

Young adults with an AVM are at the **greatest risk for hemorrhage** and least likely to exhibit symptoms. **Read more** in this issue of DocTalk.

# DocTalk

Published for health-care professionals.

## IN THIS ISSUE

- 1 Impact of Sinusitis on Your Patient  
Treating AVM to Remove the Risk of Rupture
- 3 Case Study: AVM
- 5 Case Study: Sinusitis
- 6 A Transitional Bridge for Moms and Their Newborns
- 7 Meet the Newest Members of the Swedish Medical Staff
- 8 Continuing Medical Education

## The Impact of Sinusitis on Your Patient

Vincent Chan, M.D., Swedish Otolaryngology, Swedish/Ballard and Swedish/First Hill

Sinusitis has a significant impact on people, their work and leisure time, and the overall cost of health care. It affects one in seven people, and accounts for an annual direct cost of \$5.8 billion, about 500,000 surgeries each year and more than one out of every five antibiotics prescribed annually. Furthermore, quality-of-life studies have found that sinusitis patients score lower in bodily pain and social function than patients with angina, back pain, congestive heart failure and chronic obstructive pulmonary disease.

### Pathophysiology of sinusitis

With sinusitis, patients experience symptomatic inflammation of their paranasal sinuses  
*(continued on page 4)*

## Treating Arteriovenous Malformations to Remove the Risk of Rupture

An arteriovenous malformation (AVM) in the brain is a relatively rare condition – occurring in less than 1 percent of the population. It can, however, be neurologically morbid in young adults ages 15 to 20, who are at the greatest risk for hemorrhage and least likely to exhibit symptoms. About 2 to 4 percent of all AVMs each year hemorrhage.

An AVM's tangled mass of blood vessels, which forms in utero, produces multiple direct connections between arteries and veins without the normal, intervening capillaries. Symptoms often are not present until later in life or until after the AVM ruptures.

A small number of congenital syndromes, such as Sturge-Weber, Rendu-Osler-Weber, ataxia telangiectasia, and Wyburn-Mason, are associated with AVMs. Once formed, extrinsic factors, such as arterial shunting, growth factors and intracranial hemorrhage, may alter the size and shape of an AVM.

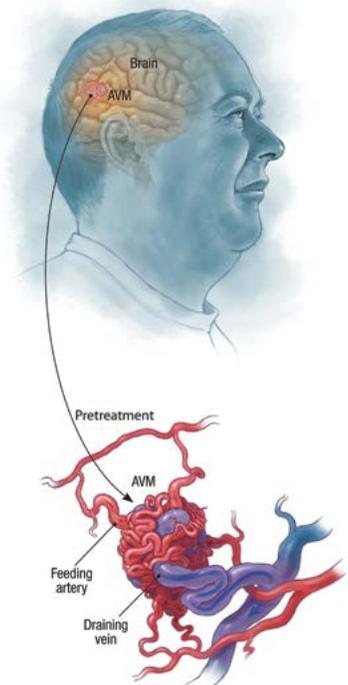
The most common types of AVMs are:

- **Arteriovenous (AV) fistula** – direct connections

between arteries and veins that can occur in a variety of locations, resulting in symptoms caused by increased pressure in the venous side of the circulation

- **Cavernous Malformation** – the second most common cerebral vascular malformation, although often found incidentally, occurring anywhere throughout the central nervous system and resulting in headaches, bleeding or seizures
- **True Arteriovenous Malformation (AVM)** – high-flow cerebrovascular lesions occurring on the proximal intracranial vessels in various locations and ranging in size from microscopic to more than 10 cm in diameter
- **Developmental Venous Anomalies** – benign abnormal developmental anomalies of the cerebral venous system that rarely hemorrhage and, therefore, are not treated by surgery or radiosurgery
- **Capillary Telangiectasia** – benign focal collections of dilated capillaries with normal

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## Treating Arteriovenous Malformations

(continued from page 1)

intervening brain structures that are mostly found in the posterior fossa, particularly the pons, and do not require treatment

### The challenge of diagnosing an asymptomatic condition

Only about 12 percent of patients with AVM present with symptoms. Most frequently the AVM is discovered when the patient receives imaging for another condition. Symptoms may include:

- Sudden and severe headaches or seizures
- Seizures
- Muscle weakness or paralysis
- Numbness and tingling
- Problems with vision, language use, coordination or memory

Some symptoms, while rare, may result from the “steal effect,” where a very large AVM with high blood flow steals blood from other areas of the brain and causes decreased function in that area.

A thorough diagnostic workup may include:

- Cerebral angiogram
- Computed tomography (CT) angiogram
- Cranial MRI with functional imaging to determine the precise location and proximity to brain areas that control critical functions
- Electroencephalogram (EEG)
- Magnetic resonance angiography (MRA)
- Magnetic resonance veniogram

### The AVM treatment arsenal

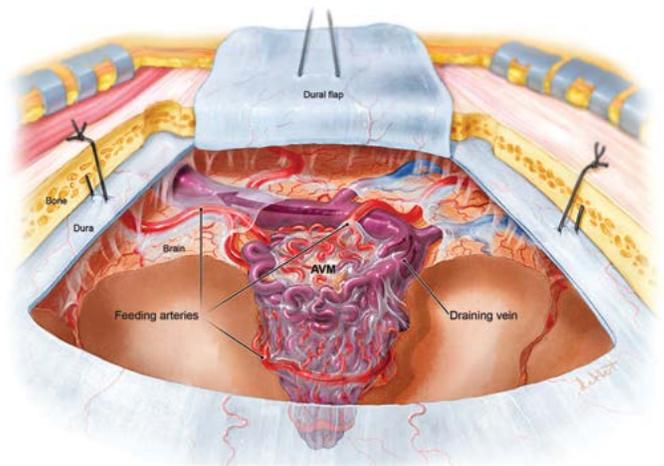
Neurosurgeons evaluate the size, location and involved blood vessels, as well as the patient’s age and medical history and co-morbidities, in order to develop the most appropriate treatment plan. Preferred treatments include:

- Microsurgery
- Selective vessel AVM embolization
- Radiosurgery

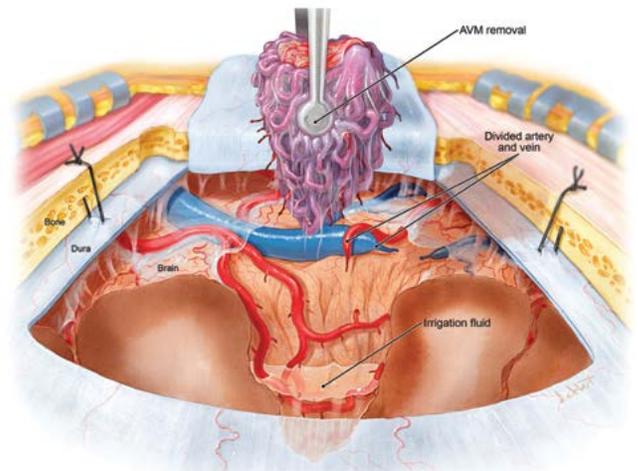
**Microsurgery** is used to close the blood vessels, remove the AVM and eliminate the risk of future bleeding. A vascular surgeon often performs microsurgery in conjunction with staged, catheter-based embolization by an interventional neuroradiologist.

**Stereotactic radiosurgery** can be used in lieu of surgery for AVMs that are located deep within the brain or are too close to critical brain regions. Radiosurgery is particularly effective with small AVMs. We are fortunate to have the two most sophisticated technologies for the treatment of AVMs at the Swedish Radiosurgery Center. With both radiosurgery platforms under one roof – CyberKnife® and Gamma Knife® – we are able to select the most appropriate treatment that will provide the best possible outcomes. Regardless of the technology, the precise delivery of high-dose radiation directly to the AVM causes the blood flow to slowly close off over time, until the AVM is obliterated and the bleeding stops completely.

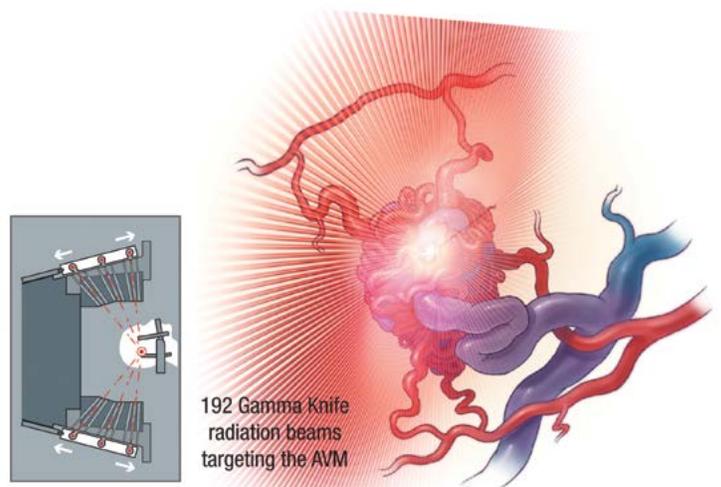
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## Expertise and experience drive outcomes

The neurosurgeons and interventional neuroradiologists at the Swedish Cerebrovascular Center are regional resources for the treatment of AVMs of all types. With their expertise and experience with diagnosing and treating AVMs, along with the expertise of the nursing staff in the dedicated ICU and on the nursing floors, and the specially designed neurosurgical operating rooms and endovascular suites, the Swedish Neuroscience Institute is a resource you can count on for quality care for your patients.

For more information about arteriovenous malformations or to consult on a patient, please call the Swedish Cerebrovascular Center at 206-320-3470. 

## Referring to the Swedish Cerebrovascular Center

### Swedish Cerebrovascular Center

James Tower, Swedish/Cherry Hill  
550 17th Ave., Suite 500 • Seattle, WA 98122  
[www.swedish.org/cerebrovascular](http://www.swedish.org/cerebrovascular)

### Appointments & Referrals

New patient appointments: 206-320-3940  
Physician to-physician consults: 206-320-2832

### Urgent Patient Transfers

Swedish Transfer Center  
Toll free: 866-470-4BED (866-470-4233)

## About the Author



**David W. Newell, M.D.**, is a board-certified neurosurgeon who received his medical degree from Case Western Reserve University in Cleveland, Ohio. He completed his neurosurgery residency at the University of Washington in Seattle, followed by a fellowship with the Department of Neurosurgery at the University of Bern in Switzerland.

He was formerly a professor of neurological surgery at the University of Washington and former chief of neurosurgery at Harborview Medical Center. His subspecialty interests include cerebrovascular surgery, including treatment of arteriovenous malformations, cerebral aneurysms, microvascular decompressions for trigeminal neuralgia and hemifacial spasm, and carotid endarterectomy.

Dr. Newell has been named in many prestigious lists of exceptional physicians, including: Best Doctors in America®, Super Doctors, *Seattle* magazine, *Seattle Metropolitan* magazine, *Washington* magazine, Consumers' Guide to Top Doctors, Health Network Service Excellence Award and Castle Connolly Medical Ltd.

## Case Study: Arteriovenous Malformation

*David W. Newell, M.D., Swedish Cerebrovascular Center, Swedish Neuroscience Institute*

A female patient in her mid-50s was referred by her primary-care physician to the Swedish Cerebrovascular Center for evaluation of an acute hemorrhage in the left cerebellopontine (CP) angle, with diploplic vision and left cranial nerve VI palsy.

**Neurological Examination:** The patient was alert and oriented. Extraocular movements were intact, but she had some left lateral gaze nystagmus. Her face was symmetric. Her tongue was midline and her hearing was symmetric and intact. Her motor skills and muscle strength were normal.

**Radiographic Studies:** During her initial visit, we ordered a CT angiogram (CTA), an MRI and cerebral angiograms, which indicated a possible left CP angle arteriovenous malformation. A subsequent angiogram did not show any early draining vein. A third angiogram was performed, which reaffirmed the presence of a likely AVM in the left CP angle and the presence of an early draining vein above the left anterior inferior cerebellar artery (AICA) with a possible small nidus at that junction. Due to the uncertainty of whether the AVM was located within the dura and subarachnoid space or within brain parenchyma, we determined the best course of action before discussing the best treatment options was to obtain an MRI with a 3-Tesla magnet with contrast. We felt the results of this additional imaging would help us better ascertain the location of the malformation and would influence our decision regarding the most appropriate treatment modality.

The additional images, which were obtained in less than a week, confirmed the diagnosis of a small left CP angle AVM. After careful evaluation and in discussions with the patient, we determined that the better choice of treatment was a craniotomy to excise the left posterior fossa AVM, which would reduce her risk of further hemorrhagic events. Following a thorough discussion of the risks and benefits of this type of surgery, the patient consented and was scheduled for surgery.

**Surgery:** The surgery was uneventful and the patient was discharged after a brief hospital stay. Sutures were removed about a week later. During her six-week follow-up appointment, the patient reported that she was doing well, had minimal complaints and was slowly advancing her activity level. She said she occasionally experienced mild nausea and some decreased hearing on the left side, but those symptoms were improving.

**Follow Up:** We followed up with this patient one year post-surgery and obtained a noncontrast CT to ensure there was no development of hydrocephalus or other concerning issues. She is doing extremely well and imaging confirmed no fluid in the mastoid air cells on either side. I referred her to the Center for Hearing & Skull Base surgery for evaluation of the slight dullness in hearing on the left. The results of that evaluation were negative and indicated that the condition was most probably unrelated to the AVM surgery. 

## Impact of Sinusitis

*(continued from page 1)*

and nasal cavity, which leads to obstruction of ventilation and drainage, secondary infection and continued inflammation. Viral upper respiratory infections, allergies, poor nasal clearance or a compromised immune system can trigger this cycle of inflammation/obstruction/infection.

In order to properly manage sinusitis, it is crucial to distinguish among the various conditions that are characteristically grouped under the common title of “sinusitis,” including:

- Viral rhinosinusitis (VRS)
- Acute bacterial rhinosinusitis (ABRS)
- Recurrent acute rhinosinusitis (RAR)
- Chronic rhinosinusitis (CRS)

Each of these conditions share a pathophysiology, but differ in natural history and treatment outcome.

### Viral and acute bacterial rhinosinusitis

These two types of sinusitis share cardinal and minor symptoms. Symptoms most sensitive for the presence of acute sinusitis include purulent discharge, nasal obstruction and facial pressure. Fever, cough, malaise, hyposmia/anosmia, ear pressure and dental pain represent minor symptoms.

The primary difference between viral and acute bacterial sinusitis is duration of symptoms. Beyond 10 days duration, there is a greater probability of bacterial infection. Rarely is it necessary to order imaging studies for acute sinusitis unless there are signs of orbital, intracranial or soft tissue complications.

Treatment for VRS includes analgesics, antipyretics, topical decongestants and NSAIDs or narcotics for pain management as needed. Evidence does not support the use of nasal steroid or antihistamines in a non-allergic patient. Treatment for ABRS includes observation, followed by antibiotic treatment after seven days if there is no symptom improvement. Delaying antibiotic treatment during a week-long observation is not appropriate if the patient presents with a fever greater than 101 degrees or severe facial/dental pain for more than 30 days.

### Sinusitis Facts and Figures

- 20 million cases annually
- 31 million affected individuals
- Most common age affected – 20-59 years
- Women more than men
- Twice as many primary-care visits
- Five times as many filled prescriptions
- 73 million days of restricted activity annually

### Chronic and recurrent acute sinusitis

Chronic sinusitis is characterized by an episode of 12 weeks or longer in which the patient has anterior and/or posterior mucopurulent drainage. Other symptoms include nasal obstruction, facial pain, pressure and fullness, or a decreased sense of smell, and inflammation is documented by purulent mucus or edema in the middle meatus or ethmoid region, polyps in the nasal cavity and/or the middle meatus, and/or radiographic imaging. Recurrent acute sinusitis is four or more episodes of ABRS each year with the patient asymptomatic between episodes.

CT imaging is useful in distinguishing between chronic and recurrent acute sinusitis when the patient is well with the absence of radiologic findings indicating recurrent sinusitis and the presence of findings suggesting chronic sinusitis.

Treatment for chronic sinusitis includes three to six weeks of antibiotics, with the possible addition of oral steroids. It is also helpful in identifying the amount of inflammation, and the presence of polyps or anatomic variations that could be contributing factors.

### Treatment options for sinusitis

Long-term medical management for sinusitis includes measures to maximize ventilation and drainage of the sinuses and to decrease inflammation. Evidence-based medicine strongly supports the use of regular saline irrigation and nasal steroid, as well as active management of inflammatory conditions affecting the upper airway, including inhalant allergies.

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## About the Author



**Vincent Chan, M.D.**, received his medical degree from the University of California, San Francisco School of Medicine. He completed his residency training at the University of Washington School of Medicine in Seattle, followed by a fellowship in rhinology and sinus at the Lahey Clinic in Burlington, Mass. Dr. Chan is board certified by the American Board of Otolaryngology Head and Neck Surgery.

Dr. Chan’s practice encompasses all areas of adult and pediatric otolaryngology. His primary clinical interests include sinus and anterior skull base surgery, head and neck surgery, snoring and sleep apnea, diseases of the ear, thyroid surgery and vertigo.

Surgical intervention may be appropriate in the case of chronic sinusitis that does not respond to or quickly recurs after an adequate course of antibiotics and/or steroids, or for patients who have more than four episodes of acute sinusitis despite adequate prophylaxis and sufficient control of modulating factors. Surgery can establish adequate drainage and ventilation, and remove irreversible diseased or inflamed mucosa, bone or infected debris.

Today's technology and minimally invasive techniques lessen the impact of surgery on the patient. A better understanding of sinus anatomy and physiology allows for more selective removal of bone and mucosa, obviating the use of packing and reducing the need for debridement. Studies of patient outcomes also support this more selective approach. The patient experiences less pain with decreased use of narcotic medication, has shorter surgical and recovery times, and is often able to return to work and other activities within three to five days.

Sinusitis deeply affects the quality of our patients' lives and our society as a whole. A careful evaluation, followed by the most appropriate treatment can help your patient get back on the road to good health. 

## Referring to Swedish Otolaryngology

The specialists at Swedish Otolaryngology are available for referrals and second opinions in the following circumstances:

- Patient has 3-4 acute infections per year despite adequate prophylaxis
- There is chronic infection for more than 2-3 weeks despite antibiotics and/or steroids
- To evaluate the patient for surgical intervention
- Assistance identifying triggers (allergy/immune workup, screening for polyps and/or anatomic variances)
- Sinusitis complications
- Patient has had previous surgery and has persistent symptoms
- Suspicion of atypical sinusitis (a condition that mimics sinusitis, but is not; such as a nasal mass, fungus ball, etc.)

**Otolaryngology – Swedish/Ballard**  
1801 N.W. Market St., Suite 411  
Seattle, WA 98107  
Phone: 206-781-6072  
Fax: 206-781-6073

**Otolaryngology – Swedish/First Hill**  
600 Broadway, Suite 200  
Seattle, WA 98122  
Phone: 206-215-1770  
Fax: 206-215-1771

**Otolaryngology – Swedish/Issaquah**  
751 N.E. Blakely Dr., 5th Fl.  
Issaquah, WA 98029  
Phone: 425-313-7089  
Fax: 425-313-7184

**Otolaryngology – Swedish/Redmond**  
18100 NE Union Hill Rd., 2nd Fl.  
Redmond, WA 98052  
Phone: 425-313-7089  
Fax: 425-313-7184

## Case Study: Treating sinusitis in a medically compromised patient

Vincent Chan, M.D., Swedish Otolaryngology, Swedish/Ballard and Swedish/First Hill



CT scan showing osteitic bone from a previous surgery completely obstructing the patient's left frontal sinus drainage tract.

A local otolaryngologist referred a 58-year-old male for consultation and evaluation of left-sided purulent drainage and facial pressure. The patient had a 10-year history of chronic sinus infections following colds prior to becoming HIV+, which worsened the problem.

The patient's CD4 count was 800 and virus

titers were undetectable. He has had multiple previous surgeries, including multiple revision surgery of the right frontal sinus complicated by MRSA infection.

Upon presentation he was on Daptomycin IV and high-dose steroids. He was being managed by an infectious disease specialist because of multiple antibiotic allergies, including Augmentin®, aztreonam, Bactrim®, Biaxin®, Cefzil®, Cleocin®, Fosamax®, Keflex®

and penicillins. His current medications had not improved his symptoms. He was desperate for resolution, especially because of a long-anticipated international trip planned within a month of initial presentation.

Review of previously obtained fine-cut CT sinus scans revealed focal obstruction of his left frontal sinus drainage tract with osteitic bone from a previous surgery, as well as chronic inflammation.

We scheduled him for surgery three days after his evaluation. We performed an endoscopic frontal drill-out procedure in which we used high-speed drills to remove the osteitic bone from the frontal sinus opening. Once the bone was removed, we rinsed the frontal sinus, which was full of purulent debris.

Because of his documented sensitivities to various antibiotics, we did not prescribe any post operatively and we tapered him off steroids.

Improvement from his pre-surgical symptoms was noticeable immediately. At his first post-op visit at two weeks, he was asymptomatic and we cleared him for his planned travel.

Currently, at six months after surgery, the patient continues to be symptom free and is back on his routine medication. He also performs nasal sinus irrigation and uses steroid nasal sprays. 

## Building a Transitional Bridge for Moms and Their Newborns

Jane K. Uhlir, M.D., Executive Director, Maternal and Fetal Services, Swedish Health Services

Filling a gap in services – regardless of where it occurs – improves both the health of patients and the delivery of services at medical facilities. Gaps in care are hurdles patients must learn to navigate on their own. They can become roadblocks to coordinated care and may also be barriers to needed care. Gaps also foster inappropriate visits to emergency rooms and urgent-care facilities, which come with a higher price tag.

Such a gap is frequently exposed when mothers and their newborns are discharged from the hospital. While some mothers are seen soon after discharge, most postpartum visits are scheduled for six weeks after delivery. It is also incumbent upon a new mother to learn quickly during this transitional period what her baby needs during the first few weeks of life, as well as long term going forward.

### The Lytle Center fills the gap

Beginning in late summer, the Lytle Center for Pregnancy & Newborns at Swedish/First Hill will help fill that gap for new moms and dads, and their newborns – regardless of whether the delivery occurred at one of Swedish’s hospitals. As part of the discharge process, moms who delivered at Swedish will be scheduled for a follow-up appointment at the center shortly after delivery; others will be able to call the center directly to schedule appointments. The center will be open seven days a week, with evening hours available on weekdays, to accommodate all types of schedules.

The Lytle Center, named for a generous \$1-million lead gift from Chuck and Karen Lytle, has been designed and staffed to provide a bridge between inpatient obstetrical and neonatal care and the post-delivery outpatient care provided by gynecologists, internists, family medicine physicians and pediatricians. A mixed staffing model will make it possible to offer the services most needed during the first few weeks after discharge, and to augment what is already being provided by primary-care physicians.

For example, babies who have failed an initial hearing test, were two sick to be circumcised while in the hospital or need their



### Designing a Place of Comfort and Support

*The Lytle Center for Pregnancy & Newborns will be located at one end of the main hospital building on the Swedish/First Hill campus. That section of the hospital has been redesigned to include a 20-foot-high wall of windows that will bathe the “living room” with warmth and light. Parents will be invited to gather around the center’s fireplace and gain encouragement from others who are experiencing similar feelings or challenges.*

frenulum incised to improve nursing will be able to obtain those services at the center. Moms will be able to ask questions, consult with a lactation specialist, be screened for depression, or receive follow-up care for diabetes or blood pressure issues that surfaced during pregnancy.

### Helping families through the first few weeks

The first few weeks of a newborn’s life can be frightening and challenging for a new parent. The center will be a place

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## About the Author



As executive director of Women & Infants, and Clinical Process Improvement, **Jane Uhlir, M.D.**, provides strategic, clinical and business leadership for their development. Dr. Uhlir also serves as the executive director of Gossman Simulation Center at Swedish.

Dr. Uhlir received her medical degree from the University of Washington School of Medicine in Seattle, which was followed by a residency in obstetrics and gynecology. She is board certified in obstetrics and gynecology.

Dr. Uhlir began practicing at Swedish Medical Center in 1982. Five years ago she retired from active medicine and began administrative work full time at Swedish.

for community, so parents can meet and receive support from other families while sitting around a fireplace in a living-room setting. It will be a central resource for information with women and infant classes offered seven days a week and in the evenings. It will be a dedicated retail outlet, offering necessities for pregnancy, childbirth, parenting, breastfeeding, newborns and wellness, including the best car seats with instructions on how to use them. And, it will be a place for exceptional clinical care to ensure mom, dad and baby start their life together on the right foot and are ready to easily transition to the care provided by their own family physicians or to necessary Swedish specialty care. One resource – one stop – for families who are suddenly experiencing life with a newborn.

If you would like more information about how the Lytle Center for Pregnancy & Newborns can help meet the needs of one of your patients, please contact **Theresa Demeter**, director of Women & Infants Service Development, at [theresa.demeter@swedish.org](mailto:theresa.demeter@swedish.org) or 206-215-5907. 

## Swedish Medical Center Quick Reference

### Ballard

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

747 Broadway  
Seattle, WA 98122-4307  
206-386-6000

### Issaquah

751 N.E. Blakely Dr.  
Issaquah, WA 98029  
425-313-4000

### Mill Creek

13020 Meridian Ave. S.  
Everett, WA 98208  
425-357-3900

### Redmond

18100 N.E. Union Hill Road  
Redmond, WA 98052  
425-498-2200

### Swedish Medical Group

600 University St., Ste. 1200  
Seattle, WA 98101-1169  
206-320-2700



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[www.facebook.com/swedishmedicalcenter](http://www.facebook.com/swedishmedicalcenter)



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[www.youtube.com/swedishseattle](http://www.youtube.com/swedishseattle)

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### The Lytle Center

[www.swedish.org/thelytlecenter](http://www.swedish.org/thelytlecenter)  
206-386-BABY

- Open seven days a week beginning late summer 2013
- Weekday evening hours
- Mixed staffing model (including nurse practitioners, pediatric surgeons, certified lactation-nurse consultants, psychiatrists, social work services, patient education specialists, etc.)
- Clinical appointments for new moms and well-baby checkups shortly after delivery
- Clinical and social work support for postpartum mood disorder
- Breastfeeding support
- Breast pump rentals and other lactation supplies
- Childbirth, parenting and family education classes
- Fitness classes for pregnant and postpartum moms
- Support groups for expectant parents, siblings and grandparents
- Baby changing and weighing station
- Dedicated retail with necessities for childbirth, parenting and wellness
- Happy Birth Day get-acquainted tours and pre-birth tours at Swedish/First Hill

## The Newest Members of the Swedish Medical Staff

The following individuals joined Swedish during the first quarter of 2013. We invite you to view the online profiles of our newest physicians at [www.swedish.org/physicians](http://www.swedish.org/physicians).

Jaime Aranda-Michel, M.D.  
(*Transplant Hepatology*)

Charles Butler, M.D. (*Family Medicine*)

Laurie Diem, D.O. (*Pediatrics*)

Chantel Hazelwood, Au.D. (*Audiology*)

Esther Henkle, M.D. (*Family Medicine*)

Karen Koo, M.D. (*Pulmonology/Critical Care*)

Lynn Kovacevich, DPM (*Podiatry*)

Gary Lee, M.D. (*Pediatric Intensive Care*)

Kyung Lee, M.D. (*Family Medicine*)

Sandy Ma, M.D. (*Family Medicine*)

Ravi Menon, M.D. (*Neurology/Hospitalist*)

Anthony Meyer, M.D. (*Dermatology*)

Rocky Mazzeo, M.D. (*Family Medicine*)

Michael Previti, M.D. (*Neurology/Hospitalist*)

Joshua Saliman, M.D.

(*Pulmonary Disease/Critical Care*)

Kathleen Smith, M.D.

(*Pediatric Emergency Medicine*)

Alina Urriola, M.D. (*Family Medicine*)

Jane Xie, M.D. (*Sleep Medicine*)

Samuel Youssef, M.D. (*Cardiovascular Surgery*)

## CME Course Listing

May – June 2013

Physicians from across the region and around the world attend 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](http://www.swedish.org/cme) or call 206-386-2755.

**Annual Oncology Symposium –  
Women and Cancer:**

Why Sex Matters  
Friday, May 3

**Seventh Annual Cerebrovascular  
Symposium:**

Practical Aspects of Stroke and  
Cerebrovascular Care  
Thursday- Friday, May 9-10

**Sixth Annual Iris and Ted Wagner  
Endowed Lectureship:**

Perspectives on the Challenge of Translation  
for Acute Human Spinal Cord Injury  
Friday, May 22

**Fifth Annual Acute Care Neurology  
and Neurosurgery**

Friday, May 31

**Adolescent Health and Pediatric  
Obesity (R3 Talks)**

Friday, June 7

**Pacific Northwest Epilepsy Symposium, 2013**

Friday, June 14

### Save the Date

#### Preview of Fall 2013 Courses

**Orthopedics for Primary Care**

Friday, Sept. 9

**Intensive Update in Neurology, 2013**

Thursday-Friday, Sept. 12-13

**Telehealth: Improving Access to Healthcare**

Friday, Sept. 20

**17th Annual Pain Management Symposium:  
Sherlock and the Mystery of Pain**

Friday, Sept. 27

**Controversies in Neuromodulation**

Friday, Oct. 18

**11th Annual West Coast Colorectal  
Cancer Symposium**

Friday, Oct. 25

**Transradial Approach: A Case-based  
and Hands-on Training Course**

Friday-Saturday, Nov. 8-9

**Diabetes Management Update**

Friday, Nov. 15

Join our email list: [swedish.org/CMEProfile](http://swedish.org/CMEProfile)



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[facebook.com/SwedishCME](https://facebook.com/SwedishCME)

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Accreditation Council for Continuing Medical  
Education to provide continuing medical  
education for physicians.