Diagnosing and Treating Pituitary Tumors

The Swedish Pituitary Center at the Swedish Neuroscience Institute is one of the country’s largest centers for treating disorders of the pituitary gland – including pituitary tumors. The center brings together endocrinologists, neurosurgeons and radiation oncologists to offer a comprehensive, multidisciplinary approach to the diagnosis and treatment of these tumors.

Tumors in the pituitary gland are quite common and represent 10-25 percent of all intracranial neoplasms. Many of them are so small they may go undetected throughout life. Although 99 percent of pituitary tumors are benign, the associated symptoms can be debilitating, especially with hormone-secreting tumors.

Regardless of the type of tumor, individuals with pituitary tumors may experience headaches, blurred vision, impotence/infertility, and mood changes. Twenty to thirty percent of all pituitary tumors are prolactin secreting adenomas, which have additional symptoms that include osteoporosis-based fractures, vaginal dryness, amenorrhea and milk production in nonlactating females. Other pituitary tumors include corticotropin-secreting adenomas, growth hormone-secreting adenomas, and thyrotropin-secreting adenomas.

“We are pleased to provide rapid access for patients referred with suspected pituitary tumor and for those requesting a second opinion,” says Frances E. Broyles, M.D., director of the Swedish Neuroendocrine Program.

In its Cancer Facts and Figures 2013, the American Cancer Society estimated that more than 1.6 million Americans would be diagnosed with some form of cancer in 2013 and more than half a million would die from cancer. Reducing cancer deaths and the morbidity associated with treatments for later-stage cancer have been the primary impetus behind encouraging Americans to follow cancer-screening guidelines.

Recent debate about the basis and validity of those guidelines and the value of screenings in general has created some confusion among physicians and left Americans wondering what guidelines they should follow. Some authors promote a more restricted approach to screening regularity and frequency, referencing potential harms, such as complications from invasive screening tests, false positives and negatives, over diagnosis and the residual effects of some cancer treatments. Others cite a lack of definitive data that supports improved outcomes from initiating treatment earlier as a result of screening, rather than delaying treatment until symptom onset.

There is consensus about the value of screening for individuals who are at high risk for developing certain types of cancer, such as men and women with a genetic predisposition or a personal history of cancer. For those at normal risk, however, other than breast cancer screening by mammography, and colon and cervical cancer screening, when and how often to screen for cancer is a matter for debate.

“Using an evidence-based approach, our cancer specialists have developed general guidelines for cancer screening,” says Frances E. Broyles, M.D., director of the Swedish Neuroendocrine Program.
One-Stop Referral Assistance

Swedish Referral Services offers clinical practices a single point of contact to help transition patients to the appropriate specialties within Swedish Health Services, or to Swedish affiliate or partner specialists. The program has been designed to take the confusion out of referring to Swedish clinics, affiliates and partners, and to reduce the time referral coordinators spend locating appropriate specialty care for their patients.

A dedicated referral team facilitates the transfer of patient information, tracks the referral process and maintains a communication link with referring physicians or their referral coordinators. Providers may request a particular specialist, or the Swedish triage team will evaluate the patient’s medical records and forward the referral to the appropriate clinic or physician.

Referrals are accepted via secure eFax or phone, or secure online referral form at www.swedish.org/refernow.

Swedish Referral Services supports providers worldwide—ensuring patients can easily and expeditiously receive the care they need. The program is also a resource for cruise lines that frequent the Port of Seattle, facilitating timely access to necessary medical care for their crew members and passengers.

For more information about Swedish Referral Services or to learn about additional resources for your physicians and referral coordinators, please go to www.swedish.org/refernow.

Swedish Welcomes New Chief Executive

In October 2013, Swedish Health Services named Anthony (Tony) A. Armada as its new chief executive. Armada assumed his new responsibilities in November of last year, overseeing all Swedish operations across five hospitals, two ambulatory care centers and a 900-employee medical group.

With more than 25 years in the health care field, Armada has served in a number of diverse senior leadership roles. Prior to joining Swedish, he was president of Advocate Lutheran General Hospital, an academic and research hospital that operates the only Level I trauma center in the northwest Chicago region. The hospital is part of Advocate Health Care, the largest health provider in Illinois and one of the nation’s top health systems.

From 2004 to 2009, Armada was president and chief executive officer for Henry Ford Hospital and Health Network in Detroit. And from May 2000 to May 2004, he served as senior vice president and area manager for Kaiser Permanente’s Metropolitan Los Angeles Service Area in Los Angeles.

Armada is a Fellow of the American College of Healthcare Executives and has served as a member of the college’s Healthcare Executive Study Society since 2005. In 2011 he became a member of the Equity of Care Committee for the American Hospital Association (AHA) and is past chairman of the AHA’s Institute for Diversity in Healthcare Management. In 2008 and 2010, Modern Healthcare selected Armada as one of the Top 25 Minority Executives.

Armada received his dual master’s degree in hospital administration and business administration from Xavier University in Cincinnati and his bachelor’s degree in human medicine and medical technology from Michigan State University.

A Generous Gift to Advance Swedish Cancer and Cardiac Care

The Swedish Medical Center Foundation has received a gift of $10.1 million from the estate of Robert and Jean Reid that will support advanced cancer and cardiac care at Swedish. Funds from the gift will be distributed to the Swedish Foundation over many years through The Robert and Jean Reid Family Foundation.

The gift – the largest made during the $100 million Campaign for Swedish – will help to establish a core component of the Swedish Cancer Institute’s (SCI) Personalized Medicine Program: The Robert and Jean Reid Family Innovative Therapeutics & Research Unit. This new entity will aim to evolve cancer detection, diagnosis and treatment through advanced clinical research that will provide a better understanding of how a cancerous tumor might respond to a specific treatment. This is one step toward personalizing treatments and improving patients’ lives and outcomes.

“The new Reid Family Innovative Therapeutics & Research Unit will help position SCI as a national and international thought leader in personalized, molecular-based cancer prevention and therapy,” said Thomas D. Brown, M.D., executive director of the Swedish Cancer Institute.
Today, more than ever before, Americans are battling weight gain. Data from the most recent National Health and Nutrition Examination Survey, included in Health, United States 2012, shows that more than two-thirds of Americans are overweight or obese. The percentage of men and women who are overweight, but not obese, remained stable between 1988-1994 and 2007-2010; however, the percentage of obese Americans increased. While the increase in obesity is alarming, stability in the percentage of overweight Americans is not completely reassuring. Rather, it suggests the percentage of Americans becoming overweight is equal to the percentage moving into obesity – a one-for-one replacement.

Originally the U.S. Food and Drug Administration (FDA) approved lap-band surgery for obese patients with two or three co-morbidities. In early 2011, the FDA expanded its approval to include overweight patients with a BMI of 30-34.99 and one or more co-morbidities, such as family history of diabetes or high blood pressure, or a new diagnosis of pre-diabetes or high blood pressure.

Swedish Weight Loss Services offers low-BMI lap-band surgery as one of several treatment options to assist patients with their weight loss. Lap-band surgery may be the best option for individuals who have struggled with yo-yo dieting and want to proactively change their lives, rather than wait for their health to deteriorate as they continue to gain weight and age. It is considered the safest form of bariatric surgery.

Because the stomach or intestines are not cut, there is no risk of intestinal leakage, dumping syndrome or food intolerance.

At Swedish, lap-band surgery is a hospital-based, outpatient laparoscopic procedure. The gastric band is positioned around the upper part of the stomach to create a small stomach pouch. This upper pouch is connected to the lower stomach through the narrow passage created by the band. Although the procedure is reversible and the band can be loosened or tightened, it is considered a significant lifestyle change that permanently affects the amount and types of food the patient can consume during a meal.

Swedish Weight Loss Services accepts referrals from primary-care providers to evaluate their patients and determine the most appropriate non-surgical or surgical weight loss treatment. All weight-loss treatments become close partnerships between Swedish bariatric medicine specialists, the patients and their primary-care providers, which offers the greatest possibility of long-term success.

At this time, low-BMI lap-band surgery is an elective procedure. Because insurance does not cover the cost, it represents a personal and financial commitment on the part of each patient. That commitment is matched by the dedication of the bariatric surgeons, dietitians, advanced practice nurses, physician assistants and medical assistants comprising the Swedish weight-loss team.

With the Swedish weight-loss team supporting their personal commitment to lifestyle changes, patients are able to lose from 50-60 percent of excess body weight during the first two years post procedure.

For more information or to refer a patient, please call 206-215-2090.

(Read low-BMI lap-band case study on page 4.)

**Overweight and Obesity By The Numbers**

(American men and women ages 20 and older)

<table>
<thead>
<tr>
<th>Definition</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight: BMI 25 - &lt;30</td>
<td>Overweight or Obese: 69%</td>
</tr>
<tr>
<td>Obese 1: BMI 30 - &lt;35</td>
<td>Overweight: 33.9%</td>
</tr>
<tr>
<td>Obese 2: BMI 35 - &lt;40</td>
<td>Obese: 35.7%</td>
</tr>
<tr>
<td>Obese 3: BMI 40+</td>
<td>Extreme Obese: 6.3%</td>
</tr>
</tbody>
</table>

Source: Centers for Disease Control and Prevention/National Center for Health Statistics, Health, United States 2012, National Health and Nutrition Examination Survey.
Case Study: Low-BMI Lap-Band
Ross L. McMahon, M.D., Medical Director and bariatric surgeon, Swedish Weight Loss Services

A 45-year-old, 66-inch tall, business professional had slowly gained weight year after year. When she presented to our clinic, she weighed 210 pounds and had a body mass index (BMI) of 33. We learned her family history pre-disposes her to diabetes, heart disease and obesity. The patient was on blood pressure medicine and was pre-diabetic.

Although her insurance would not cover the procedure, she chose low-BMI gastric band in order to stop what she felt was a pre-determined pathway to illness based on her family history. She also wanted to use the band as a tool to keep from gaining more weight and to improve how she felt about herself. Because she felt it was important that her anatomy not change, gastric band was the ideal choice for her.

Once she made her decision, she expressed a sense of empowerment that she could control her weight now, rather than wait until later when it might be harder to bounce back.

Her procedure, which took place in a Swedish operating room, was completed in about 30 minutes. She remained in recovery for about three hours and was discharged to her home in the afternoon without complication.

Although weight loss after lap-band surgery is generally slower and more gradual than with other procedures, the patient has had good success. Since her procedure eight months ago, she has lost 52 pounds. During a recent follow-up appointment she shared with us that the surgery had given her hope and that she felt better about herself. She remains committed to losing weight, and to keeping it off.

She is no longer pre-diabetic and her blood pressure medication has been reduced to hydrochlorothiazide. She is more active and her BMI is now 25. She comes to the clinic every six to eight weeks for a band adjustment and has reached the point where she is not hungry and continues to lose weight.

She is very happy with her decision. She feels that it was similar to that of a woman choosing elective plastic surgery. Her decision, however, was based on a desire to improve her health and control the effects of her family’s medical history.

Why Patients Choose Low-BMI Lap-Band Surgery
• They want to take control of their weight
• They do not want family genetics to further hinder their health
• They do not want to change their anatomy
• They want a procedure that has been approved by the FDA for patients with BMI of 30-34.99

Swedish Earns Highest National Ranking for Heart Surgery Outcomes

The Society of Thoracic Surgeons (STS) has released its ratings of cardiac programs, giving Swedish three-star ratings for: coronary bypass surgery (CABG), aortic valve replacement (AVR) surgery and simultaneous CABG and AVR surgery. Results are based on clinical outcomes of 998 cardiac surgery programs in the United States. A three-star rating reflects the highest level of quality care in patients undergoing these types of surgeries.

“We are pleased the STS three-star ratings for our CABG, AVR and simultaneous CABG/AVR programs place Swedish in the top two percent of cardiac surgery programs in the U.S.,” says Glenn R. Barnhart, M.D., chief and executive director for Cardiac Surgical Services at the Swedish Heart & Vascular Institute. “The STS’s comprehensive rating system allows individuals and medical practices to compare the quality of cardiac surgery at hospitals across the country. It shows how well surgical groups performed in terms of survival rates, the absence of complications and other key measures. Most importantly, it allows centers to objectively evaluate how they can improve patient care in the future.”

The STS, a nonprofit professional organization, is widely considered the gold standard of databases for cardiac surgery with more than 4.5 million surgical records, representing 94 percent of all adult cardiac surgery centers in the United States.

The surgeons of Swedish Cardiac Surgery are available for consults, referrals and second opinions, and invite you to contact them at 206-320-7300.
“We schedule patients for consecutive appointments with multiple specialists on the same day, which is indicative of the collaborative approach we take to diagnose and treat all pituitary disorders. Following those appointments, we evaluate MRI and other detailed imaging, as well as the results of visual field testing and an endocrine panel, and the results of additional testing, which may include advanced blood work, urine tests, growth-hormone-stimulation testing, glucose-tolerance testing for acromegaly, cortrosyn-stimulation testing for central adrenal insufficiency, and dexamethasone-suppression testing.”

Together the center’s specialists develop a treatment plan that best meets the needs of the patient. Treatment options include observation, transsphenoidal surgery, medical therapy and radiosurgery. Because Swedish has both CyberKnife® and Gamma Knife® radiosurgery platforms, neurosurgeons are able to select the most appropriate platform for patients being treated with radiosurgery. The Swedish Pituitary Center has more experience than any center in the Northwest region for surgical or radiosurgical treatment of pituitary tumors, with complication rates of less than one percent.

“Next to our exceptional outcomes, the most important thing we offer is continuity of care and a partnership with referring physicians,” says Marc R. Mayberg, M.D., executive director of the Swedish Neuroscience Institute and a neurosurgeon with the Swedish Pituitary Center. “We place great value in communicating effectively with primary-care physicians to share treatment outcomes and instructions for follow-up care.”

For more information about the Swedish Pituitary Center or to refer a patient, go to www.swedish.org/pituitary or call 206-320-4844.

When to Refer to Swedish

Swedish Pituitary Center
550 17th Ave., Suite 400
Seattle, WA 98122

Telephone: 206-320-4844
Fax: 206-320-2995
www.swedish.org/pituitary

The specialists at the Swedish Pituitary Center accept referrals and requests for second opinions. The center offers minimally invasive transsphenoidal surgery in highly sophisticated operating rooms, advanced imaging, both Gamma Knife and CyberKnife radiosurgery, and access to clinical trials for new medical therapies.

The Swedish Pituitary Center has the highest outpatient and pituitary surgery volumes in the five-state region that includes Alaska, Idaho, Montana, Oregon and Washington.

Case Study: Prolactin-Secreting Pituitary Tumor

Frances E. Broyles, M.D., Director, Swedish Neuroendocrine Program, and Marc R. Mayberg, M.D., Executive Director of the Swedish Neuroscience Institute and neurosurgeon, Swedish Pituitary Center

A 27-year-old female, with menarche at age 13 and a seven-year history of taking oral contraceptives (OCP), presented to her gynecologist with complaints of amenorrhea after being off OCP for several months. She also did not bleed four years ago when she stopped OCP for six months. At that time, her gynecologist did not order blood work and advised her to resume OCP.

During her recent visit, her gynecologist drew a prolactin level (>400 ng/ml) and ordered an MRI, which revealed:

- A pituitary macroadenoma (2.6 x 1.7 x 1.5 cm)
- Evidence of prior bleed into the tumor
- Mass effect on the right optic nerve and chiasm
- Right cavernous sinus invasion
- Significant pituitary stalk deviation to the left

Medical history

- Prozac® 40 mg daily for past five years for depression and anxiety
- Galactorrhea and breast engorgement beginning three months ago
- No history of headaches, other than a single bad headache in 2012
- Blurring/decreased vision in right eye (diagnosed as lazy eye about two years ago)
- Chronic dry skin
- Weight gain of 15-20 pounds in last two years despite diet control and exercise
- Good energy, endurance

(continued on page 6)
Testing

- **Neuro-ophthalmologic exam**: Bilateral optic neuropathy with mild visual field defect in right eye and bilateral drop out of retinal nerve fiber layer
- **Initial pituitary testing**: Normal 1 ug cosyntropin stimulation test (CST) with peak of 24.2 ug/dl, central hypothyroidism with thyroid-stimulating hormone (TSH) of 1.3 (0.45-4.5) and Free thyroxin (FT4) of 0.8 ng/dl (0.82 – 1.77), luteinizing hormone (LH) of 0.721 and follicle-stimulating hormone (FSH) of 4.5, insulin-like growth factor 1 (IGF 1) of 248 ng/ml (77-271), and normal electrolytes

**Diagnosis and Treatment Discussion**

Many things can cause prolactin elevation, including selective serotonin reuptake inhibitors, such as Prozac®, primary hypothyroidism and stalk deviation. However, medications are not typically associated with levels this high; the patient has central, rather than primary, hypothyroidism; and stalk deviation rarely causes prolactin levels higher than 150-200 ng/ml. Therefore, the degree of prolactin elevation is consistent with a prolactinoma, as opposed to a nonfunctional macroadenoma with stalk effect. The patients IGF-1 is normal, so the tumor is not dual-secreting.

Although the patient’s visual symptoms and optic nerve compression create an urgent scenario, there is still time for a trial of a dopamine agonist with close observation and follow up within six weeks. Cabergoline is the drug of first choice because it lowers prolactin and shrinks the tumor with fewer side effects. If there is no response to drug therapy, the patient will be referred for surgery. Because her tumor is in the cavernous sinus, surgery would not be curative; rather it would be done to remove the tumor’s sellar component and decompress the optic nerve.

**Treatment**

The patient was placed on cabergoline (two 0.5 mg pills daily). After four days her prolactin was 90 ng/ml. She tolerated the drug with minimal sedation and nausea, and experienced improved vision. The dose was reduced (three 0.5 mg pills two times per week), with a plan to repeat visual fields and MRI in six weeks. At six weeks, her prolactin had normalized to 4.99 ng/ml, her vision had normalized and she was no longer using glasses. Her visual fields showed resolution of her right visual field defect and her MRI showed 30-40 percent tumor shrinkage with reduced but persistent effect on the optic chiasm. Her galactorrhea had resolved, but amenorrhea persisted. She was placed on levothyroxine 75 ug daily with normalization of her Free T4. Cabergoline was further reduced (two 0.5 mg pills two times per week).

Three months later she continued to be amenorrheic, despite normal prolactin and thyroid levels. Testing showed FSH of 4.3, LH of 0.8 and total estrogen of 54 pg/ml with negative withdrawal bleed on Provera®, consistent with central hypogonadism. MRI at six months showed continued tumor shrinkage (now 10 x 8 x 7 mm), with no mass effect on the optic chiasm. Her dose of cabergoline was reduced (one 0.5 mg pill two times per week) to counter her increasing nausea and dizziness, with follow up in one week to see if the side effects persisted.

If the patient cannot tolerate drug therapy, she will be scheduled for a surgical referral to discuss trans-sphenoidal debulking of the tumor or stereotactic radiosurgery with Gamma Knife® or Cyber Knife®. Because the tumor has responded to medical therapy and the optic nerves are decompressed, the objective of surgery would be to achieve surgical remission and discontinue medication. When the prolactinoma has not invaded the cavernous sinus, surgical remission can be achieved in 80-90 percent of cases. The likelihood of surgical remission in this patient, however, is small because the tumor has invaded the cavernous sinus and cannot be safely removed in total. Occasionally, debulking reduces the tumor burden to enable a smaller tolerable dose of cabergoline or a smaller target for radiosurgery. Remission rates for prolactinomas after radiosurgery are generally in the range of 50-60 percent, which is not as good as with other pituitary tumors.
Cancer Screening: Finding the Right Balance

(continued from page 1)

Thomas D. Brown, M.D., MBA, executive director of the Swedish Cancer Institute (SCI), “These guidelines, however, are a baseline. We also approach each person individually, and our providers take into account many factors within a patient’s medical and family histories, along with lifestyle, before recommending a screening regimen.”

Prostate Specific Antigen (PSA) screening is one example of this personalized approach. The U.S. Preventive Services Task Force recommends against PSA screening for men who are not symptomatic. The SCI encourages a physician/patient discussion that looks at age and medical history to determine the value of PSA screening.

The SCI has resources dedicated to helping high-risk patients establish the most appropriate screening schedule. The SCI’s High-Risk Surveillance and Genetic Counseling clinics assist men and women who have a personal or family history of cancer.

Screening for cancer can save lives and reduce morbidity – but one size does not necessarily fit everyone. Call 1-855-XCANCER (1-855-922-6237) for help in determining the best cancer-screening advice for your patients. A matrix of the SCI’s recommendations for cancer screening is also available online at www.swedish.org/cancerscreenings.

Radiosurgery for Brain Metastases

Sandra S. Vermeulen, M.D., Executive Medical Director, Swedish Radiosurgery Center

Radiation treatment is often used to control brain metastases. Research is finding that utilizing stereotactic radiosurgery as the initial treatment for people with four or less brain metastases is associated with improved survival and reduced risk of memory loss compared to whole brain radiation. Stereotactic radiosurgery is a very precise image-guided treatment that uses multiple beams of radiation from a variety of directions to destroy the diseased area while avoiding the surrounding healthy tissue.

The two leading radiosurgery technologies (Gamma Knife® and CyberKnife®) are available at the Swedish Radiosurgery Center in Seattle. Based on each patient’s unique situation, we determine which radiosurgery technique is optimal for his or her condition. We are able to complete the radiosurgery treatment in an outpatient setting in a single session or over the course of several days. To learn more about treating brain metastases and other conditions with radiosurgery, go to www.swedish.org/radiosurgery. To refer or consult on a patient, please call 206-320-7130.

Issaquah Receives “Top Hospital” Designation

In its first year of eligibility, Swedish Medical Center’s Issaquah campus has earned the distinction as one of the “Top Hospitals” in the nation at providing the highest quality of patient care, according to The Leapfrog Group’s annual survey of more than 1,300 hospitals. Widely cited as the nation’s most competitive hospital quality award, the Top Hospitals designation recognizes hospitals that deliver the highest quality care by preventing medical errors, reducing mortality for high-risk procedures and reducing readmissions for patients being treated for conditions like pneumonia and heart attack.

Swedish Health Services
Quick Reference

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5300 Tallman Ave. N.W.
Seattle, WA 98107-3985
206-782-2700

Cherry Hill
500 17th Ave.
Seattle, WA 98122-5711
206-320-2000

Edmonds
21601 76th Ave. W.
Edmonds, WA 98026
425-640-4000

First Hill
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Seattle, WA 98122-4307
206-386-6000

Issaquah
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Everett, WA 98208
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Redmond
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Redmond, WA 98052
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Swedish Medical Group
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Case studies are provided with the consent of the patient or with personal health information removed or altered in order to protect patient privacy.
DocTalk: Email and Print Delivery Options

Swedish Health Services produces DocTalk six times a year as a service to physicians. The articles and case studies that appear in the newsletter are designed to provide insight into services at Swedish’s various locations that physicians may need for their patients. We encourage physicians to share the publication with their staff members.

DocTalk is distributed primarily via mail to primary-care and emergency-medicine physicians in the Greater Puget Sound Area.

The Newest Members of the Swedish Medical Staff

The following individuals joined Swedish during the fourth quarter of 2013. We invite you to view their online profiles at www.swedish.org/physicians.

- Sonal Avasare, M.D.  
  Pediatric Nephrology
- Tara Benkers, M.D.  
  Neurology
- Jeremia Bernhardt, M.D.  
  Family Medicine with Obstetrics
- Wendy Chang, M.D.  
  Obstetrics & Gynecology
- Joshua Hill, M.D.  
  Internal Medicine/Hospitalist
- Yvette May Mabasa, M.D.  
  Family Medicine
- Barbara Troiano, M.D.  
  Internal Medicine
- Lili Yao, M.D.  
  Internal Medicine

CME Course Listing – January – March 2014

Physicians from across the region and around the world come to Swedish Medical Center’s Continuing Medical Education (CME) courses to learn about new research and innovative treatment techniques.

For times and locations, go to www.swedish.org/cme or call 206-386-2755.

- 10th Annual Pediatric Specialty Updates for the Primary-Care Physician  
  Friday, Jan. 31
- Transradial Approach: A Case-Based and Hands-On Training Course  
  Friday, Feb. 28
- Pelvic Floor Disorders: Update for the Primary-Care Physician  
  Friday, March 7
- Swedish Digestive Health Summit  
  Friday, March 14
- Clinical Research Investigator Training  
  Friday, March 21
- High-Risk Obstetrics: Tools for the Family Physician  
  Friday, March 28

Swedish Medical Center is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.