Please help us welcome Piggott Community Hospital as AR SAVES 35th site. Drew County Memorial Hospital in Monticello and Bradley County Medical Center in Warren will be starting their training very soon - we look forward to having them on board.

In March, we had a total of 47 consults and tPA was administered 11 times for a 22% rate.

Strike Out Stroke night with the Arkansas Naturals in Thursday, April 12th. Please join us as we celebrate AR SAVES Stroke Survivors and their families!

Strike Out Stroke night with the Arkansas Travelers is Tuesday night, May 14th. We are so excited to be able to have this coincide with the 3rd Annual AR SAVES Tele-stroke. We will be celebrating the AR SAVES Stroke Survivors and their families. It will be a great night, please join us!

The 2012 3rd Annual AR SAVES Tele-stroke conference will be held May 15-16 at the Statehouse Convention Center in Little Rock. Please make your reservations and register for the conference now! On Wednesday night, we will also be hosting a Reception and Awards Ceremony where we will honor the Nurse Facilitator of the year, the Site of the year, the Physician of the year and the AR SAVES staff member of the year. Please help us as we honor these outstanding team members. We look forward to seeing you there.

With the addition of the Trauma Image Repository, it can be confusing where to send CT images. Please remind radiology that it may be helpful if they label the 2 different buttons; one as STROKE...
ACUTE STROKE MIMICS AND TPA

Vladimir Karpitskiy, MD

The diagnosis of acute ischemic stroke is often straightforward. The sudden onset of a focal neurologic deficit in a recognizable vascular distribution with a common presentation - such as hemiparesis, facial weakness and aphasia - identifies a common syndrome of acute stroke. But differential diagnostic problems remain because there are several subtypes of stroke and also because some non-vascular disorders may have clinical pictures that appear identical to strokes. Let us consider some specific stroke mimics and how we can potentially recognize them and avoid thrombolysis and its associated risks.

Hypoglycemia: Transient hypoglycemia may produce a stroke like picture with hemiplegia and aphasia. This seems simple and completely avoidable but any experienced emergency physician has been caught out at least once by hypoglycemia. Everyone with anything that might possibly be a neurological symptom requires a rapid finger stick glucose.

Migraine mimicking stroke: Migraine may actually precipitate a stroke, but there is also a variant of migraine, hemiplegic migraine, where unilateral hemiparesis outlasts the headache. This is difficult, if not impossible, to diagnose correctly at first presentation when it must be regarded as a diagnosis of exclusion; only with recurrent, stereotypic attacks can this be suspected. The patient may have nausea, vomiting or photo/phonophobia in addition to motor symptoms. Cases with alternating hemiplegia have been reported. At times this disorder has been shown to be familial.

Seizures and Postictal States: Seizures and status epilepticus may present in bizarre ways that resemble stroke with decreased level of consciousness. Postictal states can closely resemble stroke, and in particular Todd’s paresis, can fool even an astute clinician who does not have access to a full history. Any history of a seizure disorder or any hint of a seizure at the time of symptom onset should worry the emergency physician that this stroke mimic is in play.

Intracerebral hemorrhage: Intracerebral hemorrhage is what we are screening for with the CT scan that is part of every stroke protocol. We do not expect to see changes associated with an acute stroke and really we are looking for a reason to not administer TPA. Intracerebral hemorrhage should be easy to find, but subtle bleeds can be missed. Particular attention should be paid to areas that can show subtle bleeds, such as the 4th ventricle which is a dependent area in the supine patient and an area where a small volume of intraventricular blood might collect. Concomitant subacute subdural hemorrhage which can be difficult to identify as they are often isodense to brain tissue. While these are not the cause of the patient’s acute stroke, they are common in older patients in particular and preclude thrombolysis.

Subacute Stroke: This is definitely a mimic of acute stroke. We try to determine this from history, but at times we can be fooled. Maybe grandpa didn’t get up from his chair all day, but when he finally did he had right sided weakness and fell to the floor. The onset seems discrete to the family, but it may not be. On the initial CT scan visible edema in the predicted area of the stroke the patient is in all likelihood out of the window for thrombolysis.

Mass lesions and neoplasms: Any sort of primary or metastatic lesion can cause seizures and edema mimicking stroke. When thrombolysis is potentially an option including a cancer history is a good idea. If the patient has a history of cancer, or recent symptoms that might be attributable to cancer caus-
tion should be exercised. A CT scan showing early stroke changes could also be showing edema from a mass lesion, and a small amount of midline shift may be the only clue to a subtle mass lesion on non-contrast CT.

**Brain Abscess:** Brain abscess can also act as a stroke mimic from either local tissue injury or surrounding edema. A history of immunosuppression, HIV, endocarditis or IV drug use should raise suspicion of this mimic. On a non-contrast CT there may be a small area of low attenuation mimicking early stroke changes. Again, any changes at all on CT should raise the possibility of an acute stroke mimic, for the purposes of thrombolysis what we expect to see is a normal CT scan.

**Conversion Disorder:** Although rare conversion disorder presenting as an acute stroke syndrome, usually a unilateral hemiparesis, has been reported. A detailed neurological exam with findings that cannot be explained anatomically or a previous history of conversion disorder may be the only clues the physician has to this mimic.

**Encephalopathies:** Although encephalopathies typically cause global deficits, they can cause more focal symptoms. Hypoglycemia has been previously discussed. Both severe hyponatremia and hepatic encephalopathy have been reported to cause focal deficits. A very low sodium on initial blood work may prompt this as a consideration, as should stigmata of liver disease. Hyperglycemia with hyperosmolar state may be associated with focal neurologic deficits simulating stroke but focal seizures are reported in this condition as well. Focal neurologic signs with hyperglycemia may include aphasia, homonymous hemianopia, hemisensory deficits, hemiparesis, unilateral hyperreflexia, and the presence of a Babinski sign. Alcohol intoxication may produce stroke like symptoms.

**Cerebral Venous Sinus Thrombosis:** CVST may present with a hemiparesis or other neurological findings. It should typically be proceeded by a severe headache and should be accompanied by papilledema, which will raise the emergency physicians suspicion for this mimic.

**Thoracic Aortic Dissection:** Although unusual TAD can present with primary neurologic symptoms. Chest pain or syncope at symptom onset (even if no longer present), and diminished or asymmetrical pulses in the arms, carotids or femorals may be clues to this difficult mimic.

**Acute Mononeuropathy:** Bell’s palsy, radial nerve palsy may prompt evaluation for stroke.

**Other unusual stroke mimics:** hypertensive encephalopathy and reversible cerebral vasconstriction syndrome, acute demyelinating CNS disease, spinal cord myelopathy of different etiology, CNS vasculitis of different etiology, stroke following substance abuse (cocaine, methamphetamine)

When acute stroke patients present to community hospitals the emergency physicians are faced with a quandary. There are often protocols for thrombolysis in place, but insufficient resources to support the use of this potentially dangerous drug. AR SAVES neurologist on call will help with evaluation of the patient with stroke symptoms and with the decision regarding t-PA administration and further management.

Vladimir Karpitskiy, MD, PhD, ABPN certified Stroke neurologist
**TEAM MEMBER SPOTLIGHT**

Julie Hall-Barrow, EdD is the Director of AR SAVES, Director of Education for the Center for Distance Health and Assistant Professor for the College of Public Health.

Julie attained her BS from Longwood University in Virginia and then moved to Denton, Texas where she obtained her MS at the University of North Texas. She then earned her Doctorate degree in Education from the University of Arkansas in Little Rock.

She has spent 19 years in the health care field focusing on prevention, wellness and telemedicine. Julie also teaches for the College of Public Health as an Assistant Professor.

Fave food – anything Mexican!!
Fave band – Train
Fave car – 68 Chevy Camaro convertible
Fave color – orange
Fave book – Girl with the Dragon Tattoo series
Fave vacation – Myrtle Beach or anywhere there is sand and water!
Secret fact – I would like to travel the country in an RV – to see every NASCAR race!!

Julie Hall-Barrow is our team member of the month!

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**Upcoming Events**

- **April 12 2012**
  STRIKE OUT STROKE with the Arkansas Naturals on Opening Night!

- **May 14 2012**
  STRIKE OUT STROKE with the Arkansas Travelers

- **May 15-16**
  3rd Annual AR SAVES Telestroke Conference
  Statehouse Convention Center

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Contact Stacy Pitsch for comments and/or suggestions at sapitsch@uams.edu
Piggott Community Hospital is a 25 bed Critical Access Hospital with 6 ER beds, which served 5,109 ER patients in 2011.

Elaine Nixon, BSN, RN is the Nurse Facilitator at PCH. She has been a nurse for 21 years and has only worked at Piggott Community Hospital. She began her career in the ER on the 11-7 shift for 15 years. She also led the educational efforts, hosted health fairs and taught CPR classes for 6 of those years. After getting a chance to move to days, Elaine became the full time Education Director and shortly thereafter the QI Coordinator. Most recently, she has taken on the role of ARSAVES Nurse Facilitator.

Elaine and the staff at Piggott Community Hospital are very excited to join the AR SAVES team, stating they feel that this program enables them to make a big difference in the care of stroke patients within their community.

Please join us in welcoming Piggott Community Hospital as the 35th AR SAVES site!