

**UNIVERSITY OF COLORADO DENVER**  
**ENDOCRINOLOGY, METABOLISM, AND DIABETES CURRICULUM AND OBJECTIVES**

**COURSE DIRECTOR &  
DIVISION EDUCATION COORDINATOR:**

**Cecilia C. L. Wang, MD**  
303-399-8020 x2691  
Pager 303-266-0482  
Cecilia.Wang@ucdenver.edu

**COURSE COORDINATOR:**

**Emily Fowler**  
303-724-3927  
Emily.Fowler@ucdenver.edu

**Office Location:**

UCD – Division of Endocrinology  
AMC Research Complex 1 - South  
7<sup>th</sup> Floor, Room 7103  
12801 E. 17<sup>th</sup> Avenue  
Aurora, CO 80045

**Mailing address:**

UCD – Division of Endocrinology  
MS 8106  
12801 E. 17<sup>th</sup> ave, room 7103  
Aurora, CO 80045

**Phone:** 303-724-3921  
**Fax:** 303-724-3920

If you have any questions or comments about this rotation, please feel free to contact Cecilia C. L. Wang, M.D. at [Cecilia.Wang@ucdenver.edu](mailto:Cecilia.Wang@ucdenver.edu) or 303-399-8020 x2691.

*This paragraph only applies if you are rotating at the University of Colorado Hospital. Please review the rest of the curriculum below.*

*Specialty Residents must complete the Web-based Training for Touchworks for this rotation. To complete the training, please follow the instructions below and then notify the Ambulatory Training team via email at [UCH-AmbulatoryServicesTraining@uch.edu](mailto:UCH-AmbulatoryServicesTraining@uch.edu) that the training is complete. They will send you a login via email.*

1. Type [www.uch.edu](http://www.uch.edu) in the address field of your web browser.
2. Click the **For Employees** option in the upper-right corner of the page.
3. Under the **Other Helpful Links** section, select the [Ambulatory Services Training](#) link.
4. Under the **Web Based Training** section, select to complete each section: [Lesson1](#), [Lesson 2](#), [Lesson 3](#) links under title **TouchWorks for Specialty Residents**.

**EDUCATIONAL PURPOSE**

The subspecialty of endocrinology encompasses a wide array of clinical conditions, from disorders commonly seen in primary care such as diabetes, obesity, dyslipidemia, thyroid disease, osteoporosis, amenorrhea, hypogonadism and secondary adrenal insufficiency, to other disorders such as primary adrenal insufficiency and

tumors of the parathyroid, pituitary, adrenal, and pancreas. This rotation will help residents become proficient in endocrine-focused history and physical exam skills, learn the appropriate selection and interpretation of endocrine-related diagnostic tests, and gain experience in integrating these to develop appropriate management plans for patients with common endocrine disorders referred for outpatient and inpatient endocrine consultation. The resident will also be exposed to patients with less common endocrine disorders, and have the opportunity to interact with colleagues in other specialties to manage this patient population. This rotation will undergo continuous improvement using feedback from residents, medical students and fellows.

### **EDUCATIONAL GOALS**

- 1. To hone clinical problem-solving skills needed to evaluate and manage common endocrine disorders**
- 2. To become familiar with clinical presentations and initial workup and management of less common endocrine disorders**
- 3. To become knowledgeable regarding the appropriate circumstances for patient referral to an endocrinologist for evaluation and management**

### **PRINCIPAL TEACHING METHODS**

#### **I. Supervised direct patient care – Outpatient**

- A.** Endocrine outpatient clinics at the Anschutz Outpatient Pavilion, the Denver Veterans Affairs Medical Center, and Denver Health Medical Center:
  - 1.** Anschutz Outpatient Pavilion (AOP) – 3 half-days per week
    - Pituitary, thyroid, and reproductive disorders clinic
    - General endocrine clinic
    - Diabetes clinic – a multidisciplinary clinic staffed with certified diabetes educators, nutritionists and diabetologists
  - 2.** Denver Veterans Affairs Medical Center (VAMC) – 1 half-day per week
    - General endocrine clinic
  - 3.** Denver Health Medical Center (DHMC) – 1 half-day per week
    - General endocrine clinic
- B.** Residents will perform the initial history and physical exam, review the chart, laboratory and radiology studies, and present the case to an endocrine faculty member. The faculty will corroborate key points of the history and demonstrate relevant aspects of the endocrine exam, and together they will formulate a management plan. Residents will document the visit on a visit form (at DHMC) or in the electronic medical record (VAMC; AOP).
- C.** Residents will hone clinical problem-solving of endocrine disorders by firsthand exposure to a wide variety of patients and focused teaching in clinics by endocrine faculty. Focused teaching will include endocrine pathophysiology, basic science knowledge in endocrinology, appropriate use and interpretation of diagnostic tests, and endocrine decision-making. Throughout the rotation, an emphasis will be placed on practical knowledge needed by residents/future internists including appropriate management of common endocrine disorders in more complex patients, identification and initial evaluation and management of

less common endocrine disorders, and appropriate circumstances for referral to an endocrinologist.

## **II. Supervised direct patient care – Inpatient**

- A. Inpatient endocrine consult rounds** conducted 4-5 days of the week:
  - 1. University of Colorado Hospital Anschutz Inpatient Pavilion (AIP)
  - 2. Veterans Affairs Medical Center (VAMC)
  - 3. Denver Health Medical Center (DHMC)
- B.** Residents will perform the initial history and physical exam of patients referred for endocrine consultation, and present the patients to the endocrinology team during formal rounds. Residents will complete a consult form (at UCH AIP), enter the consult into the written chart (at DHMC) or enter the consult note into the electronic medical record (at VAMC) for review by the endocrine attending. Residents will follow the patient throughout the duration of the consult period and help with medical decision-making.
- C.** Residents may be expected to prepare at least one brief oral presentation on an endocrine topic to present during rounds

## **III. Didactic sessions**

- A.** Focused didactic lectures by attending physicians – mainly by attending physicians on the consult service. However, if time allows, attendings in the clinics will give short, focused didactic lectures as well. Didactic sessions on rounds may include endocrine pathophysiology, basic science knowledge in endocrinology, appropriate use and interpretation of diagnostic tests, and endocrine decision-making for common endocrine disorders in more complex patients, less common endocrine disorders, and endocrine emergencies.
- B.** Informal teaching sessions by endocrine fellows on service, as time allows.

## **IV. Conferences**

- A.** Residents are expected to attend the following conferences during the endocrine rotation:
  - 1. Weekly bench to bedside Endocrine Grand Rounds, Wednesday mornings 8-9 am – most of these rounds are presented by faculty and fellows within our division or faculty outside the Department of Medicine, but approximately one lecture per month is presented by visiting faculty. Topics relate to current concepts and controversies in all areas of endocrinology.
  - 2. Monthly multidisciplinary Pituitary Conference, second Tuesday of each month 1-2 pm – attended by faculty and housestaff from Endocrinology, Neurosurgery, Radiology, Pathology and Radiation Oncology. Cases considered difficult in terms of diagnosis and/or management are presented by endocrine fellows and faculty, and discussed by all present.
  - 3. Monthly multidisciplinary Thyroid/Parathyroid conference, fourth Thursday of each month, noon-1 pm – Attended by faculty and housestaff from Endocrinology, Surgery, Radiology, Pathology, and occasionally by Oncology and Radiation Oncology. Cases considered difficult or perplexing in terms of

diagnosis and/or management are presented by endocrine fellows and faculty, and discussed by all present.

4. Biweekly thyroid cytopathology conference, Wednesdays 7-7:45 am – Slides from thyroid nodules fine needle aspirates are reviewed from the previous 2 weeks by the attending thyroid pathologist and discussed with endocrine faculty and fellows. Residents are required to attend one of these sessions during their month-long rotation.

## **EDUCATIONAL CONTENT**

### **I. Mix of endocrine conditions**

**A.** Residents will be exposed to patients with a wide spectrum of endocrine problems including type 1 diabetes on intensive insulin regimens or on insulin pumps, complex type 2 diabetes, hypoglycemia, thyroid disorders including thyroid nodules, hyperthyroidism and thyroid cancer, dyslipidemias, obesity, the metabolic syndrome, adrenal insufficiency, Cushing's syndrome, adrenal tumors, endocrine hypertension, acromegaly, prolactinoma, pituitary macroadenomas, gonadal dysfunction including polycystic ovarian syndrome, hirsutism, and erectile dysfunction, transgender disorders, osteoporosis, osteomalacia, hypercalcemia, and hyperparathyroidism.

### **B. Patient characteristics**

1. Patients seen have a wide variety of different socioeconomic and health contexts, ranging from those seen in tertiary referral, veterans, and patients at the county hospital.

### **II. Learning venues**

- A.** Anschutz Outpatient Pavilion endocrine clinics
- B.** Denver VA Medical Center endocrine clinics
- C.** Denver Health Medical Center endocrine clinics
- D.** Denver VA Medical Center inpatient wards (surgical, medical, psychiatric) and intensive care units
- E.** Denver Health Medical Center inpatient wards (surgical, medical) and intensive care units
- F.** University of Colorado Hospital Anschutz Inpatient Pavilion inpatient wards (surgical, medical, transplant, rehab) and intensive care units

### **III. Procedures**

- A.** History, physical exam skills needed for diagnosing, evaluating and managing endocrine disorders
- B.** Laboratory interpretive skills
  1. Thyroid function tests
  2. Tests needed to evaluate and manage diabetes and its complications
  3. Endocrine stimulation and suppression testing: adrenal, pituitary, pancreatic
  4. Metabolic bone disease and hypercalcemia testing
  5. Testing for gonadal disorders

6. Thyroid cytopathology reports
- C. Radiology study interpretive skills
  1. Thyroid scan and uptake
  2. Thyroid ultrasound
  3. Pituitary MRI
  4. Abdominal CT and MRI for adrenals, pancreas
  5. DEXA scans
- D. Consultative skills – residents will serve as endocrine consultants to other services under the supervision of attending physicians and fellows

**IV. Ancillary services**

- A. All endocrinology faculty at UCHSC including VAMC and DHMC faculty
- B. Endocrinology fellows
- C. Faculty in other specialties – surgery, medicine, radiology, pathology, psychiatry
- D. Residents from other training programs – surgery, radiology, pathology, medicine, psychiatry
- E. Case managers
- F. Nursing staff
- G. Other ancillary staff – clinical and administrative

**V. Rotation schedule by week**

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	<ul style="list-style-type: none"> <li>• Thyroid/pituitary/general endocrine clinic (AOP)</li> </ul>	<ul style="list-style-type: none"> <li>• General endocrine clinic (VA)</li> </ul>	<ul style="list-style-type: none"> <li>• Thyroid cytopathology conference (2<sup>nd</sup> Wednesday, AIP)</li> <li>• Endocrine grand rounds (AMC)</li> <li>• Inpatient consults (AIP, VA)</li> <li>• Rounds if needed (AIP, VA)</li> </ul>	<ul style="list-style-type: none"> <li>• General endocrine clinic (AOP)</li> </ul>	<ul style="list-style-type: none"> <li>• Diabetes clinic (AOP)</li> </ul>
PM	<ul style="list-style-type: none"> <li>• Inpatient consults (VA, AIP)</li> <li>• Inpatient rounds/didactics (VA, AIP)</li> </ul>	<ul style="list-style-type: none"> <li>• Inpatient consults (VA, AIP)</li> <li>• Inpatient rounds/didactics (VA, AIP)</li> <li>• Pituitary Conference (2<sup>nd</sup> Tuesday, AMC)</li> </ul>	<ul style="list-style-type: none"> <li>• General endocrine clinic (DH)</li> </ul>	<ul style="list-style-type: none"> <li>• Thyroid Conf. (4<sup>th</sup> Thurs) (AOP)</li> <li>• Inpatient consults (DH, VA, AIP)</li> <li>• Inpatient rounds/didactics (DH)</li> </ul>	<ul style="list-style-type: none"> <li>• Inpatient consults (AIP, VA)</li> <li>• Inpatient rounds/Didactics (AIP, VA)</li> </ul>

AOP = ANSCHUTZ OUPATIENT PAVILION  
AIP = ANSCHUTZ INPATIENT PAVILION  
AMC = ANSCHUTZ MEDICAL CAMPUS

VA= DENVER VA MEDICAL CENTER  
DH = DENVER HEALTH MEDICAL CENTER

**ROTATION SCHEDULE DETAILS**

**NOTE: THE EXACT TIMES FOR SEEING INPATIENT CONSULTS AND ROUNDING ARE SUBJECT TO MODIFICATION. ALSO, DEPENDING ON WHERE THE CONSULTS ARE ON ANY GIVEN DAY, CONSULTS MAY BE SEEN AND ROUNDS HELD AT DENVER HEALTH**

➤ **MONDAY**

- 8 am Thyroid/Pituitary/General Endocrine Clinic at Anschutz Outpatient Pavilion 6<sup>th</sup> floor east, south wing, room 6632
- 1 pm Inpatient consults at AIP or VA
- 2 pm Inpatient rounds/didactics at AIP or VA

➤ **TUESDAY**

- 8 am General Endocrine clinic at Denver VA  
Main hospital building, 1<sup>st</sup> floor, Specialty 2, room 1A-176
- 1 pm Inpatient consults at AIP or VA
- 1 pm 2<sup>nd</sup> Tuesday of the month, Multidisciplinary Pituitary Conference at AMC  
Anschutz Cancer Pavilion, conference room 3052
- 2 pm Inpatient rounds/didactics at AIP or VA

➤ **WEDNESDAY**

- 7:00 2<sup>nd</sup> Wednesday of the month, Thyroid cytopathology conference at AMC  
Anschutz Inpatient Pavilion room 3118
- 8 am Endocrine Grand Rounds at AMC  
Research Complex-1 North, Research 1 room P18-1006, Hensel Phelps Auditorium
- 9:15 See inpatient consults
- 11 am Rounds at AIP or VA
- 1 pm General Endocrine clinic at Denver Health Medical Center  
Davis Pavilion room 322

➤ **THURSDAY**

- 8 am General endocrine clinic at AOP  
6<sup>th</sup> floor east, south wing, room 6632
- Noon 4<sup>th</sup> Thursday of the month, Multidisciplinary Thyroid Conference at AMC  
Anschutz Outpatient Pavilion room 2005
- 1:00 Inpatient consults at DH
- 2:00 Inpatient rounds/didactics at DH

➤ **FRIDAY**

- 8 am Diabetes clinic at AOP  
6<sup>th</sup> floor south wing west side, room 6632
- 1 pm Inpatient consults at AIP or VA
- 2 pm Inpatient rounds/didactics at AIP or VA

**PRINCIPAL ANCILLARY EDUCATIONAL MATERIALS**

Residents are provided web access to the Endocrinology, Diabetes, and Metabolism Curriculum and Objectives at the beginning of the rotation including the bibliography of key references and a syllabus of endocrine pathophysiology. Residents have access to endocrinology reference textbooks and other materials in the workroom of the Endocrine clinic (room 6632) at the AOP, 6<sup>th</sup> floor.

The following are other suggested sources of information to facilitate patient care and education in endocrinology:

- Harrison's Principles of Internal Medicine, 17<sup>th</sup> edition, 2008. editors Fauci AS, Braunwald B, Kasper DL, Hauser SL, Longo DL, Jameson JL, Loscalzo J.
  - ◆ Part 15. Endocrinology and Metabolism. Chapters 332-350 are particularly relevant
  - ◆ The online version is available through the Denison library website <http://hsclibrary.uchsc.edu>
    - On the home page select "Harrison's" in the column on the left. It should give you full text directly if you are on the AMC campus. Otherwise, connect to the full text by logging in with your university username and password.
- Endocrine Secrets, 5<sup>th</sup> edition, 2009. edited by Dr. Michael T. McDermott. Elsevier Mosby, 2009.
- American Diabetes Association Clinical Practice Recommendations 2010
  - ◆ *Diabetes Care* January 2010 issue, Supplement 1
  - ◆ Articles on multiple topics related to the care of patients with diabetes (standards of medical care, hypoglycemia and employment, nutrition, etc.) and references to past technical reviews on specific complications, inpatient, gestational, insulin use, emergencies, and more
- [www.EndoText.org](http://www.EndoText.org): A free on-line endocrine textbook authored by leaders in endocrinology that is updated periodically
- Williams Textbook of Endocrinology, 11<sup>th</sup> edition, 2008. Kronenberg HM, Melmed S, Polonsky KS, Larsen PR. Saunders Elsevier, Philadelphia.
  - ◆ The online version is available through the Denison library website <http://hsclibrary.uchsc.edu>
  - ◆ On the home page across the top select the tab that says "Search", "Find a Book". In the upper middle of the page is a beige box that says **Related**. Click "Online" and scroll to the bottom (the e-books are listed in alphabetical order). Select "Williams, Robert. Williams textbook of endocrinology" from the list, and connect to the full text directly (on AMC campus) or by logging in with your username and password.
- **Key references**
  - ◆ These articles are meant to be a reference for clinical endocrinology fellows during the first year of their training and internal medicine housestaff and medical students on this rotation, highlighting key topics in the field of endocrinology. The collection of articles includes recent reviews and consensus statements. The articles in the curriculum are updated at least once yearly. In order to keep the number of articles to a reasonable number, this could not be all-encompassing. The articles are organized into the following categories: metabolic (diabetes, lipids, obesity, metabolic syndrome), thyroid, pituitary, adrenal, gonadal, bone/parathyroid, endocrine disorders in pregnancy, issues in the ICU and endocrine emergencies.

- ◆ The articles are available on the Endocrine division website (<http://www.uchsc.edu/sm/endo/>). You will have access to the password-protected part of this website during your month on the rotation. Click on “Residents’ and Fellows’ Resources” in the column on the left, and enter your UNIVERSITY username and password). Links to all of the articles are available to you on this website. If you have any questions or comments about this curriculum, please feel free to contact Cecilia C. L. Wang, M.D. at [Cecilia.Wang@ucdenver.edu](mailto:Cecilia.Wang@ucdenver.edu) or 303-399-8020 x2691. See below for the list of articles in the current curriculum.



## ENDOCRINE ROTATION – RECOMMENDED ARTICLES

### Thyroid Disease

1. Nayak B, Hodak SP. **Hyperthyroidism.** *Endocrinol Metab Clin N Am* 2007;36(3):617-656.
2. Brent GA. **Clinical practice. Graves' disease.** *N Engl J Med* 2008;358(24):2594-2605.
3. Cooper DS. **Antithyroid drugs.** *N Engl J Med* 2005;352(9):905-17.
4. Biondi B, Cooper DS. **The clinical significance of subclinical thyroid dysfunction.** *Endocr Rev* 2008;29(1):76-131.
5. Haugen BR. **Drugs that suppress TSH or cause central hypothyroidism.** *Best Pract Res Clin Endocrinol Metab* 2009;23(6):793-800.
6. Gharib H, Papini E. **Thyroid nodules: clinical importance, assessment, and treatment.** *Endocrinol Metab Clin N Am* 2007;36(3):707-735.

### Pituitary/Adrenal Disorders

7. Klibanski A. **Clinical practice. Prolactinomas.** *N Engl J Med* 2010;362(13):1219-1226.
8. Boscaro M, Arnaldi G. **Approach to the patient with possible Cushing's syndrome.** *J Clin Endocrinol Metab* 2009;94(9):3121-3131.
9. Molitch ME. **Pituitary tumours: pituitary incidentalomas.** *Best Pract Res Clin Endocrinol Metab* 2009;23(5):667-675.
10. Toogood AA, Stewart PM. **Hypopituitarism: clinical features, diagnosis and management.** *Endocrinol Metab Clin N Am* 2008;37(1):235-261.
11. Verbalis JG. **Management of disorders of water metabolism in patients with pituitary tumors.** *Pituitary* 2002;5:119-132.
12. Nieman LK. **Dynamic evaluation of adrenal hypofunction.** *J Endocrinol Invest* 2003;26(7 Suppl):74-82.
13. Raff H. **Utility of salivary cortisol measurements in Cushing's syndrome and adrenal insufficiency.** *J Clin Endocrinol Metab* 2009;94(10):3647-3655.
14. Loriaux DL, Fliseriu M. **Relative adrenal insufficiency.** *Curr Opin Endocrinol Diabetes Obes* 2009;16(5):392-400.
15. Young WF. **Clinical practice. The incidentally discovered adrenal mass.** *N Engl J Med* 2007;356(6):601-610.
16. Nieman LK, Biller BMK, Findling JW, Newell-Price J, Savage MO, Stewart PM, Montori VM. **The diagnosis of Cushing's Syndrome: An Endocrine Society Clinical Practice Guideline.** *J Clin Endocrinol Metab* 2008;93(5):1526-1540.
17. Funder JW, Carey RM, Fardella C, Gomez-Sanchez CE, Mantero F, Stowasser M, Young WF Jr, Montori VM; Endocrine Society. **Case detection, diagnosis, and treatment of patients with primary aldosteronism: an endocrine society clinical practice guideline.** *J Clin Endocrinol Metab* 2008;93(9):3266-3281.
18. Pacak K. **Preoperative management of the pheochromocytoma patient.** *J Clin Endocrinol Metab* 2007;92(11):4069-4079.

## Diabetes, Lipids, Obesity and the Metabolic Syndrome

19. American Diabetes Association. **Diagnosis and classification of diabetes mellitus.** *Diabetes Care* 2010;33 (Supp. 1):S62-69.
20. American Diabetes Association. **Executive Summary: Standards of medical care in diabetes - 2010.** *Diabetes Care* 2010;33(Supp. 1):S4-S10.
21. American Diabetes Association. **Position Statement: Standards of medical care in diabetes - 2010.** *Diabetes Care* 2010;33(Supp. 1):S11-S61.
22. Rosenzweig JL, Ferrannini E, Grundy SM, Haffner SM, Heine RJ, Horton ES, Kawamori R; Endocrine Society. **Primary prevention of cardiovascular disease and type 2 diabetes in patients at metabolic risk: an Endocrine Society clinical practice guideline.** *J Clin Endocrinol Metab* 2008;93(10):3671-3689.
23. Nathan DM, Buse JB, Davidson MB, Ferrannini E, Holman RR, Sherwin R, Zinman B; American Diabetes Association; European Association for Study of Diabetes. **Medical management of hyperglycemia in type 2 diabetes: a consensus algorithm for the initiation and adjustment of therapy: a consensus statement of the American Diabetes Association and the European Association for the Study of Diabetes.** *Diabetes Care* 2009;32(1):193-203.
24. Smith RJ, Nathan DM, Arslanian SA, Groop L, Rizza RA, Rotter JI. **Individualizing therapies in type 2 diabetes mellitus based on patient characteristics: what we know and what we need to know.** *J Clin Endocrinol Metab* 2010;95(4):1566-1574.
25. Skyler JS, Bergenstal R, Bonow RO, Buse J, Deedwania P, Gale EA, Howard BV, Kirkman MS, Kosiborod M, Reaven P, Sherwin RS; American Diabetes Association; American College of Cardiology Foundation; American Heart Association. **Intensive glycemic control and the prevention of cardiovascular events: implications of the ACCORD, ADVANCE, and VA Diabetes Trials: a position statement of the American Diabetes Association and a Scientific Statement of the American College of Cardiology Foundation and the American Heart Association.** *J Am Coll Cardiol* 2009;53(3):298-304.
26. Moghissi ES. **Addressing hyperglycemia from hospital admission to discharge.** *Curr Med Res Opin* 2010;26(3):589-598.
27. Peters A. **Incretin-based therapies: review of current clinical trial data.** *Am J Med* 2010;123(3 Suppl):S28-S37.
28. Boyle PJ, Zrebiec J. **Management of diabetes-related hypoglycemia.** *Southern Med J* 2007;100(2):183-194.
29. Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults. **Executive Summary of the third report of the national cholesterol education program (NCEP) expert panel on detection, evaluation, and treatment of high blood cholesterol in adults (Adult Treatment Panel III).** *JAMA* 2001;285(19):2486-2497.
30. Grundy SM, Cleeman JI, Merz CN, Brewer HB Jr, Clark LT, Hunninghake DB, Pasternak RC, Smith SC Jr, Stone NJ; National Heart, Lung, and Blood Institute; American College of Cardiology Foundation; American Heart Association. **Implications of recent clinical trials for the National Cholesterol Education Program Adult Treatment Panel III guidelines.** *Circulation* 2004;110(2):227-239.

31. Eckel RH. **Approach to the patient who is intolerant of statin therapy.** *J Clin Endocrinol Metab* 2010;95(5):2015-2022.
32. Dunn FL. **Management of dyslipidemia in people with type 2 diabetes mellitus.** *Rev Endocr Metab Disord* 2010;11(1):41-51.
33. Bessesen DH. **Update on obesity.** *J Clin Endocrinol Metab* 2008;93(6):2027-2034.
34. Eckel RH. **Clinical practice. Nonsurgical management of obesity in adults.** *N Engl J Med* 2008;358(18):1941-1950.
35. Alberti KG, Eckel RH, Grundy SM, Zimmet PZ, Cleeman JI, Donato KA, Fruchart JC, James WP, Loria CM, Smith SC Jr; International Diabetes Federation Task Force on Epidemiology and Prevention; National Heart, Lung, and Blood Institute; American Heart Association; World Heart Federation; International Atherosclerosis Society; International Association for the Study of Obesity. **Harmonizing the metabolic syndrome: a joint interim statement of the International Diabetes Federation Task Force on Epidemiology and Prevention; National Heart, Lung, and Blood Institute; American Heart Association; World Heart Federation; International Atherosclerosis Society; and International Association for the Study of Obesity.** *Circulation* 2009;120(16):1640-1645.

### Gonadal Disorders

36. [no authors listed]. **NIH State-of-the-Science Conference Statement on management of menopause-related symptoms.** *NIH Consens State Sci Statements* 2005;22(1):1-38.
37. Stefanick ML. **Estrogens and progestins: background and history, trends in use, and guidelines and regimens approved by the US Food and Drug Administration.** *Am J Med* 2005;118(12B):64S-73S.
38. North American Menopause Society. **Estrogen and progestogen use in postmenopausal women: 2010 position statement of The North American Menopause Society.** *Menopause* 2010;17(2):242-255.
39. Wierman ME, Basson R, Davis SR, Khosla S, Miller KK, Rosner W, Santoro N. **Androgen therapy in women: An Endocrine Society Clinical Practice Guideline.** *J Clin Endocrinol Metab* 2006;91(10): 3697-3710.
40. Rothman MS, Wierman ME. **Female hypogonadism: evaluation of the hypothalamic-pituitary-ovarian axis.** *Pituitary* 2008;11(2):163-169.
41. Norman RJ, Dewailly D, Legro RS, Hickey TE. **Polycystic ovary syndrome.** *Lancet* 2007;370(9588):685-697.
42. Martin KA, Chang RJ, Ehrmann DA, Ibanez L, Lobo RA, Rosenfield RL, Shapiro J, Montori VM, Swiglo BA. **Evaluation and treatment of hirsutism in premenopausal women: An Endocrine Society clinical practice guideline.** *J Clin Endocrinol Metab* 2008;93(4):1105-1120.
43. Wild RA, Carmina E, Diamanti-Kandarakis E, Dokras A, Escobar-Morreale HF, Futterweit W, Lobo R, Norman RJ, Talbott E, Dumesic DA. **Assessment of cardiovascular risk and prevention of cardiovascular disease in women with the polycystic ovary syndrome: a consensus statement by the Androgen Excess and Polycystic Ovary Syndrome (AE-PCOS) Society.** *J Clin Endocrinol Metab* 2010;95(5):2038-2049.

44. Tang T, Lord JM, Norman RJ, Yasmin E, Balen AH. **Insulin-sensitising drugs (metformin, rosiglitazone, pioglitazone, D-chiro-inositol) for women with polycystic ovary syndrome, oligo amenorrhoea and subfertility.** *Cochrane Database Syst Rev* 2010;(1):CD003053.
45. Thessaloniki ESHRE/ASRM-Sponsored PCOS Consensus Workshop Group. **Consensus on infertility treatment related to polycystic ovary syndrome.** *Hum Reprod* 2008;23(3):462-477.
46. Layman LC. **Hypogonadotropic hypogonadism.** *Endocrinol Metab Clin N Am* 2007;36:283-296.
47. Bhasin S, Cunningham GR, Hayes FJ, Matsumoto AM, Snyder PJ, Swerdloff RS, Montori VM; Task Force, Endocrine Society. **Testosterone therapy in men with androgen deficiency syndromes: an Endocrine Society clinical practice guideline.** *J Clin Endocrinol Metab* 2010;95(6):2536-2559.
48. Goldstein I. **A clinical paradigm for the combined management of androgen insufficiency and erectile dysfunction.** *Endocrinol Metab Clin N Am* 2007;36:435-452.
49. Fernández-Balsells MM, Murad MH, Lane M, Lampropoulos JF, Albuquerque F, Mullan RJ, Agrwal N, Elamin MB, Gallegos-Orozco JF, Wang AT, Erwin PJ, Bhasin S, Montori VM. **Clinical review 1: Adverse effects of testosterone therapy in adult men: a systematic review and meta-analysis.** *J Clin Endocrinol Metab* 2010;95(6):2560-2575.

### **Bone, Parathyroid and Calcium disorders**

50. Rosen CJ. **Postmenopausal osteoporosis.** *N Engl J Med* 2005;353(8):595-603.
51. Shoback D. **Update in osteoporosis and metabolic bone disorders.** *J Clin Endocrinol Metab* 2007;92(3):747-753.
52. Hofbauer LC, Hamann C, Ebeling PR. **Approach to the patient with secondary osteoporosis.** *Eur J Endocrinol* 2010;162(6):1009-1020.
53. Khosla S, Melton LJ. **Clinical practice. Osteopenia.** *N Engl J Med* 2007;356(5):2293-2300.
54. Khosla S. **Update in male osteoporosis.** *J Clin Endocrinol Metab* 2010;95(1):3-10.
55. Canalis E, Giustina A, Bilezikian J. **Mechanisms of anabolic therapies for osteoporosis.** *N Engl J Med* 2007;357(8):905-916.
56. Bonnick SL, Shulman L. **Monitoring osteoporosis therapy: bone mineral density, bone turnover markers, or both?** *Am J Med* 2006;119(4A):25S-31S.
57. Davison KS, Kendler DL, Ammann P, Bauer DC, Dempster DW, Dian L, Hanley DA, Harris ST, McClung MR, Olszynski WP, Yuen CK. **Assessing fracture risk and effects of osteoporosis drugs: bone mineral density and beyond.** *Am J Med* 2009;122(11):992-997.
58. Shepard MM, Smith JW. **Hypercalcemia.** *Am J Med Sci* 2007;334(5):381-385.
59. Eastell R, Arnold A, Brandi ML, Brown EM, D'Amour P, Hanley DA, Rao DS, Rubin MR, Goltzman D, Silverberg SJ, Marx SJ, Peacock M, Mosekilde L, Bouillon R, Lewiecki EM. **Diagnosis of asymptomatic primary hyperparathyroidism: proceedings of the third international workshop.** *J Clin Endocrinol Metab* 2009 Feb;94(2):340-350.

60. Bilezikian JP, Khan AA, Potts JT Jr; Third International Workshop on the Management of Asymptomatic Primary Hyperthyroidism. **Guidelines for the management of asymptomatic primary hyperparathyroidism: summary statement from the third international workshop.** *J Clin Endocrinol Metab* 2009;94(2):335-339.
61. Gabrieli I, Leu JP, Barzel US. **Clinical problem-solving. Back to basics.** *N Engl J Med* 2008;358(5):1952-1956.
62. Stewart AF. **Clinical practice. Hypercalcemia associated with cancer.** *N Engl J Med* 2005;352(4):373-379.

### **Issues in Pregnancy**

63. Abalovich M, Amino N, Barbour LA, Cobin RH, De Groot LJ, Glinoe D, Mandel SJ, Stagnaro-Green A. **Management of thyroid dysfunction during pregnancy and postpartum: an Endocrine Society clinical practice guideline.** *J Clin Endocrinol Metab* 2007;92(8):S1-S47.
64. International Association of Diabetes and Pregnancy Study Groups Consensus Panel, Metzger BE, Gabbe SG, Persson B, Buchanan TA, Catalano PA, Damm P, Dyer AR, Leiva A, Hod M, Kitzmiller JL, Lowe LP, McIntyre HD, Oats JJ, Omori Y, Schmidt MI. **International association of diabetes and pregnancy study groups recommendations on the diagnosis and classification of hyperglycemia in pregnancy.** *Diabetes Care* 2010;33(3):676-682.

### **Endocrine Emergencies and ICU Issues**

65. Bouillon R. **Acute adrenal insufficiency.** *Endocrinol Metab Clin N Am* 2006;35:767-775.
66. Nayak B, Burman K. **Thyrotoxicosis and thyroid storm.** *Endocrinol Metab Clin N Am* 2006;35:663-686.
67. Wartofsky L. **Myxedema coma.** *Endocrinol Metab Clin N Am* 2006;35:687-698.
68. Kitabchi AE, Umpierrez GE, Miles JM, Fisher JN. **Hyperglycemic crises in adult patients with diabetes.** *Diabetes Care* 2009;32(7):1335-1343.
69. Sakharova OV, Inzucchi SE. **Endocrine assessments during critical illness.** *Crit Care Clin* 2007;23(3):467-490.
70. Mesotten D, Vanhorebeek I, Van den Berghe G. **The altered adrenal axis and treatment with glucocorticoids during critical illness.** *Nat Clin Pract Endocrinol Metab* 2008;4(9):496-505.
71. Mebis L, Debaveye Y, Visser TJ, Van den Berghe G. **Changes within the thyroid axis during the course of critical illness.** *Endocrinol Metab Clin N Am* 2006;35:807-821.

## **METHODS OF EVALUATION**

### **I. Resident performance**

- A.** Inpatient endocrine attendings will observe and evaluate the performance of, and complete computerized evaluation forms for each resident on the rotation, summarizing their performance on the inpatient consult service. The inpatient attending will make every effort to meet individually with the resident during the rotation to give constructive feedback.
- B.** Patient records (both written and electronic) written by the resident will be reviewed by the attending physicians in clinics and on the consult services.

### **II. Program and faculty performance**

- A.** Upon completion of the rotation, residents will complete evaluations of the rotation commenting on the quality of teaching, the faculty, the fellows, and the overall rotation experience. Evaluations are compiled and reviewed by the program and collective evaluations will serve as a tool for improving the rotation.

## **INSTITUTIONAL RESOURCES: STRENGTHS AND LIMITATIONS**

### **I. Strengths**

- A.** Faculty – each and every one of the endocrinology faculty is committed to teaching residents and students, and take pride in having a reputation as a division for excellence in teaching.
- B.** Learning venues/patient populations – the wide variety of patient care settings, both inpatient and outpatient, in a county hospital, veteran’s hospital, and tertiary referral center, allows for the presentation of patients with a wide variety of endocrine disorders and problems.
- C.** Conferences – The Endocrine Division Grand Rounds are an excellent forum for bench-to-bedside presentations of current concepts and controversies in endocrinology. Systems-based learning is possible in our multidisciplinary conferences, which provide a forum for the discussion of the management of patients with complex endocrine disorders.
- D.** Fellows – The fellows in our program have outstanding clinical and teaching skills. The resident conferences given by the fellows have consistently received “rave reviews” by previous residents doing this rotation.

### **II. Limitations**

- A.** With the different locations for clinics and inpatient consults come the hassles of traveling among the hospitals. This has been limited as much as possible to maximize learning time, increase efficiency, and limit the travel time required.

## **ROTATION SPECIFIC COMPETENCY OBJECTIVES**

### **I. Knowledge** – The resident will demonstrate knowledge about endocrine conditions with an emphasis on patient evaluation and management

- A.** Diabetes: types 2 and 1
  - 1.** Intensive insulin regimens

- 2. Insulin pumps
  - 3. Complications of diabetes
  - 4. Hypoglycemia
  - B. Hypoglycemia without underlying diabetes
  - C. Thyroid disorders
    - 1. Hyperthyroidism
    - 2. Hypothyroidism
    - 3. Thyroid nodules
    - 4. Thyroid cancer
  - D. Dyslipidemias
  - E. Obesity
  - F. Metabolic Syndrome
  - G. Osteoporosis: primary and secondary causes
  - H. Osteomalacia
  - I. Hypercalcemia
  - J. Hyperparathyroidism
  - K. Erectile dysfunction
  - L. Hypogonadism
  - M. Female reproductive disorders
    - 1. Amenorrhea
    - 2. Hirsutism
    - 3. Infertility
    - 4. Polycystic ovary syndrome
    - 5. Turner's syndrome
  - N. Endocrine disorders in pregnancy
  - O. Pituitary tumors
    - 1. Prolactinoma
    - 2. Cushing's disease
    - 3. Acromegaly
    - 4. Null-cell tumors
  - P. Hypopituitarism
  - Q. Adrenal insufficiency – primary and secondary
  - R. Endocrine hypertension
- II. Clinical Skills** – The resident will demonstrate proficiency in the following clinical skills:
- A. Accurately perform and document endocrine-focused histories and physical exams based on the pathophysiology of patient complaints
  - B. Identify and prioritize patients' problems, formulate appropriate differential diagnoses specific to endocrine-related complaints, and develop appropriate plans for evaluation and management
  - C. Thyroid and testicular exams
  - D. Appropriate screening for diabetes complications
  - E. Present patients to the attending physician in the clinic, and to the team on rounds
  - F. Follow-up patients seen for inpatient consults

- G. Order appropriate diagnostic tests, and interpret results of testing for endocrine disorders

**III. Communication Skills** – The resident will demonstrate the following skills:

- A. Communicate effectively with patients and families regarding diagnosis, evaluation and treatment plans
- B. Communicate with referring physicians regarding evaluations and recommendations
- C. Communicate with specialists in surgery, radiology, pathology and laboratory medicine to obtain needed clinical information and plan treatment
- D. Demonstrate compassionate treatment of patients and respect for their privacy and dignity

**IV. Professional Behavior** – The resident is expected to demonstrate appropriate attitudes and behaviors in the following areas:

- A. Display integrity, honesty and appropriate boundaries with team members including attending physicians, fellows, residents, medical students, administrative staff, and clinical support staff
- B. Display integrity, honesty and appropriate boundaries with patients, patients' representatives and fellow specialists
- C. Recognize the limits of one's knowledge and skills, and seek to overcome those limits

**V. Self-directed and Life-long Learning Skills**

- A. Locate, evaluate and apply information for solving endocrine problems and make decisions relevant to the care of individuals and populations