

## COMPUTER PROGRAM HELPS DOCTORS GAUGE BLOOD FLOW DURING ANEURYSM TREATMENT

A new computer program allows doctors to assess blood flow as they are using flow-diverter devices to treat life-threatening aneurysms, suggests a preliminary study.

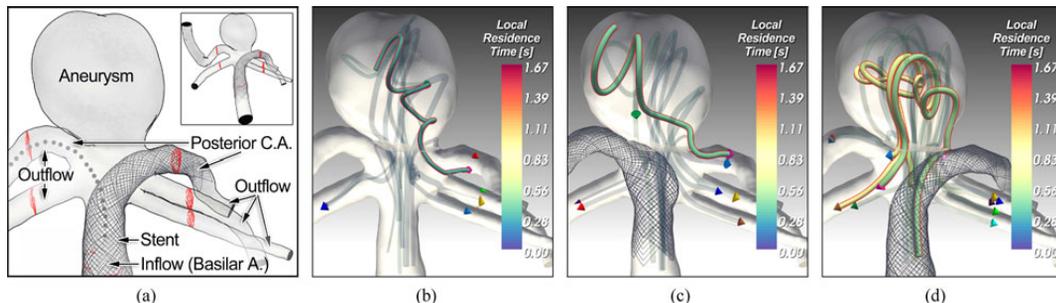
The Intracranial Stent Flow Mapping computer program – IS FlowMap – takes advantage of the standard digital subtraction angiography (DSA) imaging being taken during the procedure. The program analyzes the standard images, compares the difference in blood flow image to image and calculates the changes within seconds, providing that information to the doctor during treatment. If blood flow isn't optimal, the doctor may choose to use a different treatment, such as placing coils in the aneurysm.

"Until now, there was no safe way to measure the blood flow in real-time, during the procedure, including flow reduction to the aneurysm and flow to the rest of the brain," said Aichi Chien, Ph.D., assistant professor of interventional neuroradiology at the University of California, Los Angeles. "Because the program quantifies blood flow automatically, doctors do not need to stop the procedure to get this information, which helps them make the best decisions during the procedure."

A flow diverter is a small stent made of a fine mesh that is implanted minimally invasively in an artery at the site of an aneurysm - a bulging in an artery due to weakness in the vessel wall. A flow diverter redirects blood past the aneurysm to remove the pressure that could cause the aneurysm to rupture, and the patient to potentially bleed to death. Flow diverters typically are used to treat large (2-2½ centimeters) or giant (more than 2½ centimeters) aneurysms, or those with wide necks, or openings.

In the study, 13 patients were treated, and the average reduction in blood flow entering the aneurysm was 48 percent. The flow diverter healed the aneurysm in 11 (85 percent) of the patients.

"There are many advances in devices to treat patients with aneurysms and other vascular disease, but the technology to see the effects of those devices is very limited," said Dr. Chien. "The IS FlowMap provides a simple way to analyze the treatment without any additional procedures or risk. We'll be able to use this information moving forward to compare treatment and determine what amount of blood flow change is optimal."



(a) Virtual stent placement, morphological features, subdivision of the vascular domain (red circles) and flow conditions. (b-d) Clustering of streamlines based on geometry before (b) and after stenting (c,d). Representatives indicating a major difference between the flow patterns are rendered opaque. While a "simple" swirl is characteristic for the first two patterns (b,c), a double helical swirl is observed in the third one (d).

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## MARCH MEMORIES

March is a month of memories; March is when I lost my Mom.

Mom was a strict woman; she didn't believe in gray areas. If we disobeyed, we knew she would punish us. I loved fun and laughter; I was her wild child. Though we clashed early and often, I loved Mom, and I knew she loved me.

Five years before Mom died, her first stroke left her right side paralyzed. She regained speech and limited use of her right leg, but she was never able to use her right arm or hand again. The stroke changed Mom's personality. She became sweeter, kinder, and very forgetful.

When Mom entered the hospital for her second stroke she never regained consciousness. After a while she was moved from ICU to a room at the end of a hall. My sisters and I began to wonder if the staff had moved Mom to let her die.

Mom went to be with God on March 7, 1974. She was 54; I was 25. After she passed, I walked out of the hospital, and the sun was shining; traffic rolled up and down the streets. How could everything look normal? Mom was gone; the world should pause, for a few minutes at least.

Those of us who have aneurysms, strokes or AVMs are blessed with a wealth of care not available when my mom was hospitalized. But even with amazing advances, not everyone makes it. Aneurysms claim as many lives a year as breast cancer does. An aneurysm took the life of Ansley Briggs' mother, Amy. Ansley, a member of our online Joe Niekro Foundation Aneurysm/AVM support group wrote:

*"March 1st will be the two year anniversary of my mom's death. I lost her when I was 17 and a junior in high school. Mom was a nurse and had been for some time. She didn't know she had an aneurysm, but she had started losing her peripheral vision and just thought it was old age. She was only 49. Losing Mom was like losing a whole piece of myself. I was her only child and her complete world. I look just like her and commonly feel like I am her in some sense. People mistake me for her and call me 'little Amy' on occasion. Our birthdays were a day apart, and we were literally best friends. People ask me how I can go on without Mom here. Honestly, it's the hardest thing I've ever done...Mom wasn't able to see me graduate, see me cheer at my last football game, or see me on my senior year homecoming court. It's difficult, but I know life is more than it is here on earth, and I know every minute without her is a minute closer to being with her."*

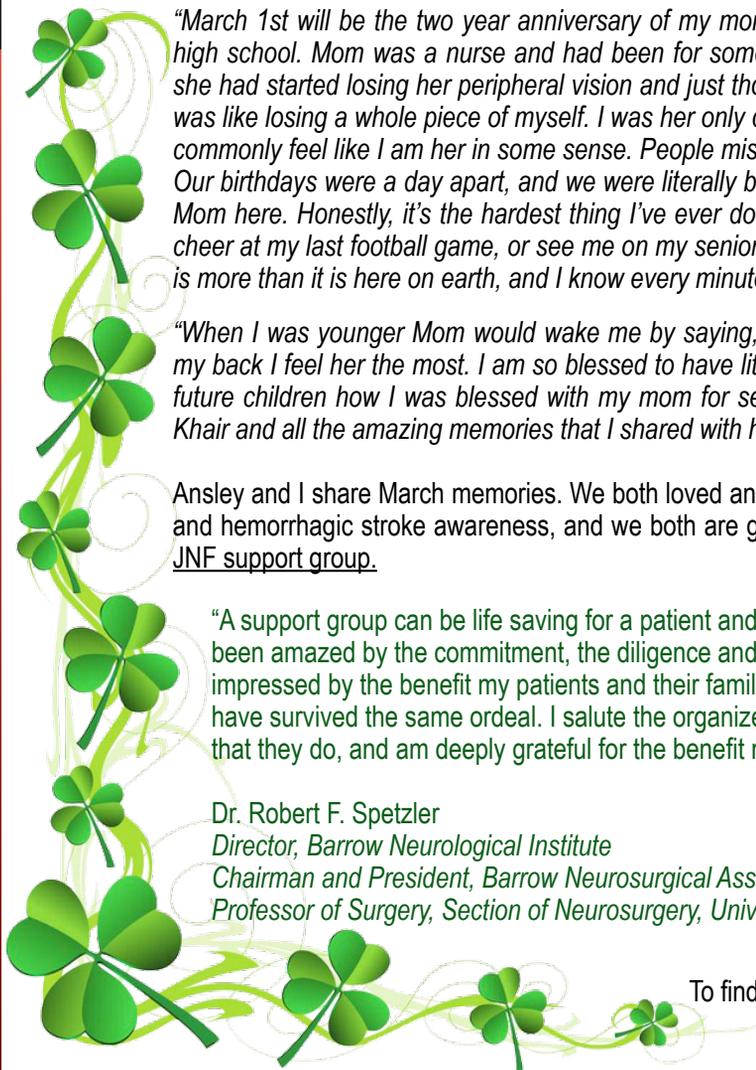
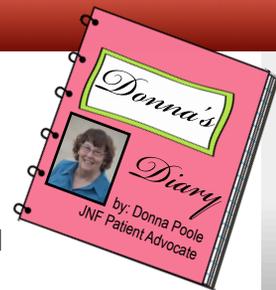
*"When I was younger Mom would wake me by saying, "Good morning sunshine." When I feel the sun on my back I feel her the most. I am so blessed to have little things to remind me of her. I can't wait to tell my future children how I was blessed with my mom for seventeen years. Signed: In loving memory of Amy Khair and all the amazing memories that I shared with her; I love you, Mom."—Your Sunshine*

Ansley and I share March memories. We both loved and lost; we both want to advocate for aneurysm/AVM and hemorrhagic stroke awareness, and we both are grateful for the encouragement we find in our online JNF support group.

*"A support group can be life saving for a patient and family during their critical recovery period. I have been amazed by the commitment, the diligence and camaraderie of their members. I have been deeply impressed by the benefit my patients and their families have received by interacting with others who have survived the same ordeal. I salute the organizers of The Joe Niekro Foundation for all the good that they do, and am deeply grateful for the benefit my patients have received because of their efforts."*

Dr. Robert F. Spetzler  
 Director, Barrow Neurological Institute  
 Chairman and President, Barrow Neurosurgical Associates  
 Professor of Surgery, Section of Neurosurgery, University of Arizona College of Medicine, Tucson, AZ

To find out more about the JNF Support Groups, [click here](#)

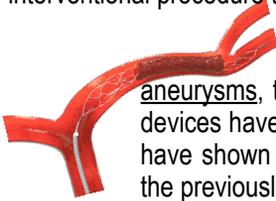


## NEW TREATMENT EVIDENCE FOR THE MOST SEVERE STROKES

More common than ruptured brain aneurysms, and still involving brain blood vessels, is ischemic stroke. A blockage of a major blood vessel in the brain can cause a range of neurological problems and disabilities depending on what part of the brain is deprived of blood. The severity of the stroke and disability depends on the size and location of the blockage. Fortunately, new evidence from multiple stroke studies published in the New England Journal of Medicine, from the US, Canada, the Netherlands and Australia show convincing, statistically robust evidence that those patients who have these emergent large vessel occlusions (ELVO) within the first few hours after symptom onset, do much better if they undergo an interventional procedure to remove the clot.



Dr. Michael Chen  
JNF Medical Advisory  
Board Member



Much like the procedure involved with placing endovascular coils or flow-diverters for brain aneurysms, there are also devices that are used within a patient's arteries that can remove clots. These devices have been in use for over 10 years, and the most recent design iterations such as the stent-trieter have shown favorable performance. Performance is measured in how complete blood flow restoration to the previously affected brain region can be achieved.

This treatment is not for every stroke patient. Patients with less severe neurologic deficits such as slight face and arm numbness and weakness without additional symptoms, likely have only a small blood vessel affected and should make a favorable recovery spontaneously. Those patients who do have large blood vessel occlusions sometimes have poor brain vascular reserve and the affected brain undergoes irreversible injury very rapidly (within minutes) would also not benefit from interventional blood flow restoration. It is really those patients who have severe deficits who still have brain tissue that is "holding its breath." The brain tissue is stunned, but not irreversibly injured yet. Flow restoration in these cases can prevent progression to irreversible injury and restore the function that brain region was responsible for.

Much of our focus now is how to effectively deliver this proven treatment for a population of patients that are in real need for an effective therapy. It's no use to have a proven therapy but no effective system in which to deliver it. Because time is so critical, well-designed and highly dedicated teams and systems are required to achieve favorable clinical outcomes. Many comprehensive stroke centers are investing resources in creating efficient internal workflows that can coordinate multiple services to function nearly simultaneously. Just as important is shortening the times by which a patient develops a symptom and arrives to the hospital. Stroke awareness, particularly how to recognize severe strokes caused by an ELVO, by first responders may hopefully lead to preferential triage of these patients to comprehensive stroke centers, saving hours that might be spent at a hospital that doesn't provide these types of therapies.



### Beth's blog

by Beth Barnes  
JNF Patient Advocate

I don't remember my life before "The event" as I refer to my brain aneurysm. I mean I do but life hasn't been the same since aneurysms, survivors, support, advocacy, and awareness all became a huge part of my vocabulary and my life. I lived my life in nearly the same manner before this. But I wasn't nearly as compassionate, empathetic, grateful or as aware as I am now. Parts of the Beth that was are now shadowed by who I am now. I didn't need or had a caregiver per se. My mom was there. My former spouse had headed back to his overseas job. And I was on my own. As an aneurysm survivor I had unforeseen hurdles. Granted they weren't as high as some others, but they existed. It wasn't until I met someone that gave me back some of who I was. Or maybe it was that he cultivated who I was growing into.

Sunshine has a whole new meaning for me, because that was the nickname he gave me which allowed me to experience the side of myself that had dissolved during the event and it's processes. I don't know if I will ever have that again, since he no longer resides in my life, just in my head and heart. That process is separate yet entwined and I'm still figuring that out. My point is that people have a hand in helping us redefine who we are, often without knowing they are doing it. And usually we don't either until the present becomes the past. Maybe it is finding that we can predict the weather by how our head feels, or knowing that we have helped another survivor simply by the words "me too." My advice to those who have yet to go through this process, be kind to yourself, and be patient. Caregivers, the same applies to you. For those who provide "sunshine" without knowing it, you have both spoken and unspoken thanks. You are the ones who light our fire to rediscover what life should be. And what it can be. As for me, I continually find out who I am. Maybe not to the ones I want, but to myself. And isn't that a path on this journey too?

## THE MOM WITH MANY HATS by: Marcy Mudd (Parent of a BA Survivor)

I have worn many hats in my life. But the most important hat that I will ever wear is my mom hat. The Mudd girls are a package deal and it has always been Marcy and Madeline. My mom hats changed through the years as she tried different sports. She could have been a softball player because she could hit the ball and run, but she was afraid to actually *catch* the ball. She tried competitive soccer, but when she was afraid to kick the ball, we headed for gymnastics. She did ok... but have the passion for it.



Fast forward to January of her 4th grade year. I had a teacher work day and she spent the day with a friend. Her friend's mom took the girls to an ice skating rink. While there she sent me a picture of the girls. Taylor was holding onto a trainer for dear life and Madeline had taken off and was skating around the ice by herself. I was shocked, I thought ice skating was hard. We started taking her to public skating sessions and when we learned that our rink offered a "learn to skate" program she begged us to sign her up. She quickly agreed to give up gymnastics for ice skating classes. She flew through these classes in a few months so our next step was to hire a private coach. I know that sounds crazy but that's the nature of the sport.

Boy oh boy was our life about to change... Madeline Mudd had found her passion. She became a figure skater and I became a skate mom. Figure skaters don't get the best ice time so if you want good ice you have to go at 6:00AM. This became our life. I was amazed at how she would get up at 5:15 before school twice a week to practice with her coach and then again on Sunday morning for team practice. She became the "skater girl" and I become the "skate mom." Figure skating and "synchro" became her life and her identity. I had a new hat to wear and I loved it! My first job was the eye shadow mom. All I had to do was apply a very heavy coat of green eye shadow because it needed to show up on the ice. As Madeline grew as a skater so did my role as a skate mom. I graduated from applying eye shadow to the role of sewing buns (the hardest mom-job there was). I soon took over all of the hair and make up. Not only had synchro become her identity, but being a synchro mom had become my identity too. Traveling with the team and driving a van full of girls and their stinky ice skates to a competition was a privilege.

Physically she is perfect and able to skate again; which is a miracle in itself. However, now her passion and her love are as hard for her as chemistry. It takes her a long time to learn the footwork and that makes her anxious and that anxiety inhibits her memory. It has become a vicious circle. I struggled all year coming to terms with this but I have made my peace with it. So now I need a new mom-job. That's where The Joe Niekro Foundation comes in. I have found my place. I have a new mom-job! I love being an Admin on the [Parent Support Page](#). It has helped me continue to heal. Helping others is therapeutic for me. Plus Madeline is starting to contribute more on the [Teen & Young Adult Page](#) and she has found a couple of girls with similar journeys so she doesn't feel so all alone any more. The Mudd Girls are still together and this mom-job just might be my best one yet!

## JNF WELCOMES DR. MICHAEL LAWTON



We are pleased to welcome Michael Lawton, MD to the [JNF Medical Advisory Board](#). Dr. Lawton is the Tong-Po Kan Endowed Chair, Professor of neurological surgery, and Vice-Chairman of the department at the University of California, San Francisco. He is chief of vascular neurosurgery, specializing in the surgical treatment of aneurysms, arteriovenous malformations, arteriovenous fistulas, cavernous malformations, and cerebral revasculariation, including carotid endarterectomy. As chief of one of the busiest cerebrovascular services on the west coast for over 17 years, he has experience surgically treating over 3600 brain aneurysms and over 700 AVMs. He also practices endovascular treatment of aneurysms.

He has published over 300 peer-reviewed articles, over 50 book chapters, and 3 textbooks. He has given over 500 invited lectures nationally and internationally, including visiting professorships at over 40 neurosurgical institutions. Dr. Lawton has been active in resident teaching courses, directing the CNS Anatomy Course for Senior Residents, developing and co-directing the AANS Vascular Skills Course, and directing industry-sponsored anatomy courses and teaching programs for residents nationally and internationally to observe vascular neurosurgery.

He co-founded Mission: BRAIN, a teaching mission to raise the level of neurosurgical technique practiced in developing countries, and has conducted 6 missions in Mexico and the Philippines.

## WHY WE DO WHAT WE DO!

We recently received the following message from one of our support group participants and had to share it with you. **THIS is the reason we do what we do!!!!**

*I just wanted to take a moment and thank you for all that you have done for survivors. Every month we have our support groups, I leave there with such a sense of gratitude for JNF. I am truly in awe of our survivors. I have watched them come into these groups full of fear and uncertainty. Everyone just wanted to meet others like themselves. They wanted to know if their experiences were typical, and wondered what they could expect in the future.*

*I have watched parents and caregivers who were already doing the very best they could, fearful they weren't doing enough, terrified and feeling helpless after watching their loved ones go through this experience.*

*Over the course of the last few months I have seen the confidence grow tremendously for all the participants. With this confidence, it seems there has been a level of healing that may not have been attainable if it weren't for JNF.*

*Many of our young people have gone from anger to empowerment. Some speaking to their schools about stroke. One of our teenagers even made it to the news...TWICE!*

*I have seen strangers become like family. Many of our participants call each other between meetings just to check up on one another. They are so happy to see each other every month! The meeting usually ends with smiles and hugs.*

*Also I think that the medical team has been extremely supportive. I think that they get as much as they give to these groups. It appears that they get to have an experience that may not otherwise have been had if it wasn't for the support groups.*

*They are able to see their patients through every step of the recovery process. I can only imagine that this is an invaluable experience for the neurologists.*

*Natalie, I am so sorry that you lost your father. But so many of us have gained so much because of your love for him. What a testament to his memory!*

*I cannot thank you enough!*

**SCOTTSDALE - Saturday, March 28th**

# Rockin' West Fest

**10 am - 10 pm**

**Western Show & Concert**

**Galaxy Press Western Play**

**More Celebs:**  
Phil Spangenberg  
**Martin Kove**  
Miguel Corona  
Frank Olive + more

**Musical Guest**  
**Jerry Riopelle**  
8 - 10 pm

**Jessi Colter**  
**Jon Chandler**  
**Jimmie Ray & Cyndi Cantrell**  
**Johnny Cash Tribute**  
**Nowhere Fast**  
**Tommy Rocks & more**  
Western Celebs:

**Peter Brown**  
Special Salute

**Bruce Boxleitner**  
John Goodwin  
**Jim Clark**  
Lincoln Lageson  
Paul Pape  
Rob Word

**Host**  
**Rex Hardin**

**The Original Cowboy Showman**  
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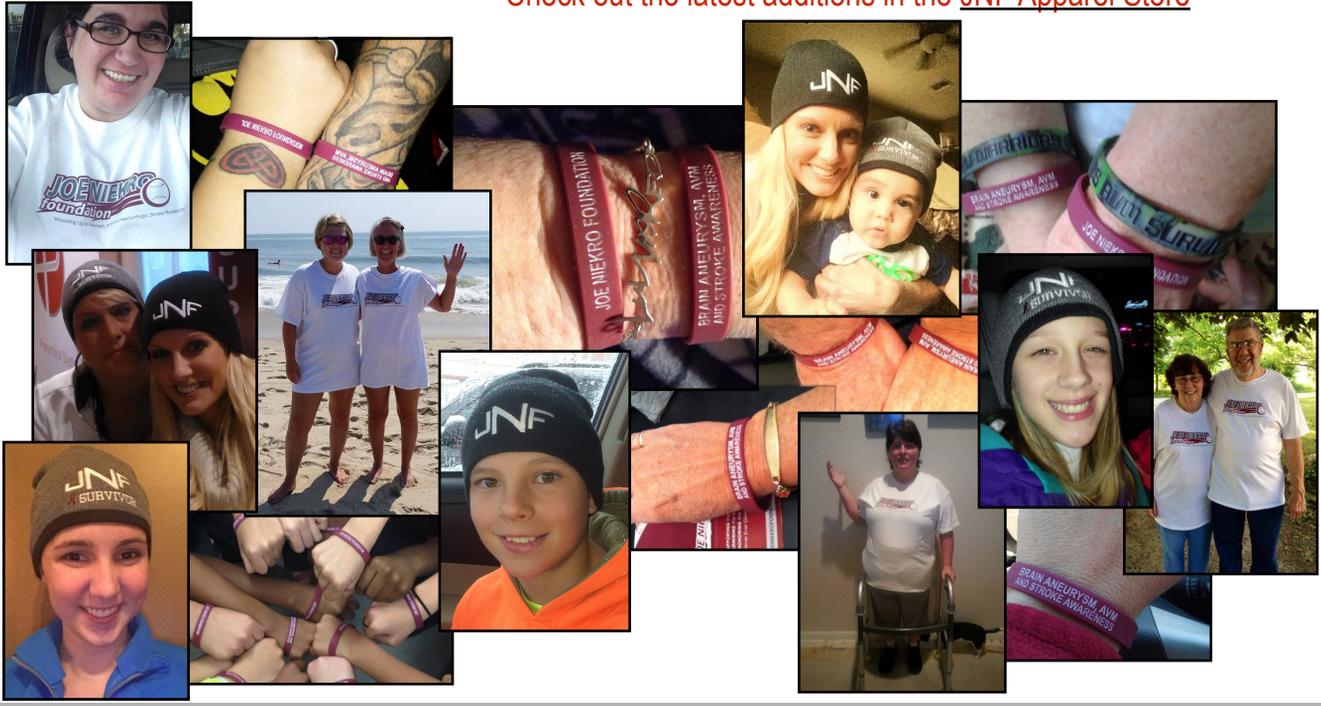
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**Tickets**  
\$25 Advance  
\$30 Door

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**For Info, Schedule & Tickets Visit**  
[www.joeniekrofoundation.org](http://www.joeniekrofoundation.org)  
or call 602.513.2081, or 602.722.7229

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Designed by Carol Stout

**JNF** Thank you for your support!

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The Joe Niekro Foundation was established in 2008 in honor of the founder's father, Joe Niekro, who lost his life from a sudden ruptured brain aneurysm on October 27, 2006. The astonishing lack of public awareness and under-support of research of such a widespread and often fatal condition led to the launch of a crusade to educate and encourage awareness about cerebral disorders. The Joe Niekro Foundation is committed to supporting patients and families, research, treatment and awareness of brain aneurysms, AVMs and hemorrhagic strokes. We provide education on the risk factors, causes and treatments of these conditions while funding the advancement of neurological research.

Every donation matters - every dollar counts. The Joe Niekro Foundation is a registered 501 (c)3 which means your donations are 100% tax deductible.

*"The Joe Niekro Foundation isn't a clinically trained organization and all therapy regimens brought before the support group are informational in purpose only and do not represent an endorsement or recommendation of any kind."*

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