

# AR SAVES

## ANNUAL REPORT



# 2019



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Tina Benton, R.N., BSN  
Executive Director of the  
Institute for Digital Health  
& Innovation



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ANGELS Administrative  
Services Director

*On The Cover:  
Through education  
and collaboration,  
we are working  
towards a  
brighter future for  
stroke survivors.*

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## Dear AR SAVES Team and Supporters:

**“How wonderful is it that nobody need wait a single moment before starting to improve the world.”**

The words of Anne Frank should apply to every facet of our lives. It is such a simple thing that the world can be a better place, without a moment's hesitation if only we set our focus on being all we can be. In this year's Annual Report, I want to instill the sense that all of you are improving the world without hesitation through the countless, selfless acts you make every day in saving the lives of stroke victims. Your actions have created a ripple effect throughout our great state by not only saving victims but also saving their families, their loved ones, and the generations that are better people for knowing this person whose life you saved. And a moment is all it takes. Do not think of it any less as this: You are improving the world.

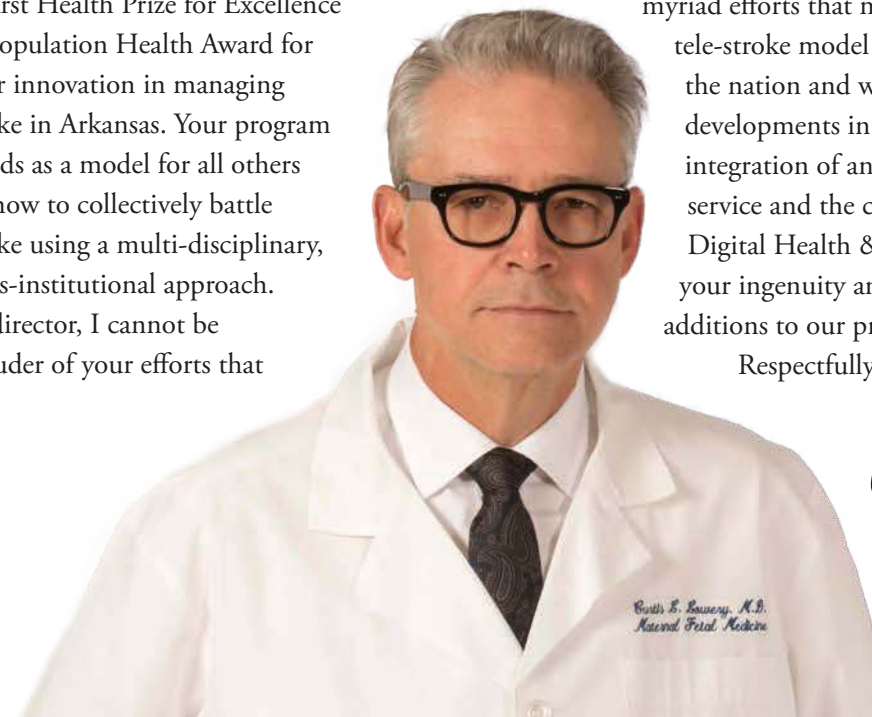
Your efforts are gaining notice nationwide. AR SAVES is a flagship tele-stroke program for the nation, blurring the lines between network ownership by including all hospitals, regardless of affiliation, to save the lives of stroke victims. You were honored with two profound awards in Fiscal Year 2019: The UAMS Team Award for excellence in team coordination and a top three ranking in the Jefferson University Hearst Health Prize for Excellence in Population Health Award for your innovation in managing stroke in Arkansas. Your program stands as a model for all others on how to collectively battle stroke using a multi-disciplinary, cross-institutional approach. As director, I cannot be prouder of your efforts that

comprise the series of small acts and interventions that improve the world.

To boot, you have also increased the number of AR SAVES tele-consults, stroke treatment rates, and the number of mock trainings in 2019 to reduce your door-to-needle times. People often say certain things improve with age. Clearly, this is true for AR SAVES.

As this year closes, I want to thank you for your myriad efforts that make AR SAVES regarded as a tele-stroke model for others to follow elsewhere in the nation and world. We have so many exciting developments in the near future, including the integration of an emergency department triage service and the convergence with the Institute for Digital Health & Innovation. I am confident that your ingenuity and flexibility will make these new additions to our program all the more successful.

Respectfully,



**Curtis L. Lowery, M.D.**  
*Director of the UAMS Institute for  
Digital Health & Innovation*

*Curtis L. Lowery, M.D.  
Maternal Fetal Medicine*





## Oklahoman Glad He Was in Arkansas When He Had Rare Stroke

Being far from home but in the AR SAVES network may have saved Donny Koger's life.

A resident of Oklahoma City, Koger was in a wilderness area of Polk County, on the western border

of Arkansas, late in the evening of March 16, 2018, when he suddenly found he was unable to speak and was paralyzed from the neck down.

With the onset of paralysis, Koger started falling, but his wife, Rebecca Koger, and some friends nearby caught him before he hit the ground. The Kogers were about to discover that their remote location was closer to help than they might have thought. Mena Regional Health System, an AR SAVES hospital, was less than an hour away.

Before Donny even thought of stroke that night in the forest near Mena, he was concerned about another health issue, a prostate problem unrelated to his stroke. Donny had noticed blood in his urine and told his wife that they probably needed to return to their camp and possibly go to a hospital. Rebecca had started to tell their friends what they were going to do when Donny suddenly felt weak and disoriented. That's when he started to fall.

Rebecca and a friend's daughter recognized the stroke signs.

"I knew immediately," Rebecca said. "His eyes were large and his speech was completely gone. He was trying to speak but it was completely slurred. You couldn't understand him."

By the time she and their friends had gotten Donny back to their campsite, an ambulance was there and ready to take Donny to the Mena hospital.

"They never stopped. It was just boom, boom, boom," Rebecca said. "I can't believe how fast it was once they realized it was a stroke. Even though they couldn't get it to show, they were just on top of it. There was no indecisiveness. It saved his life, period. There is no doubt about it."

The stroke team at Mena Regional ordered a CT scan for Donny and it showed no evidence of brain bleeding, indicating that he could possibly benefit from the clot-busting alteplase.

"I remember thinking, 'This is going to change his whole life, and how is his wife going to take care of him if he doesn't recover,'" said Olivia Bayne, an R.N. in the Emergency Department at the Mena hospital.

For Bayne, it was her first stroke case, and it would prove to be a challenging one for everyone trying to care for Donny. Bayne assisted another nurse in the department as they connected to Sanjeeva Onteddu, M.D., Medical Director for AR SAVES, through the AR SAVES network. Onteddu said Donny's case warranted giving him alteplase. After that, Donny was transported via air ambulance to UAMS Medical Center for further treatment.

# Stroke Survivor Story

“Our first thought was to med flight him to OU Medical Center in Oklahoma City,” Rebecca said, because it was closer to home and medical resources there. “That would have been the worst mistake I could have made.”

While Donny was being airlifted to UAMS, Rebecca and several friends drove to Little Rock. By the time they arrived, family from Oklahoma City were there to meet them. The UAMS stroke team had determined Donny was having a spinal cord stroke.

After his arrival to UAMS he did not have any significant improvement in his weakness. Further testing did not reveal any obvious large vessel blockage. Onteddu discussed with Donny’s family an uncommon procedure that is generally not tried due to its difficulty and one that might have put Donny’s life at risk

“The decision was easy to make,” Rebecca said. “Donny and I have been together a long time and with him being a police officer you know the chance of death or injury is great. We already had discussed future eventualities if they happened. It wasn’t hard and we made the decision to go with it.”

Adewumi Amole, M.D., the UAMS interventional neuroradiologist who performed the procedure explained that spinal cord strokes are so uncommon that he had never

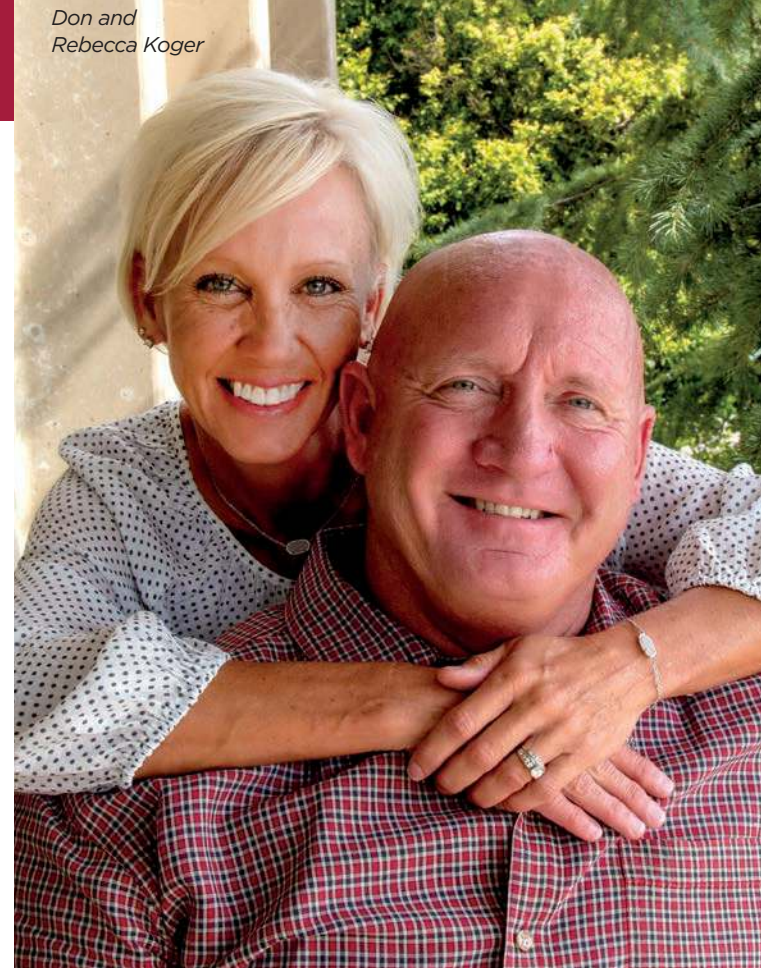
treated one. Furthermore, the artery’s small size, less than a millimeter across, presented a challenge. None of the conventional surgical devices fit it.

“We presented the risks and possible outcomes to his family, and I believe we all made the right decision at that time,” Amole said. “We took him to the neurointerventional suite. We put a catheter in and injected alteplase. Right on the table he started moving his fingers. By the next day, he was smiling and laughing.”

When the physicians came out of the operating room four hours later, almost 16 hours after his first symptoms, Amole pulled his mask down and smiled. Donny’s family and friends were ecstatic, Rebecca said.

“We were really skeptical going into it,” Onteddu said. “If clot-busting medications don’t work, we know from experience that patients’ symptoms don’t get better if there is no obvious clots we can see. He was in such a bad condition that we wanted to at least try to do something for him.”

Donny said it was probably two months before he really felt he was recovered and another two months before his energy level was normal. Rebecca said her husband was very self-disciplined about his physical therapy and rehabilitation. When he came back to see stroke neurologist



Don and  
Rebecca Koger

Krishna Nalleballe, M.D., in clinic, she realized that Donny could have ended up coming to clinic on a stretcher rather than walking.

Although Donny does sometimes have to ask people to repeat themselves when speaking, he usually can understand them the second time. The problem isn’t with his hearing but with processing spoken words. Donny also sometimes has lapses in short-term memory, but these problems have been minor enough that he returned to work in September as a patrolman for the Oklahoma City Police Department.

“I’m still having problems with guilt,” Donny said. “I’m just trying to understand why I survived. I’m still getting over the emotional part, but I don’t sweat the small stuff anymore. Nothing is too serious.”

One thing he and his wife are serious about is the absence of something like the AR SAVES network in Oklahoma. Both are in the early stages of becoming health care activists, meeting with health care leaders and state legislators about creating a network and filling that void.

“We really wish this program could go to other rural hospitals,” Rebecca said. “If this had happened at our home, anywhere else but here, our outcome would not have been as good. We want the state of Oklahoma to do this. How many people don’t get treated because they don’t have the access through something like AR SAVES?”





## Arkadelphia Man Strikes Out Stroke by Bowling

Timothy Raines didn't have any rehabilitation or physical therapy after experiencing a stroke. Instead, after UAMS treated his stroke, he turned to bowling for his recovery.

Raines, 47, was watching TV in the living room of his Arkadelphia home at about 2 p.m. Nov. 24 when his wife, Kendra Raines, thought he was unintentionally doing something that was bothering her.

"He was hiccupping really loudly," Kendra said. "To the point where I was thinking, 'This is annoying. Why is he hiccupping?' It was unusual for him, super loud. He was fooling with something on his side table. I leaned over to ask him what he was doing, and I saw his face was completely drooped. I jumped up and said, 'You've had a stroke.' He said he hadn't had a stroke and tried to stand up, then immediately fell. I called 9-1-1."

Her father had a stroke in 2015, but he and Kendra's mother didn't seek medical attention right away. He never recovered. Kendra knew how important timely

treatment was. Timothy also had paralysis on his left side and lost his ability to speak in the course of the stroke.

After being taken to Baptist Health Medical Center - Arkadelphia, Raines and a stroke team there consulted via a live video connection on the AR SAVES network with stroke neurologist Krishna Nalleballe, M.D., at UAMS.

At Nalleballe's direction, alteplase, a powerful clot-busting drug, was administered.

Next, he was airlifted to UAMS Medical Center, the only certified Comprehensive Stroke Center in Arkansas, and by 7 p.m., he was in surgery under the care of Martin Radvany, M.D. Radvany is a professor and chief of interventional neuroradiology in the UAMS College of Medicine Department of Radiology.

He performed a surgical procedure to extract the clot from Timothy's right middle cerebral artery where the obstruction was located.



# Stroke Survivor Story

“He is young, so his blood vessels were fairly straight making the technical portion of the surgery less complicated. He was cooperative and therefore we didn’t need to use general anesthesia,” Radvany said. “We were able to use sedation to keep him comfortable. That facilitated things.”

Radvany said even though the alteplase did not break up the large clot, there’s evidence that patients who receive alteplase do better than those who do not.

“We know from large studies that patients who get alteplase do better than patients who don’t, even when we have to do surgery,” Radvany said. “The outcomes at 90 days are slightly better for patients who have had alteplase.”

When Timothy came out of the operating room, he brought some emotional relief to Kendra when he waved at her with the left arm that had been paralyzed before.

He said he had no idea how taxing a stroke would be. He started his recovery unable to keep a thought. He couldn’t remember three key words Kendra would use to try to boost his memory. He couldn’t say many words.

*Stroke survivor Timothy Raines with Jim McClanahan, RN, featured in Baptist Arkadelphia’s Stroke Ready Triage Room.*



“I have the hobby of writing but couldn’t start a sentence,” he recently wrote in an email. “I’ve painted most of my life. I brought out a canvas and couldn’t paint anything. I used to build wooden projects in my shop. I struggled to think of an idea. I had such great fear that I’d never recover.”

Timothy had always liked to bowl and decided that could help. So he bowled. He bowled to build strength in his still weak left arm. It also helped him regain muscle control and his ability to think.

“I started looking at bowling like a puzzle or even a mathematic equation,” he wrote. “I triangulated the speed of the ball, the revolutions I would need to torque and the lane position to increase my scores.

“For example, if I throw a 16-pound bowling ball, 15.50 mph with a rate of 450 rpm, straight down the 10th board, it will create

the best inertia to knock down the most pins. If I lay the ball down on the 28th board, angled outward to the fifth board, I will have to increase the speed to 16 mph and increase the revolutions closer to 600 rpm. The repetition of trying to maintain the right equations seemed to be such a great workout both for my strength and my brain.

“I practiced so many different equations that my bowling scores jumped through the roof!”

Timothy’s only lasting deficit is some difficulty from time to time in finding a word he wants to say, yet the ending to Timothy’s story has been a happy one

“UAMS is fantastic,” Kendra said. “I cannot sing its praises enough. He’s had other health issues. This was by far the best experience we’ve ever had.”



# Spring 2019 Nurse Facilitator Retreat Highlights

On April 25-26, 108 nurses, representing 54 AR SAVES spoke sites, gathered in Little Rock for a productive two days of program strategic planning, and focused discussion of the specific health care issues of the state and its individual regions. The goal of the retreat is to give the facilitators an opportunity to come together to serve as subject matter experts to identify areas of needed focus and best practices. UAMS' Renee Joiner, AR SAVES operations director, opened the retreat by giving a program update followed by a roll call, which consisted of each facilitator standing up and introducing themselves and stating which hospital from around the state they represent. It is always a great reminder of the growth and reach of the program when each facilitator can be seen and heard to sound off and represent various regions of the state. Additionally, each facilitator on the first day wore a shirt representing their individual hospital, which contributed to a colorful statewide representation.

Sanjeeva Onteddu, M.D., AR SAVES Medical Director, welcomed attendees and gave a presentation on the usefulness of Computed Tomography Angiography (CTA)

in the triage of acute ischemic stroke patients to the facility best able to meet their specific needs. Participants from the audience were given the opportunity to ask Onteddu questions and receive information about best practice evidence.

Assigned facilitators from around the state who participated in the 2018 Strategic Priorities Focus Groups gave a five-minute presentation of the progress and outcomes of each of the individual groups, as well as plans for any additional work or implementation. The presentations were followed by a brief video introducing each of the AR SAVES team members, highlighting their personalities and giving the audience a chance to get to know them a little better.

Exciting, innovative and informative discussions were held in breakout sessions for the 2019 Roundtable



Day 1 of the 2019 AR SAVES Nurse Facilitator Retreat

Discussions, which were broken down first into regional areas and then groups were formed based on their hospital size. Feedback was strong and positive about the discussions broken down by hospital size. The facilitators reported it was very helpful, and they were able to discuss similar issues affecting their hospitals and communities with other facilities of similar size.

At the conclusion of the roundtable discussions, a designated speaker from each group gave a brief report of the identified priorities for the next year, and each attendee was then able to vote on issues that they felt were of greatest importance to their facility and area. Once all voting was completed, the new initiatives and focuses were identified and participants were asked to volunteer to serve

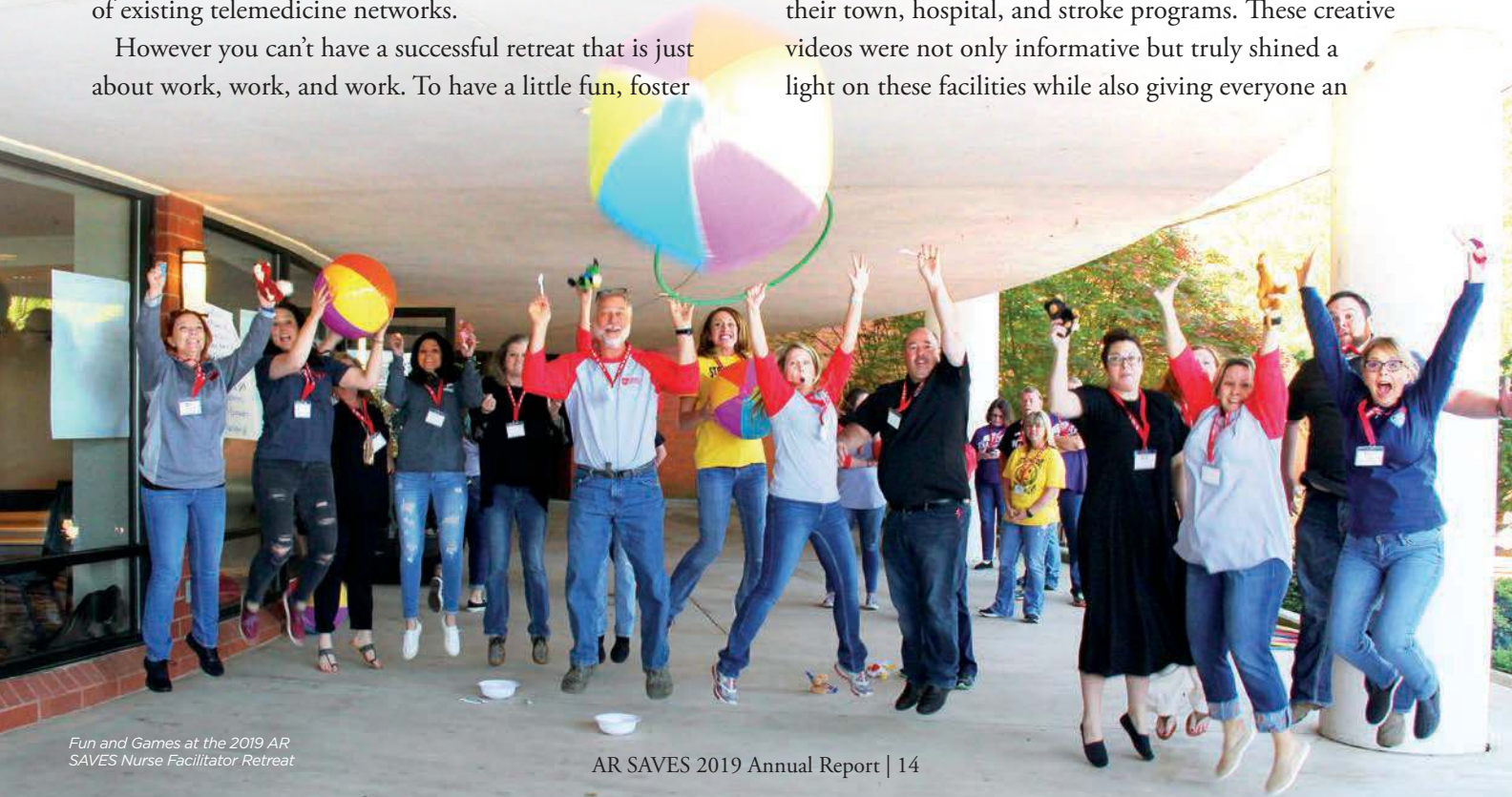


# Spring 2019 Nurse Facilitator Retreat Highlights

on focus groups. We had 33 facilitators volunteer to serve on five focus groups that were identified. Focus groups consisted of topics such as decreasing treatment times, reports and community outreach, provider recognition, improving transfer processes and times, and additional uses of existing telemedicine networks.

However you can't have a successful retreat that is just about work, work, and work. To have a little fun, foster

teamwork and allow the facilitators to get to know one another a little better, we had various activities, games and a friendly, enjoyable "Home Town Showdown" video competition. All sites were given the opportunity to record a video to be played at the retreat highlighting their town, hospital, and stroke programs. These creative videos were not only informative but truly shined a light on these facilities while also giving everyone an



Fun and Games at the 2019 AR SAVES Nurse Facilitator Retreat

opportunity to laugh. Many of the sites not only included their hospitals but incorporated emergency response personnel in their areas as well. The winner of the competition, with an extraordinary video, was Ashley County Medical Center in Crossett. The medical center's representatives took home a trophy for the best video.

This was another successful facilitator retreat, and we were left with some great program priorities to work on for the next year. Some additional takeaways were reoccurring topics that the facilitators wrote on their evaluations of the retreat. These included implementing stroke protocols, expanding training, implementing more CTAs, and increasing involvement by their administrators and physicians.



2019 AR SAVES Nurse Facilitator Retreat hosted in Little Rock, AR



Day 2 of the 2019 AR SAVES Nurse Facilitator Retreat





# EMS

October 9, 2018 | To provide faster stroke care, an Emergency Medical Services (EMS) stroke telemedicine pilot study was recently established by the AR SAVES program, the Arkansas Department of Health and ProMed Ambulance Service in El Dorado. As part of the pilot study, telemedicine equipment was installed in a ProMed Advanced Life Support (ALS) Ambulance to provide a live, mobile video consult with a vascular or critical care neurologist.

The AR SAVES network includes 54 participating hospitals; including Medical Center of South Arkansas in El Dorado, Magnolia Regional Medical Center, Ouachita County Medical Center in Camden and Ashley County Medical Center in Crossett in south Arkansas.

The pilot program will study the effectiveness of using telemedicine in an ambulance to decrease the treatment time for stroke patients arriving at area hospitals via ambulance. By using telemedicine during transport, the program can provide better stroke symptom identification in the field and enhanced pre-notification to receiving hospitals.

The telemedicine equipment's electronic and wireless connectivity have been tested in various areas of the



*El Dorado EMS Pilot Connection with Telemedicine Neurologist*

*El Dorado EMS Pilot Training with Pro Med*

region and are currently working well. Protocols and training with paramedics to perform a modified stroke assessment have been implemented. Mock drills with the AR SAVES Call Center and training sessions with the staff at area hospitals also have been completed.

“We want all the communities served by ProMed to know that EMS Stroke Telemedicine is available in their town and to call 911 and specify that they or someone they know are having stroke symptoms,” said UAMS’ Sanjeeva Onteddu, M.D., AR SAVES Medical Director. “That will ensure that the telemedicine ambulance is dispatched.”



“ProMed is excited to take part in this pilot study with all the partners involved, especially because of what it enables us to offer the people of Union County and the areas around it — a stronger hope of survival and recovery from stroke,” said Ken Kelley, ProMed CEO.

Only 1% of stroke patients living in rural Arkansas received stroke care before 2008 when the AR SAVES Program began.

“This partnership gives us an opportunity to enhance the high level of quality care that residents in our region can find close to home here at Medical Center of South Arkansas in El Dorado,” said Scott Street, the hospital’s CEO. “We’re committed to helping reduce the number of deaths and disabilities in

Arkansas caused by stroke each year and to being a vital part of this important pilot study.”

In another positive development, the pilot study recently expanded to include Baxter Regional Medical Center EMS in Mountain Home. Gerald Cantrell, Operations Manager for Baxter Regional Medical EMS, has performed extensive training with his team in preparation for their launch in 2019. With the addition of two ambulances in Mountain Home equipped with telemedicine capabilities, the pilot in Mountain Home will be able to provide faster stroke care to the area’s most rural regions and will service Baxter Regional Medical Center and North Arkansas Medical Center.



*TOP: Baxter Regional EMS Pilot connecting with the Call Center*

*BOTTOM: Baxter Regional EMS Pilot Telemedicine Ready Ambulance*







## Marshallese: A Special Population in Arkansas:

Springdale is believed to have the largest Marshallese community in the continental United States. The city's 2005 special census showed the Marshallese population at about 2,000 people, but other estimates put the number as high as 6,500. Even with the large population of Marshallese residents living in the area, most people in Northwest Arkansas know very little about their community and their growing contributions to the area.



Marshallese Task Force Meeting in Springdale, AR



Growth of Marshallese Population Discussed at Marshallese Task Force Meeting in Springdale, AR

The Republic of the Marshall Islands is a cluster of 29 atolls and five small islands on the eastern side of the South Pacific Ocean with a population of about 60,000. The United States acted as administrator for the islands after World War II, when they were made part of the United Nations Trust Territory.

The islands gained their independence in 1986, and under a Compact of Free Association between the two countries, any Marshallese with a valid passport can come to the United States legally, find a job and stay as long as he or she likes. The Marshallese came looking for jobs, better health care, a safer environment and better schools. They brought with them unique family traditions, culture, language and values.

In an effort to provide stroke education and resources to the Marshallese population in Arkansas, AR SAVES has been working with other health care professionals in Springdale, through the Marshallese Task Force, to create educational materials in the Marshallese language and identify the best ways to incorporate outreach into the culture of this unique community. A day of stroke education is planned for the fall of 2019 at a Marshallese dense elementary school in Springdale where outreach instructors will present stroke material during art classes and follow up with a tour of the inflatable brain model, Mega Brain.

## Friday Night Lights:

The University of Arkansas for Medical Sciences AR SAVES program, collaborating with hospitals throughout Arkansas, held Friday Night Lights stroke awareness events at local football games.

Volunteers provide stroke educational materials, answer questions and toss soft, brain-shaped stress balls into the stands. AR SAVES, and volunteers, convey the BE FAST (Balance, Eyes, Face, Arm, Speech and Time) message for recognizing stroke symptoms and the need for quick treatment of stroke. Before AR SAVES, stroke patients who lived in rural areas of the state did not have access to this lifesaving treatment.

Only 1% of stroke patients living in rural Arkansas received stroke care before 2008 when the AR SAVES Program began. Today, more than 34% receive care. Nearly 70% of AR SAVES patients treated completely recovered or recovered with slightly impaired function.

Hospitals across the state conducted almost 1,700 outreach events and reached almost 300,000 Arkansans in year 2018 with education on the signs and symptoms of stroke and to call 911.



Friday Night Stroke Zone Genoa Event



Josh Morrow with Chambers Memorial Hospital attending a Friday Night Lights Football Event



## 2019 MASH Camps

Seven dates - 19 hospitals and communities were represented: El Dorado, Clinton, Jonesboro, Monticello, Batesville, Russellville, Lake Village, Dumas, Malvern, Paragould, Heber Springs, Blytheville, Mountain View, Mena, Mountain Home, Magnolia, Arkadelphia, Warren and Crossett

More than 200 students in June and July visited UAMS campus to roleplay how to diagnose someone with stroke symptoms and how to get them treatment under the direction of a neurologist during a live video consultation.

The students were participating in MASH (Medical Applications of Science for Health) camp. MASH camp is a two-week summer enrichment program that allows rising high school juniors and seniors to shadow health professionals and attend workshops that enhance their experience in the health care field. UAMS Regional Campuses for many years have organized the camps in communities throughout Arkansas.

### MASH Camp Stroke Exam Demonstration



MASH Camp Student Attendees

## Nurse Workshops:

Twelve workshops were held statewide to collaborate with school nurses on educating students and their families in stroke using the Mega Brain as a guided learning tool.



Back to School Nurse Workshop Session

### AR SAVES Booth at Back to School Nurse Workshop



Back to School Nurse Workshop at the Benton Convention Center

Erin Pace of AR SAVES Leading MASH Camp Discussion



St Mary's London School's Brain Day



## Mega Brain

The AR SAVES program's inflatable walk-through exhibit sponsors The Mega Brain, an entertaining and educational tool for teaching children and adults about the human brain, stroke and other neurological injuries and diseases.



Inside the Brain at London School's Brain Day



St. Bernards' Expo

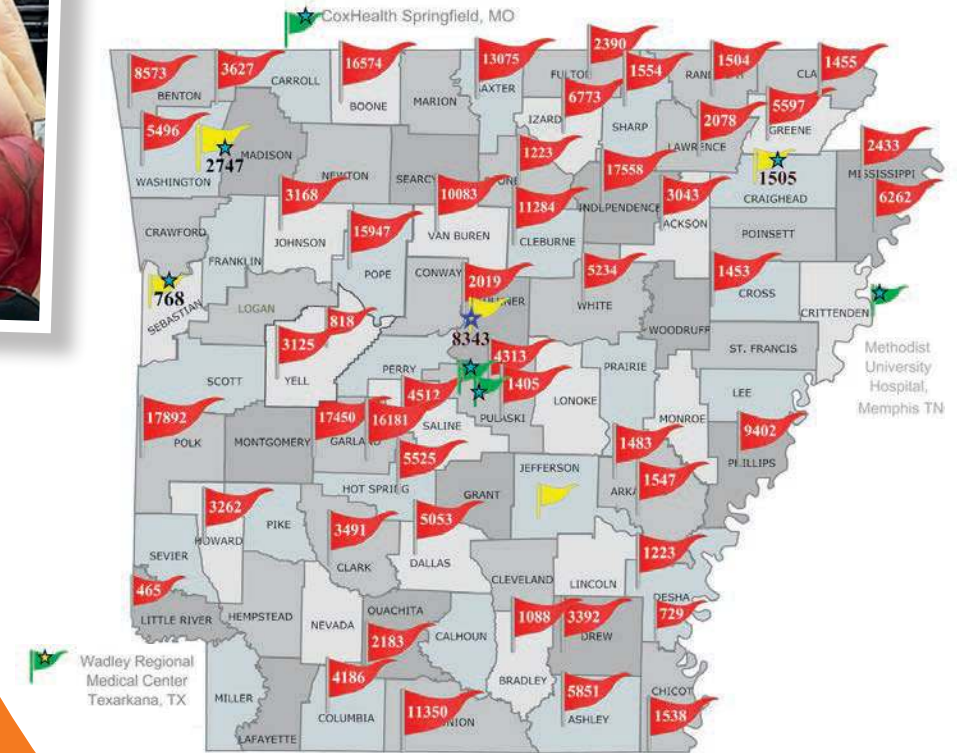


JRMC Boo in the Bayou



Clot Busting Game at London School's Brain Day

## Community Events Map 2018



Number of People reached:  
**289,706**

Number of Events:  
**1,772**



# FACES OF STROKE



Stroke Survivor  
Lanetta Cothorn  
with Survival  
Flight Team

# FACES OF STROKE

Stroke Survivor Melinda Denton and  
Wife in Arkansas Methodist Stroke  
Ready Triage Room



Stroke Survivor Melinda Denton





# FACES OF STROKE



Stroke Survivor Freda Dodd at Arkansas Methodist Medical Center



Stroke Survivor Harry Seamans and Wife at Baxter Regional Medical Center



Freda Dodd With Attending Medical Team at Arkansas Methodist Medical Center



Stroke Survivor Harry Seamans with Son in Baxter Regional Stroke Ready Triage Room



Stroke Survivor Harry Seamans



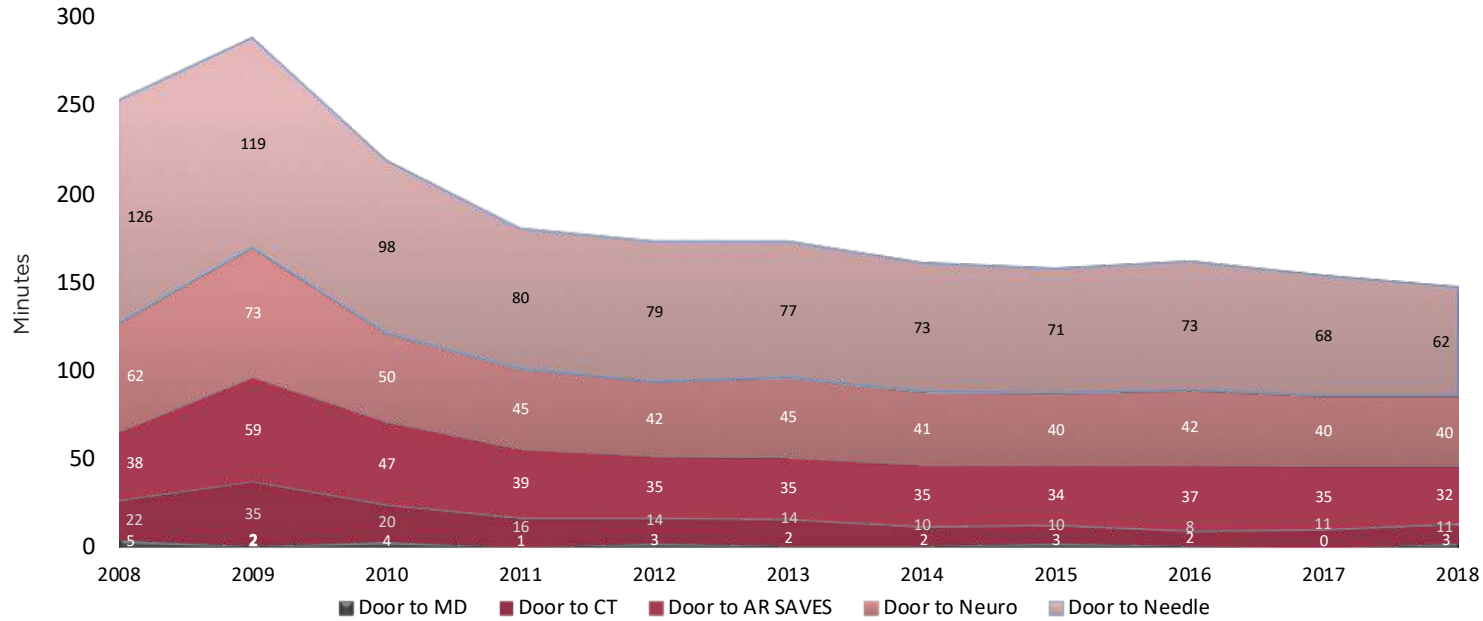
## AR SAVES Sites around Arkansas

Spoke Sites	FY 2019 Totals					
Facility / City	Consults	Alteplase Administration	Consult Only	Quality Review	# Community Events	# Community Attendees
Arkansas Methodist / Paragould	42	20	22	20	38	3,381
Ashley County / Crossett	15	7	8	46	45	2,191
Baptist Health / Arkadelphia	36	12	24	14	33	2,655
Baptist Health / Conway	33	9	24	11	24	1,246
Baptist Health / Fort Smith	20	7	13	6	3	180
Baptist Health / Heber Springs	24	9	15	19	43	3,926
Baptist Health / Hot Spring County	14	6	8	15	37	6,812
Baptist Health / North Little Rock	33	13	20	27	24	4,005
Baptist Health / Stuttgart	12	8	4	13	25	2,021
Baptist NEA / Jonesboro	15	6	9	3	3	52
Baxter Regional / Mountain Home	98	46	52	26	39	4,141
Bradley County / Warren	12	4	8	24	27	631
CHI St. Vincent / Hot Springs	98	29	69	18	28	3,941
Chicot Memorial / Lake Village	12	7	5	15	28	1,587
Izard Co Medical Center/ Calico Rock	4	4	0	22	27	2,415
Conway Regional / Conway	76	35	41	170	31	5,899
CrossRidge Community / Wynne	9	4	5	21	28	3,448
Dallas County / Fordyce	14	5	9	24	31	2,409
Delta Memorial Hospital	11	3	8	22	25	918
DeWitt Hospital / Dewitt	7	0	7	13	30	2,158
Drew Memorial / Monticello	15	6	9	30	41	3,968
Five Rivers / Pochahontas	19	6	13	14	29	1,167
Fulton County Hospital / Salem	6	3	3	15	52	1,942
Great River / Blytheville	25	2	23	105	36	3,415
Helena Regional / Helena	20	9	11	12	29	2,155
Howard Memorial / Nashville	7	3	4	30	29	1,582
John Ed. Chambers / Danville	12	6	6	13	27	1,773
Jefferson Regional / Pine Bluff	15	4	11	13	8	545

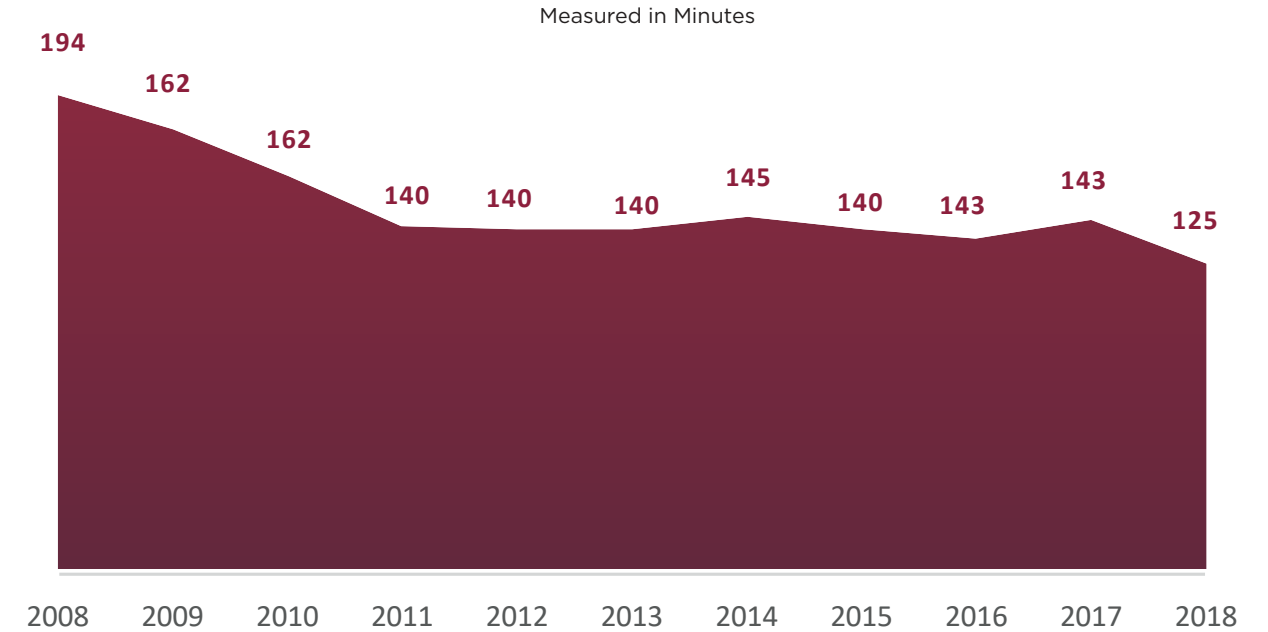
Spoke Sites	FY 2019 Totals					
Johnson Regional / Clarksville	11	7	4	12	26	931
Lawrence Memorial / Walnut Ridge	25	10	15	20	35	1,694
Little River Memorial / Ashdown	3	0	3	26	32	1,902
Magnolia Regional / Magnolia	10	4	6	15	28	2,345
McGehee Hospital / McGehee	4	1	3	19	27	1,943
Medical Center of South Arkansas / Eldorado	35	20	15	12	43	56002
Mena Regional / Mena	11	7	4	33	30	5,247
National Park / Harrison	58	24	34	14	47	15899
North AR Regional / Harrison	56	21	35	49	48	20531
North Metro / Jacksonville	15	7	8	18	36	1,682
Northwest / Bentonville	49	19	30	16	69	3,754
Northwest / Springdale	87	28	59	59	79	11332
Ouachita County / Camden	17	7	10	21	27	1,212
Ozark Health / Clinton	8	4	4	26	29	1,023
Piggott Community Hospital / Piggott	4	0	4	26	37	1,414
Dardanelle Regional Medical Center	14	7	7	17	26	1,441
Saint Mary's Regional / Russellville	69	29	40	32	55	8,422
St. Bernards / Jonesboro	5	4	1	9	5	129
Saline Memorial / Benton	53	28	25	13	32	1,738
Siloam Springs Regional / Siloam Springs	22	5	17	10	29	835
SMC Regional / Osceola	12	4	8	34	25	1,311
Sparks / Fort Smith	40	11	29	30	22	3,040
Stone Co. / Mountain View	13	5	8	13	35	1,719
Unity Health Harris / Newport	10	3	7	22	46	2,334
Unity Health White County / Searcy	80	41	39	14	27	2,877
Wadley Regional / Hope	10	3	7	40	43	2,226
Washington Regional / Fayetteville	0	0	0	11	41	1,830
White River / Batesville	49	17	32	21	25	1,547
White River / Cherokee Village	9	8	1	12	24	2,288
<b>Total</b>	<b>1,483</b>	<b>597</b>	<b>886</b>	<b>1,405</b>	<b>1,848</b>	<b>229,211</b>



## Median Time Targets CY



## Median Onset of Symptoms to Alteplase



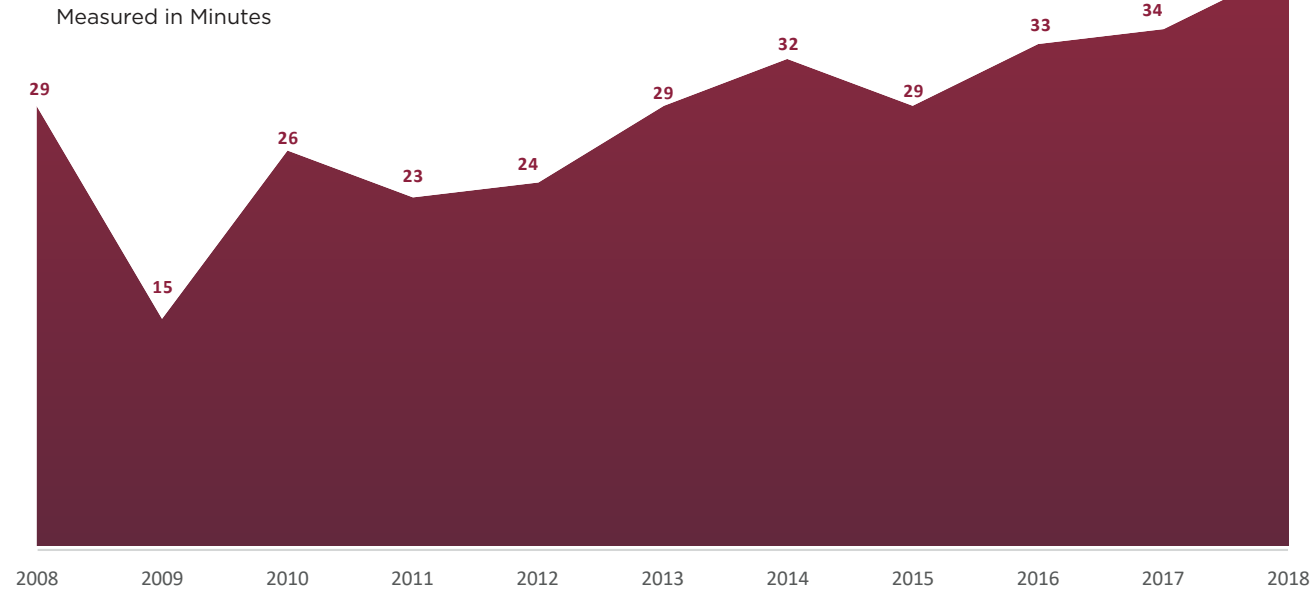
Our program has made its best improvement in treatment time to date at **62 minutes.**

In just three years, AR SAVES has more than **doubled** the number of patients treated with the clot-dissolving drug alteplase.

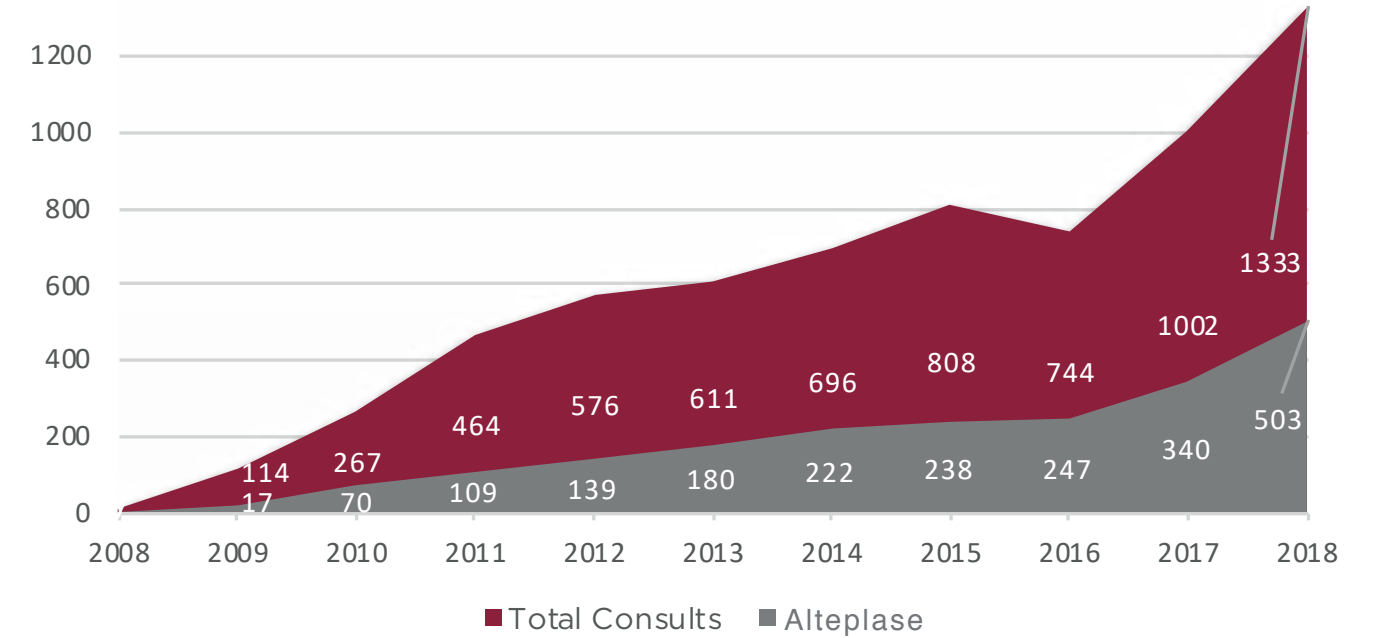
Our mortality also decreased from **4.1%** to **3.9%**



## Percent Alteplase Administered



## Total Consults / Total Alteplase

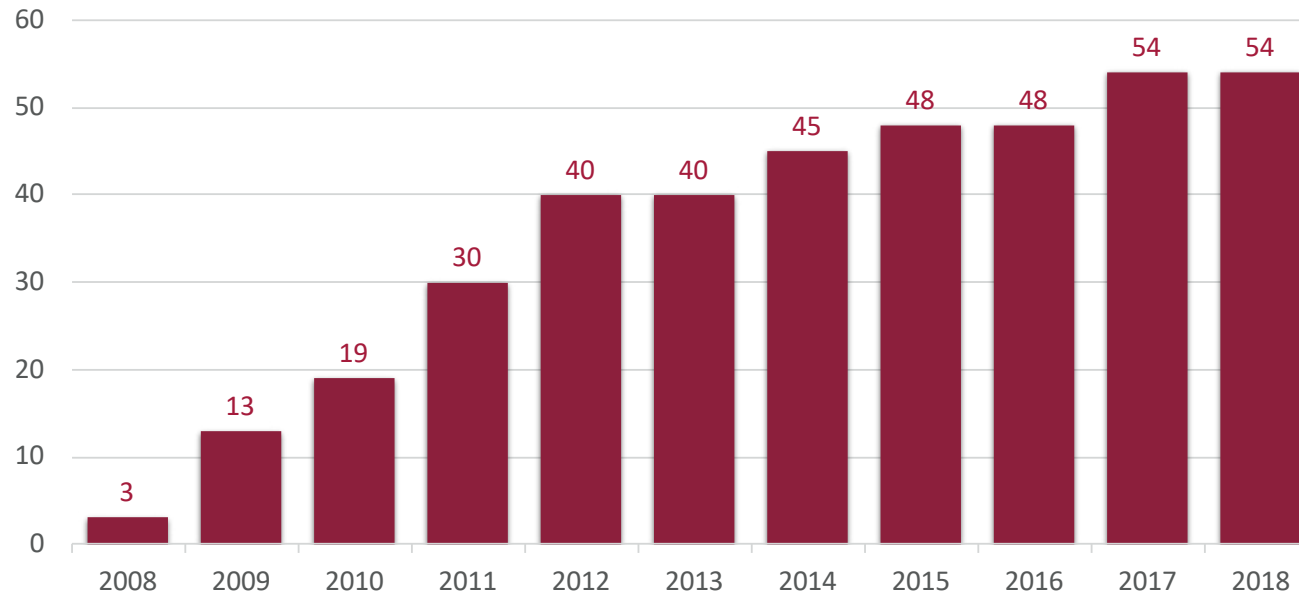


AR SAVES had a **38%** treatment rate.

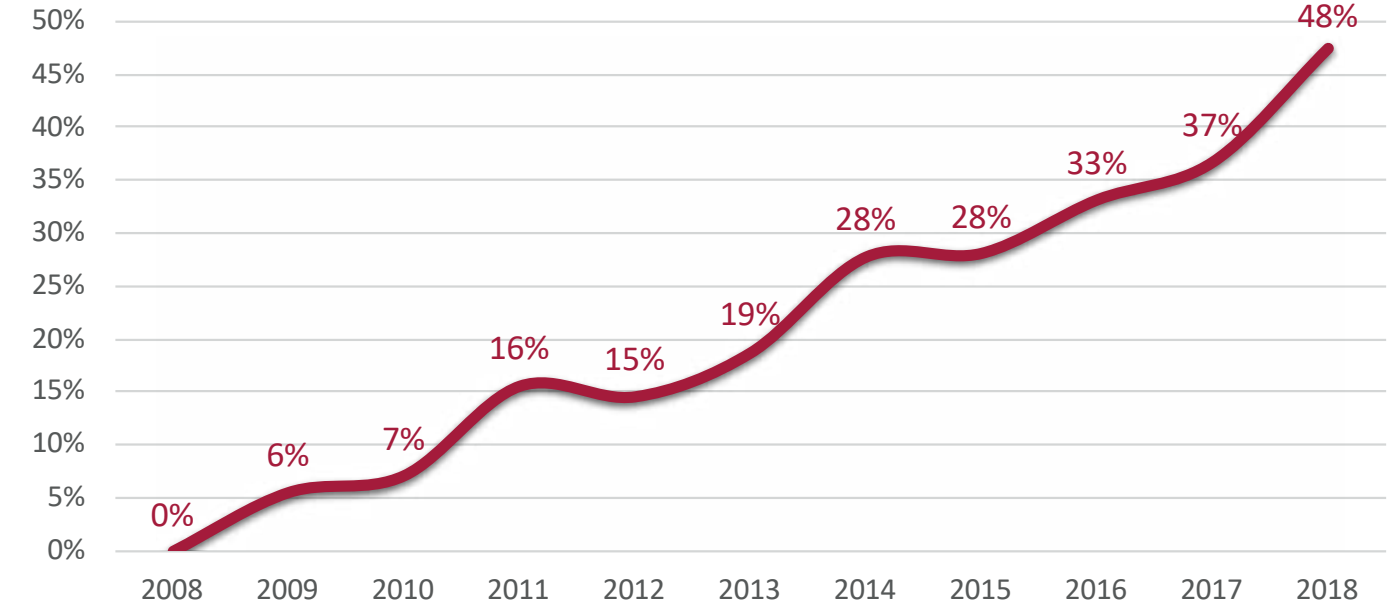
In FY18, AR SAVES had **1,333** consults and treated **503** patients.



## AR SAVES Sites Around Arkansas



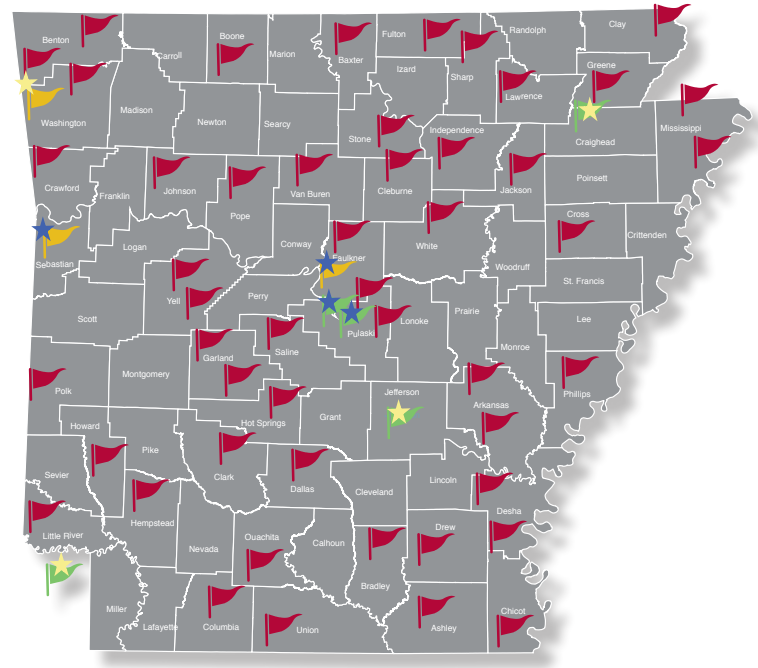
## Golden Hour Target Less Than 60 Minutes



AR SAVES Program contributed to **\$29 million** dollars in cost savings for the care of stroke patients in CY2018

EMS alerting the receiving hospital with a code stroke significantly decreased the door to CT time by **6.9 minutes.**





▲ AR SAVES sites   
 ★ Spoke & Receiving Site   
 ★ Receiving Site

★ Name	City	County
<b>Receiving Sites (INTERVENTION &amp; ICU CAPABLE)</b>		
UAMS Medical Center	Little Rock	Pulaski
Baptist Health Medical Center	Little Rock	Pulaski
Baptist Health Medical Center	Fort Smith	Sebastian
Washington Regional Medical Center	Fayetteville	Washington
<b>Receiving Facilities (ICU CAPABLE)</b>		
Jefferson Regional Medical Center	Pine Bluff	Jefferson
Conway Regional Medical Center	Conway	Faulkner
Wadley Regional Medical Center	Texarkana	Texas
St. Bernard's Regional Medical Center	Jonesboro	Craighead

Name	City	County
Baptist Health Medical Center - Arkadelphia	Arkadelphia	Clark
Little River Memorial Hospital	Ashdown	Little River
White River Medical Center	Batesville	Independence
Saline Memorial Hospital	Benton	Saline
Northwest Medical Center	Bentonville	Benton
Great River Medical Center	Blytheville	Mississippi
Izard County Medical Center	Calico Rock	Izard
Ouachita County Medical Center	Camden	Ouachita
White River Medical Complex	Cherokee Village	Sharp
Johnson Regional Medical Center	Clarksville	Johnson
Ozark Health Medical Center	Clinton	Van Buren
Baptist Health Medical Center - Conway	Conway	Faulkner
Conway Regional Medical Center	Conway	Faulkner
Ashley County Medical Center	Crossett	Ashley
John Ed Chambers Memorial Hospital	Danville	Yell
Dardanelle Regional Medical Center	Dardanelle	Yell
Dewitt Hospital and Nursing Home	DeWitt	Arkansas
Delta Memorial Hospital	Dumas	Desha
Medical Center of South Arkansas	El Dorado	Union
Washington Regional Medical Center	Fayetteville	Washington
Dallas County Medical Center	Fordyce	Dallas
Baptist Medical Center- Fort Smith	Fort Smith	Sebastian
North Arkansas Regional Medical Center	Harrison	Boone
Baptist Health Medical Center - Heber Springs	Heber Springs	Cleburne
Helena Regional Medical Center	Helena	Phillips
Wadley Regional Medical Center at Hope	Hope	Hempstead
National Park Medical Center	Hot Springs	Garland
CHI St. Vincent	Hot Springs	Garland
North Metro Medical Center	Jacksonville	Pulaski
St Bernards Regional Medical Center	Jonesboro	Craighead
Chicot Memorial Medical Center	Lake Village	Chicot
Magnolia Regional Medical Center	Magnolia	Columbia
Baptist Health Medical Center - Hot Spring County	Malvern	Hot Spring
McGehee Desha County Hospital	McGehee	Desha
Mena Regional Medical Center	Mena	Polk
Drew Memorial Hospital	Monticello	Drew
Baxter Regional Medical Center	Mountain Home	Baxter
Stone County Medical Center	Mountain View	Stone
Howard Memorial Hospital	Nashville	Howard
Unity Health- Harris Hospital	Newport	Jackson
Baptist Health Medical Center - NLR	North Little Rock	Pulaski
South Mississippi County Regional Hospital	Osceola	Mississippi
Arkansas Methodist Medical Center	Paragould	Greene
Piggott Community Hospital	Piggott	Clay
Jefferson Regional Medical Center	Pine Bluff	Jefferson
Five Rivers Medical Center	Pocahontas	Randolph
St. Mary's Regional Medical Center	Russellville	Pope
Fulton County Hospital	Salem	Fulton
Unity Health- White County Medical Center	Searcy	White
Siloam Springs Regional Hospital	Siloam Springs	Benton
Northwest Medical Center	Springdale	Washington
Baptist Health Medical Center - Stuttgart	Stuttgart	Arkansas
Lawrence Memorial Hospital	Walnut Ridge	Lawrence
Bradley County Medical Center	Warren	Bradley
CrossRidge Community Hospital	Wynne	Cross



The AR SAVES Program continues to have a significant impact on acute stroke care in Arkansas. More than 500 patients have received thrombolytic treatment for the past year, which has been our biggest year to date with the most number of patients seen in the program. At the same time, we continue to focus on our

time targets for time-sensitive thrombolytic treatments.

We are within striking distance of achieving the established door-to-needle time of 60 minutes or less for all our patients. With the extended time windows for thrombectomy, for a select group of patients with large vessel occlusion, we are encouraging all of our sites to get a CT angiogram for all suspected stroke patients when possible, and as long as there is no time delay to thrombolytic treatment. This is to more quickly identify patients with large vessel occlusion who are eligible for a thrombectomy up to 24 hours after onset of stroke symptoms. It's also a recent recommendation from the American Heart Association.

Our research efforts continue to grow with the expansion of cameras in ambulances and on remote

patient monitoring after thrombolytic treatment, with second-site participation. Also in process is an initiative to use an artificial intelligence software to identify large vessel occlusion in suspected stroke patients when CT angiography is done. Another study we are hoping to add to our program is an evaluation of the role of Dodecafluoropentane Emulsion in neuroprotection for stroke patients. The AR SAVES program has been making overall progress not only in patient care but also in research and innovative ways of treating stroke patients. Sincerely,

**Sanjeeva Reddy Onteddu, M.D.**  
*Medical Director, AR SAVES Teletroke Program*



# AR SAVES Staff

*Left to Right:*

- Renee Joiner**, B.S.N. R.N., AR SAVES Director
- Philip Martin**, Telemedicine Specialist, Institute for Digital Health & Innovation
- Samantha Hanard**, NREMT, Call Center Telemedic
- Calvin Duncan**, B.S. EMS, NRP, Call Center Supervisor
- Sarah Eastham**, B.A., Program Coordinator
- Erin Pace**, B.S. CHES, Community Health Educator
- Lizelle Griffith**, NREMT, Call Center Telemedic
- Tim Vandiver**, R.N., NRP, Outreach Nurse
- Suzanne White**, R.N., Outreach Nurse
- Olivia Wilson**, M.S. CHES, Community Health Educator
- Robin Banks**, R.N., Outreach Nurse
- Marzella Backus**, M.S.N. R.N. CEN, AR SAVES Assistant Director
- William Tremaine Jr.**, B.S.N. NRAEMT, Call Center Telemedic
- Conelia Williamson**, Program Manager
- Patricia Maynes**, R.N. B.S., Outreach Nurse
- Sherrie Searcy**, R.N., B.S.N., SANE-A, Outreach Nurse
- Jennifer McCurry**, R.N., Outreach Nurse







AR SAVES is about providing care one patient at a time. Each number, graph and percentage included in this report describes a singular patient experience and outcome. Program goals, new initiatives and opportunities are evaluated by how

it will affect that one patient in the Emergency Department of an AR SAVES hospital. Collaboration with our hospitals is what sets our program apart.

This year, focus groups were formed around issues identified by our hospital stroke nurse facilitators. These groups meet immediately following our monthly All Sites meetings. AR SAVES staff facilitates a video meeting in their office. I wish I could adequately describe the energy in our office during these meetings. There is laughter and also focus, problem solving and challenges discussed. I'd like to thank everyone who gave their time to this process.

This has been a year of growth for our program. We are fully staffed and have a team with a wide range of expertise who are excited about the program. I'm happy to announce that Marzella Backus accepted the position of AR SAVES assistant director and has made a real difference in the services we provide to our hospitals. Marzella has a MNSc in nursing administration/education from the University of Arkansas for Medical Sciences where she graduated with

distinction. She has served in leadership roles in the UAMS ED and Interventional Radiology departments where she led efforts in many process improvement initiatives. She has helped our team add strategy, goals and objectives to every aspect of the program. Her talent and passion for teaching is evident in everything she does.

"I approach each day looking to optimize something," Marzella said. "If something is good how can we make it even better? Working at AR SAVES is a dream come true. It is an opportunity to be able to collaborate on a statewide level and take part in something that makes a huge impact in Arkansas. That moment when you know those new grad students or new ED nurses understand and are competent to provide great care is very rewarding. I have always felt that through teaching one person well you can impact many."

St Bernards Medical Center in Jonesboro and Jefferson Regional Medical Center in Pine Bluff joined AR SAVES this year. We are excited to welcome them to the program.

Only together can we provide care one patient at a time with the compassion and expertise that defines the AR SAVES program.

With appreciation,

Renee Joiner  
AR SAVES Director of Operations



- Through community outreach efforts and targeted educational interventions increase the number of Arkansans who recognize the signs and symptoms of stroke and to call 911.
- Continue to improve treatment for stroke patients through efforts to decrease door-to-needle times in AR SAVES spoke sites using new innovation and technology.
- Development of additional standardized metrics to evaluate AR SAVES performance.
- Implement a provider satisfaction survey.



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**AR SAVES**  
Arkansas Department of  
HUMAN SERVICES

ARKANSAS  
DEPARTMENT OF  
**HUMAN  
SERVICES**

**AR SAVES**  
Stroke Assistance through Virtual Emergency Support

**UAMS**  
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