31, 2006.

Vance ML. Hypopituitarism. *N Engl J Med* 330:1651-62, 1994.

Medical Practice

Rosenbaum L. The art of doing nothing. *N Engl J Med* 365:782-85, 2011.

Menopause

Grady D. Management of menopausal symptoms. *N Engl J Med* 355:2338-47, 2006.

Hayes FJ, Hall JE, Boepple PA, Crowley WF Jr. Differential control of gonadotropin secretion in the human: Endocrine role in inhibin. *J Clin Endocrinol Metab* 83:1835-41, 1998.

Metabolism

Lehrke M, Lazar MA. The many faces of PPAR γ . *Cell* 123:993-999, 2005.

Nephrolithiasis

Coe FL, Evan A, Worcester E. Kidney stone disease. *J Clin Invest* 115:2598-608, 2005.

Obesity

Shea SA. Obesity and pharmacologic control of the body clock. *N Engl J Med* 367:175-178, 2012.

Coll AP, Farooqi IS, O’Rahilly S. The hormonal control of food intake. *Cell* 129:251-62 2007.

Multiple authors of individual articles for: Obesity – What is to be done? *Science* 299:845-58, 2003.

Yanovski SZ, Yanovski JA. Obesity. *N Engl J Med* 346(8):591-602, 2002.

Osteoporosis

Bilezikian JP. Osteonecrosis of the jaw – Do bisphosphonates pose a risk? *N Engl J Med* 355:2278-81, 2006.

Raisz LG. Screening for osteoporosis. *N Engl J Med* 353:164-71, 2005.

Sambrook P, et al. Prevention of corticosteroid osteoporosis. *N Engl J Med* 328:1747-52, 1781-82, 1993.

Ovaries

Freemark M. Management of adolescents with polycystic ovary syndrome. *J Clin Endocrinol Metab* 96:3354-56, 2011.

Bondy CA for the Turner Syndrome Consensus Study Group. Care of girls and women with Turner Syndrome: A guideline of the Turner Syndrome Study Group. *J Clin Endocrinol Metab* 92:10-25, 2007.

Ehrmann DA. Polycystic ovary syndrome. *N Engl J Med* 352:1223-36, 2005.

Paget Disease

Ralston SH. Paget's disease of bone. *N Engl J Med* 368:644-50, 2013.

Pheochromocytoma

Lenders JWM, Duh Q-Y, Eisenhofer G, Gimenez-Roqueplo A-P, et al. Pheochromocytoma and paraganglioma: An endocrine society clinical practice guideline. *J Clin Endocrinol Metab* 99:1915-42, 2014.

HPH Neumann, Eng C. The approach to the patient with paraganglioma. *J Clin Endocrinol Metab* 94:2677-83, 2009.

Pituitary

Fuqua JS. Treatment and outcomes of precocious puberty: An update. *J Clin Endocrinol Metab* 98:2198-207, 2013.

Ferreira L, Silveira G, Latronico AC. Approach to the patient with hypogonadotropic hypogonadism. *J Clin Endocrinol Metab* 98:1781-88, 2013.

Puberty

Palmert MR, Dunkel L. Delayed puberty. *N Engl J Med* 366:443-53, 2012.

Sexual Differentiation

Goldstone AP, Holland AJ, Hauffa BP, Hokken-Koelega AC, Tauber M on behalf of speakers and contributors at the Second Expert Meeting of the Comprehensive Care of Patients with PWS. *J Clin Endocrinol Metab* 93:4183-97, 2008.

Adashi EY, Hennebold JO. Single-gene mutations resulting in reproductive dysfunction in women. *N Engl J Med* 340:709-18, 1999.

MacLaughlin DT, Donahoe PK. Sex determination and differentiation. *N Engl J Med* 350:367-78, 2004.

Testosterone

Gooren LJ. Advances in testosterone replacement therapy. *Front Horm Res* 37:32-51, 2009.

McVary KT. Erectile Dysfunction. *N Engl J Med* 357:2472-81, 2007.

Thyroid

Hegedüs L, Bonnema SJ. Approach to management of the patient with primary or secondary intrathoracic goiter. *J Clin Endocrinol Metab* 95:5155-62, 2010.

Bogazzi F, Bartalena L, Martino E. Approach to the patient with amiodarone-induced thyrotoxicosis. *J Clin Endocrinol Metab* 95:2529-35, 2010.

Stiebel-Kalish H, Robenshtok E, Hasanreisoglu M, Ezrachi D, Shimon I, Leibovici L. Treatment modalities for Graves' ophthalmopathy: Systematic review and metaanalysis. *J Clin Endocrinol Metab* 94:2708-16, 2009.

Bartalena L, Tanda ML. Grave's Ophthalmology. *N Engl J Med* 360:994-1001, 2009.

Brent GA. Editorial: Diagnosing thyroid dysfunction in pregnant women: Is case finding enough? *J Clin Endocrinol Metab* 92:39-41, 2007.

Kung AWC. Clinical Review: Thyrotoxic periodic paralysis: A diagnostic challenge. *J Clin Endocrinol Metab* 91:2490-95, 2006.

Cooper DS. Antithyroid drugs. *N Engl J Med* 352:905-17, 2005.

Gharib H, Tuttle RM, Baskin HJ, Fish LH, Singer, PA, McDermott MT. Consensus Statement: Subclinical thyroid dysfunction: A joint statement on management from the American Association of Clinical Endocrinologists, the American Thyroid Association, and the Endocrine Society. *J Clin Endocrinol Metab* 90(1):581-85, 2005.

Stagnaro-Green A: Clinical Review 152: Postpartum thyroiditis. *J Clin Endocrinol Metab* 87(9):4042-47, 2002.

Schwartz KM, Fatourechi V, Ahmed DDF, Pond GR. Dermopathy of Grave's Disease (pretibial myxedema): Long-term outcome. *J Clin Endocrinol Metab* 87(2):438-46, 2002.

Paschke R, Ludgate M. The thyrotropin receptor in thyroid diseases. *Mech of Dis* 337:1675-81, 1997.

Refetoff S, Weiss RE, Usata SJ. The syndromes of resistance to thyroid hormone. *Endo Rev* 14:348-99, 1993.

Griffin J. Hypothyroidism in the elderly. *Amer J Med Sci* 299:334, 1990.

Thyroid Cancer

Smith-Bindman R, Lebda P, Feldstein VA, Sellami D, Goldstein RB, Brasic N, Jin C, Kornak J. Risk of thyroid cancer based on thyroid ultrasound imaging characteristics: Results of a population-based study. *JAMA* 173:1788-96, 2013.

Nikiforova MN, Wald AI, Roy S, Durso MB, Nikiforov YE. Targeted next-generation sequencing panel (ThyroSeq) for detection of mutations in thyroid cancer. *J Clin Endocrinol Metab* 98:E1852-60, 2013.

Nikiforov YE, et al. Impact of mutational testing on the diagnosis and management of patients with cytologically indeterminate thyroid nodules: A prospective analysis of 1056 FNA samples. *J Clin Endocrinol Metab* 96:3390-97, 2011.

Ringel MD, Nabhan F. Approach to follow-up of the patient with differentiated thyroid cancer and positive anti-thyroglobulin antibodies. *J Clin Endocrinol Metab* 98:3104-10, 2013.

Transsexual

Gooren LJ, Giltay EJ, Bunck MC. Long-term treatment of transsexuals with cross-sex hormones: Extensive personal experience. *J Clin Endocrinol Metab* 93:19-25, 2008.

Moore E, Wisniewski A, Dobs A. Endocrine treatment of transsexual people: A review of treatment regimens, outcomes and adverse effects. *J Clin Endocrinol Metab* 88:3467-73, 2003.

VII. Key physical diagnosis skills

Routine HSP, thyroid examination, breast examination in men and women, gonadal examination in men

VIII. Key procedures that the resident should be able to *perform*

None for the residents. Thyroid FNA for fellows

IX. Key procedures that the resident should be able to understand the indications for and to interpret

Thyroid pituitary, adrenal, and glucose homeostasis tests

X. Key topics

Diabetes Mellitus
Hyperthyroidism
Hypothyroidism
Pituitary Tumors
Osteoporosis
Hyperlipidemia

XI. Evaluation Methods

Faculty will evaluate each resident's performance using the standard "Internal Medicine Resident Evaluation Form" at the end of each block rotation. Evaluation forms will be submitted to the Residency Program for review by the Program Director and by the Residency Oversight Committee.

Residents will complete evaluations of their attending faculty, their supervising residents, and the rotation itself. These evaluations will be submitted to the Residency Program for Review by the

Program Directors and the Curriculum Committee. Copies of evaluations will be submitted to the Division Chiefs for their review.

a. Professional competencies will be evaluated by (check all that apply)

Evaluation Method	Direct Observation & Feedback	Journal Club	Written Exam	Report or Presentation	Other (specify)
Competency					
Patient Care	x				
Medical Knowledge	x				
Practice-based Learning	x	x			
Communication Skills	x				
Professionalism	x				
Systems-based Practice	x				

b. Evaluation Methods

Faculty will evaluate each resident’s performance using the Competencies Evaluation Form and any special documents developed for the rotation. Faculty will provide formative, face-to-face feedback at the midpoint and end of each rotation.

Evaluation forms will be submitted to the Program Director for review by the Residency Oversight Committee (ROC; competency committee).

Residents will evaluate the rotation, their faculty attending and their peers on the rotation. Rotation Evaluations will be reviewed by the ROC and transmitted to the Division Chiefs.