

NWX-DOC-NTIA-OTIA

**Moderator: Scott Woods
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1:00 pm CT**

Coordinator: Welcome and thank you for standing by. At this time all participants are on a listen-only mode for the duration of today's conference. Today's conference is being recorded. If you have any objections, you may disconnect at this time. I would now like to turn the conference over to Scott Woods. Sir, you may begin.

Scott Woods: Thank you very much. Good afternoon, everyone. Thank you for joining us today for Broadband USA monthly webinar on topics and issues of interest to the public. Again my name is Scott Woods and I manage Broadband USA's technical assistance program and will be moderating today's webinar.

Today our topic is how broadband connectivity is transforming healthcare. As we all know, broadband connectivity is critical for many reasons including access to quality healthcare services from remote patient monitoring to mobile health applications accessed by smartphones, tablets and other devices.

Advances in telemedicine and telehealth technologies have impacted patient care and community health significant distances away from hospitals and doctors' offices. In addition, studies show that connected-care services

significantly reduce economic and administrative costs for both patients and healthcare providers.

Today our feature speakers will discuss innovations in telehealth and telemedicine applications and programs that two leading universities - the University of Mississippi Medical Center and the University of Arkansas for Medical Sciences - have developed to improve the provision of healthcare service in their respective states especially in rural and more remote areas.

So our presenters today are Dr. Damon Darsey, he's the Associate Professor of Emergency Medicine and Pediatrics and also serves as the Medical Director for the Mississippi Center for Emergency Services.

We have Mr. Roy Kitchen through the Arkansas Elite Network Director and Business Administrator for the Center for Distance Health and the USAC Project Coordinator for the UAMS College of Medicine.

And finally Dr. Curtis Lowery who is a Maternal Fetal Medicine Specialist, a Professor and Chair of the Angels Program and the Medical Director, the Executive Director for the Center of Distance Health, a SARA Professor and Principle Investigator for UAMS. Before we begin I would like to review the protocols and logistics for today's webinar.

First we will open up the webinar for questions after completion of the presentation. Please use the question box on the right-hand side of the screen to submit your questions and/or comments. Second, the presentations along with a transcript and recording of today's session will be available on the BroadbandUSA website within seven days of this webinar under the events/past event tab.

Finally, please visit our BroadbandUSA website for information about our technical assistance program including useful guides, products, publications and other tools that can assist you with the planning, funding and implementation of your broadband project.

As we begin today, our first speaker is Dr. Damon A. Darsey. Dr. Darsey is an Associate Professor of Emergency Medicine and Pediatrics at the University of Mississippi Medical Center in Jackson, Mississippi.

He is the Medical Director for the Mississippi Center for Emergency Services which is an emergency response umbrella organization that includes a medical communications center, a critical care transport division and a public safety support division.

His clinical interests are in the field of emergency medicine, critical care and transport medicine specifically focusing on innovation, increasing the scope of practice and pushing evidence-based clinical advances to first responders at all clinical levels. Please welcome Dr. Damon Darsey.

Damon Darsey: Hey, thanks, Scott, appreciate the time of day of all you to join. Let me give a little different perspective on kind of where we stand. You'll hear from two rural states today, both trying to challenge, trying to overcome the challenges of healthcare in an environment where reimbursements are getting lower, specialists are becoming more centric in their urban areas and yet our mortality rate still remains high in some of the rural areas.

You can look at a lot of literature with the trauma literature, with the accident rate literature, with heart and stroke and as I often joked Mississippi seems to be the stroke belt buckle of the stroke belt so how do we improve that? So we have two options in this state and many other rural states.

We either acknowledge that we're bad and just stay there or we engage and try to come-up with ways to improve healthcare throughout the community by innovation technology partnerships. So we go to the next slide, just to give you a little bit about our background.

So a rural state many of you often like to poke fun at where we are and I do it myself as well, but the challenges are pretty daunting. We've got 93 hospitals in the state of which a couple are currently in bankruptcy and others are struggling to survive.

That's not a Mississippi thing. That's a national thing and how do we small community hospitals and even the regional referral centers help them keep and sustain their patients where they are; and there's a couple of things that played out in our experience.

We began doing wired telemedicine in emergency rooms nearly over 10 years ago and doing this with nurse practitioners that are in rural EDs and now as a provided of that service from the **quaternary** healthcare side to be able to provide telemedicine over a wire to a rural community with support of great resources there and nurse practitioners and the physicians, in some cases the nurses, we've learned a lot of how to change the practice.

How to organize the sending and receiving facilities, how to engage in those conversations and how to step back and provide that what can be an evasive voice into the system but how do you help prepare those providers for those high-risk and low-volume scenarios that we're often faced with?

So a couple of things that have been interesting here that I will point to is we do have a very extensive telemedicine system of which I will take zero credit

for the wired systems as there's a lot of really smart people before me had helped with that, but we are the one of the two centers of excellence in telehealth.

Now what that means is we're trying to figure out ways to not bring patients to the main campus or **quaternary** center but trying to keep those patients local in their communities as best as possible.

What we're seeing with some of the other models of telemedicine is the referral base models coming-in once the patient leaves their community for healthcare, the chances of them going back to that community for any healthcare are minimal.

So what we've figured out is how to we take this environment of multiple people in multiple areas needing help, specialists or otherwise, and then our focus in emergency medicine, how do we keep those low-volume, high-risk patients, how do we keep them to the same standard that we have that will have larger centers?

And then the other piece is to take it one step beyond which is where we're looking at now and actively innovating towards is how do we take the pre-hospital responder? When I mean that, I mean, (unintelligible) the state trooper through the paramedic and give him and her the ability to connect with a specialist and give an evaluation and destination decisions on patients well before they hit our center.

A great example is in stroke care. While many people are doing stroke units, mobile stroke care which are phenomenal systems, the challenge of rural Mississippi is there's not the ROI for that so how do we take a camera and a person and get an evaluation to determine the destination of that patient. You

know, so the patient goes to the right place by the right time by the right method.

And so the changing healthcare environment is leading into us really looking beyond the walls of a hospital to those that are out there that provide that first level of care and how can we as a state, as an institution, as an academic medical center support those paramedics, those firefighters, those state troopers in the middle of nowhere to give them what they need.

And so a couple of years ago with the support of NTIA we reached out and kind of had a novel plan in 2010 to look and do this program called the mobile teleassist system. It's a standard-based platform and we could go out, it wasn't proprietary to any certain monitor or company, it was a standard based on what we drafted based on looking at the industry then.

We released a RFP and then we released another RFP, similar project about two years ago, and it finally made an award there and what it gives us is the ability to have a standard-based approach across the spectrum of first responders. The technology is fairly simple.

Where we get to some challenges is the mobile broadband coverage and we'll talk about that in a second but also the policy and protocols written around the technology. As many people know the technology is great but if you don't have protocols and the procedures to write around, it becomes a challenge.

So the goal here is many have written in some papers recently is to increase the digital opportunities for these guys and girls that are providing this care, whether it's emergency responders in an ER or on an ambulance or a fire truck, how do we help them have the ability to reach out and touch those folks that may be able to help them in the future.

One of the things as we learned from a practicing in telemedicine doc and emergency environment is connectivity is key but connectivity fails; and so what is your backup plan? How do you devise that plan? Do you have protocols in place to allow that to happen because what we can't do in this field is move the bar forward only when the connectivity is good.

It's got to be a plan that wraps around the whole process and finally what we're looking at is how do we collaborate with regional cell carriers, national carriers and coming along as the First Net model, how do we use their assets, their knowledge to increase what we can do for the provider if you will?

We'll talk about some ways we've learned in the broadband mobile environment in our state of how we can better improve that, because when we talk about emergency responders we've got to talk about resiliency, we've got to talk about mission critical. We've got to use some of those buzzwords that they're very accustomed to with their LAN mobile radio systems and how do we bring technology in? Next slide.

So the big challenge is sitting in the back of that lone ambulance and I called that life in the fast lane, no support, right, so you're back there by yourself and you've got a sick patient.

What can we bring to that environment that improves the outcome of the patient but also improves the outcome of the system which few people really understand is that every patient in the EMS or emergency system ties-up resources that are for another or potentially for another and so the evolution of triage becomes that more critical.

And one of the things we see time and time again, you'll find this as you begin to look as there are two different sets of maps when we talk about mobile broadband coverage.

There's the maps that are public and produced that are out there that seem to be ubiquitous. The coverage seems to be completely there in blue or red or yellow depending on the company, and then you get one of the real maps. The maps that show the edge coverage and show the things that we need to know up-down coverage on their data speeds. Things that are out there really make the difference for us having a system that works or having a system that works some of the time.

And the biggest questions that we've seen is this population coverage that's very smart from a capitalist mindset that we need to cover the population because that's where the subscribers are to more of a geographic model where we look at we need to cover the geographic area because those rural areas are indeed the ones where we have our challenges.

And we've seen some things play-out, universal service fund and some other grants. FCC's working on some stuff wherein USDA is now allowing a number of projects along with NTIA to help make that rural coverage better but we still have a challenge there.

And so we have these conversations whether you're in a wilderness area or a rural or super rural or urban. All these words that get thrown-out and it all leans back to the back of this ambulance and fire truck or rural critical access hospital. How do you have the coverage that you need to make these things work?

It is definitely a sacred environment in the back of that ambulance, that ER, that helicopter, that fire truck because you're it. You're the only one there. How do we bring technology into the hands that can help? Next slide.

The plan is key and things that we've learned and thanks a lot to NTIA support and to some of the visionary leaders on our campus. We're constructing and starting next week a center that's going to look at these operational changes. Technology is great but until you put someone in the back of ambulance with the next technology, the increased scope of practice and then cut the technology off, that's where we see the quality.

That's where we see the Swiss cheese model come into effect and so do we have operational changes that match our coverage or do we have coverage match our operational changes?

It sounds semantic, but if we have our operational challenges, if we know the coverage even if it's the unpublic or the private maps that we have, if we know the coverage is limited in certain areas, how do we best respond to that?

We're not really in this day and age going to match the coverage to what we want to do. We've got to work within the other system. Here's what we've been given by the technology world thanks to broadband connect, NTIA's programs, USDA's, all these other ones that are doing this, how do we get there?

How do we bring specialists to the bedside but the caveat is how do we train the specialists to be at the bedside as much as they're not normally. One of the biggest challenges we have is allowing our specialists to participate in a tele-emergency system because it is so different, these community hospitals.

They don't have the extensive research that those of us that operate telemedicine do. The other thing here is we see as we play-out is how can telemedicine not only do return of investments and we've seen that through some of our remote pilot patient monitoring saving hundreds of thousands of dollars in small piloted studies in our Mississippi Delta.

But how we really support the local resources? How do we keep the patients local because in the end all things begin and end with the local providers whether that's a disaster or a bad wreck or diabetes management? We're all better-off local, whether that's local or remote patient care monitoring in the homes where some of our world with the best local will be the community hospital.

And then we have this long discussion about policy, how this policy's changed and make better the care that's happened whether it's in the back of any vehicle that we've talked about and then how to deploy that. One of the things that we've looked at from our state is do we look at coverage based on state maintained roads so you see the picture in the top right of that.

That's one of our aircraft landing on a state road next to a trooper while we know we've got good coverage there. We know that there is broadband coverage on that state road because we've tested it. We know it's there. We've worked with our local carriers to ensure that it's there.

And so do we design our medical protocols around being on a state road versus a county road. So things to make those processes easier for that paramedic in the back of the ambulance; and finally, looking at the role of telemedicine you look at the top right again. Next slide. The top right again and you'll see a whole line of guys and girls working diligently on a sick patient who was involved in a motorcycle crash.

How do we bring telemedicine into that environment? This happened to be in a very rural part of the state. A local hospital had surgeons. They didn't have chest physicians so maybe we go through and engage with ultrasound and using it to help make decisions on where they go.

Are we a supportive role? Do we have that supportive role of helping the paramedic, the firefighter, the emergency doc, the emergency nurse, the nurse practitioner, make some decisions and I'll take some of the liability on us.

The oversight role makes me really nervous because we've seen some of this in previous pilot studies with paramedics. Specifically the oversight role doesn't work because it's a big brother. So the cameras get destroyed or practices change or do we have that threat clinical care component where we're directing scopes of practice to change, we're directing things to happen but how do we inject there?

As you look at your whole telemedicine world from where you are, what is the best model that you've fed into? We believe very strongly that our model is a supportive model where we can come-in and help maintain or improve the quality, support the local destination decisions, working on transfer processes. So the right patient goes to the right place not based on a mechanism, if you will, but based on actually what happens as it plays-out. And then finally when you look at the funding here, there's a big challenge.

There is a lot of funding that's out there from entities. We're fairly advanced in Mississippi on reimbursement of telemedicine but we have a lot of programmatic dollars that are out that are supporting program expansions.

We have a lot of technical dollars, we're supporting technical enhancements but we really haven't seen the true dollars to come out to look at long-term outcomes in our environment. What does this technology do? We see some short-term work and we've seen some of our wired telemedicine data showing an increased admission rate and a decreased transfer.

We've seen all that, but what does that mean to the healthcare assistant and as we go forward, the challenge I have for many of you on the phone you may be leaders in your communities is how do we have a conversation about quality and keeping local and they can be worked together.

They're not opposing theories. So how do we as a group begin that process going forward and how do we look at longitudinal studies which we're working-on of how to improve protocols but not only the protocols, how do we match the protocols with technology and how we match it when the technology is no longer there which will be a challenge for us well into the next couple of years and with that I'll defer over to my friends from Arkansas.

Scott Woods: Thanks you Dr. Darsey. As a reminder we will have time for questions at the end of this session. Please use the question box on the right-hand side of your screen to submit questions and/or comments at any time. Our next speakers collectively represent the University of Arkansas for Medical Sciences or UAMS.

First we have Mr. Roy Kitchen. Mr. Kitchen is the director of the Arkansas E-link Network, one of the nation's largest telehealth networks. He also serves as the Business Administrator for the Center for Distance Health and serves as the Project Coordinator for the UAMS Consortium.

Mr. Kitchen was part of the UAMS leadership team that applied for and implemented the \$102 million BTOP grant and subsequent expansion of the Arkansas E-link and ARE-ON networks. After Mr. Kitchen, we'll have Dr. Curtis Lowery who's a Maternal Fetal Medicine Specialist and the Chairperson for the University of Arkansas for Medical Sciences Department of Obstetrics and Gynecology.

Dr. Lowery is a champion of antenatal and neonatal telemedicine. In addition Dr. Lowery facilitated the process by which Arkansas insurance providers handle telemedicine claims, who's responsible for increased Medicaid reimbursements and promoted an understanding and need for telemedicine throughout the state.

He also brought telemedicine and telehealth and telemedicine access excuse me to over 400 healthcare sites through rural Arkansas. All while providing medical consultations combined with provider and patient education. Please welcome collectively from UAMS Mr. Roy Kitchen and Dr. Curtis Lowery.

Roy Kitchen: Hey, thank you Scott very much and I want to thank NTIA for sponsoring this webinar series. I'd also like to thank Dr. Damon Darsey on his presentation. We both have some of the same or similar challenges. Next slide, please.

So as Scott forestated in the opening, I am the Arkansas E-link Network Director. So this slide shows you exactly what is Arkansas E-Link. To me it's a dedicated high-speed HIPAA compliant broadband network which we have over 1000-plus endpoints.

As Scott stated, you know, we received \$102 million BTOP broadband grant and with that funding we combined two networks, Arkansas Telehealth

Network and the Arkansas Research and Educational Optical Network which is ARE-ON. ARE-ON provides our high-speed fiber optic backbone network.

They have hubs or huts strategically placed across the state that allows our community anchor institutes to connect into. Next slide, please. I wanted to talk a little bit about the evolution of our FCC rural healthcare pilot to USAC healthcare connect fund and it's about the network.

And during this presentation I want to talk a little bit about the lessons learned and our challenges and as we build this statewide telemedicine network which, as Scott stated, is one of the largest telemedicine networks in the nation, but it took more than this network to make it successful or this funding that I'm going to talk about.

It also involves, you know, willing healthcare providers, and I say willingly because people have to adapt and willing to use the technology. So we had a small telemedicine network when we first started-out and we've been doing telehealth for about 25 years and 2007 we applied for FCC communications rural health pilot grants which we were granted \$4.8 million.

And what this did this allowed us to expand broadband connectivity across the state connecting over 137 sites but we still had our challenges because that grant allows for broadband connectivity but it didn't allow for anything to be placed on the end of that connectivity. So that was a challenge, expanding broadband and teaching people and showing them how they were going to use it.

So in 2010 we received \$102 million broadband grant. So what this grant allowed us to do was to expand broadband even further across rural Arkansas connecting an additional 249 sites plus we already had 137 sites connected

and this funding allowed us to deploy telemedicine equipment to all of these locations.

So you know, it was a Godsend to us and actually when we first got this grant I remember Dr. Lowery and Tina and I in a hall and as to be noted, we applied for this BTOP grant the first time and we were denied and I think ...

((Crosstalk))

Roy Kitchen: Yes, and then we went back and we revamped and did our proposal and then we were granted and we said, you know, after we got the announcement that hey, you all have been awarded this \$102 million grant and you have to roll it out in three years. We looked at each other and we said what have we gotten ourselves into, you know, because it was a big feat in undertaking to do but we did it.

But there still were some challenges there, even though we expanded broadband connectivity. Even though we placed equipment at all of these locations, there still was a challenge because there was no funding for reimbursement I would say for telemedicine at this time in the State of Arkansas.

So there were challenges there that we had to try to overcome. So when the grant ended in 2013 which funded all the connectivity at 100%, you know, then we were faced with an option, how do we sustain this network that we done built? We done got all this money, all these people are connected.

How do we sustain this network? So there was another grant opportunity came out, the Rural Healthcare Connect; and we decided to become a consortium leader for the state. Now being a consortium leader meant that we

took the burden of all the healthcare providers on our shoulder, filing all the paperwork but what this did so we had to go back to these all of these sites and tell them say BTOP is over with. The 100% funding is over with.

Now we have got to secure this other funding that will pay 65% of your line charges and you can imagine, you know, when people are getting something free for a long time and then you're telling them all of a sudden that hey, the free thing is over with, but you know, now you're going to have to pay 35%. So we have challenges there too because we have to try to convince people, you need to use this technology.

It's an advanced injuries of the patient and you know, you only have to pay 35% of this cost and try to come-up with creative ways that they could use this technology for their best interests and for their patient care. So that was still a challenge because people were saying okay, well we understand that the 100% is gone.

We understand that now we can get 65% reimbursement but we still have to come up with the 35%; and there's still no reimbursement for telehealth and we said this is true. So we worked extensively with our legislators trying to pass the bill for telehealth reimbursement and I think Mississippi was a great leader in that and we learned a lot of lessons from that at that time.

Talking to I think Dr. Kristi Henderson and others from that area on how they accomplished that and we were able to do that and that helped tremendously when we went back to people and told them now that their telehealth reimbursement.

So we put out an RFP in 2016 and we added an additional 724 sites, but we learned a lesson also in doing that because when we did this first RFP, we

focused on dedicated connectivity, dedicated circuits into institutions and it was a good thing and it was a bad thing.

So, we learned a valuable lesson and we just put-out another RFP which is RFP 2019-001 and we expanded our portfolio of services so when we went into this RFP we said we want to help the citizens of Arkansas with the bandwidth that they need and the type of bandwidth that they need. So we included in this RFP broadband connectivity or commodity Internet or Ethernet.

We included dedicated circuits. We included wide-area network, LAN. We included SIP or Voice-over-IP. So we just got this RFP back off the street and we have 27 vendors that have bid on this. So in this RFP, we're probably looking at picking-up an additional 1000 sites. Next slide, please.

So you can look at this slide and you can see before 2010 before we got the BTOP grant how the state looks and after we got the BTOP grant, how the state looks. So again, the BTOP grant was a true blessing for the state.

For those of you who are thinking about doing telemedicine, contemplating whether to build your own network which there are many challenges or to join an existing network, you know, if you want to know more you can feel free to reach out to me and one thing that we stress as we talk to our community and our sites is the technology is the easy part.

We can give you all the equipment that you need to do it. Doing it is the hard part. Having the intellectual property, having the champions on that other end that's willing to lead that charge at that institution to do telemedicine, but also it's more than that technology and as champions we were successful because we had dedicated our key personnel and we had a 24/7 call center.

So all of these factors made our network today what it is and Dr. Lowery was our visionary at the beginning of leading us down this road. Next slide, please. I'm turning this over to Dr. Curtis Lowery.

Curtis Lowery: Thank you Roy, great job. So I grew-up in rural Alabama and, you know, where there's also a healthcare disparity and in Arkansas and the south in general, we believe that where you live should not determine whether you live or die. This is particularly important in that if it's just intellectual property, technology allows us to provide you know, the knowledge wherever and whenever it's needed.

And so we've been working under the premise since the beginning in - well actually in the 1990s really when we started this - that we can that the teaching institutions have all this intellectual property that should be able to be used not just in the city of origin but across the state much like they've done in Mississippi and many of the other southern states that have been doing this.

You can go to the next slide, please. So the Angels Telemedicine Program was the beginning of this and this is a high-risk OB program. We were the only maternal fetal medicine people and at this time there were three of us, all in Little Rock, and we had been going around the state trying to do education and outreach all over the state.

And we had sort of dabbled in technology and telemedicine mainly for education purposes before we started with a single site in Northwest Arkansas in Fayetteville where Walmart is actually, and we started doing it there.

And we learned about the use of subspecialty consultation in maternal fetal medicine consult in this site and then expanded to other sites around the state

and then we grew the MSM program and we said, you know, we can do this with other disciplines as well so next slide, please.

And so you can see these are the Angels Telemedicine consults in 2018. We did 2822 telemedicine patient visits across the state and I will say that we also bring pregnant women with complications to the university here in Little Rock and that didn't drop-off.

In fact that increased somewhat over this so we're actually writing consults more frequently in the rural areas and at other sites as well as bringing more patients to the university so we didn't see a drop in the onsite consults but an expansion of that while simultaneously increasing the consults around the state.

And we do in these consults we do live-streaming ultrasound as well as direct consults with patients so I see a real-time ultrasound stream when I do a consult with a patient in any one of these sites around. Next slide, and so the next well actually we did nursery sites first and this was the next big program.

We were the worst state in the union, in fact we were 52nd, we were worse than the territories when we started this program in terms of stroke deaths in the state. So we were the worst.

And so we just decided again deploying the same kind of system around like we did in the high-risk OB program, we went to every emergency room and we started working with the small critical-access hospitals as well as the larger hospitals and started teaching them about telestroke, helping them be prepared to receive a stroke patient.

And then having a 24/7 call center that allowed communication between these patients and the center in Arkansas; and then we would have a vascular neurologist on call that could consult the patient and make the decision about giving the clot-dissolving drug or not giving the clot-dissolving and that ramped-up pretty fast since we'd already done the other model.

So and that's been very effective in reducing stroke deaths and I have to say that we've moved-up from the bottom to the sixth above the bottom which sounds sad but we're not satisfied with it's better than you know, being the bottom so anyway we're continuing to try to do something about this.

A lot of what we're going to have to do now is going to be social determinants of health where we're doing things in the community to affect outcomes, you know. So the idea would be not to ever have a stroke rather than treating it when you have it. So, next slide.

Okay, and so again it's a plug-and-play model now. So if you do one thing across the network, you can do other things. So we added the trauma in each repository in which we transfer images from all the ERs to a central site and then make these images available to the transferring ER so the patients don't always come to the university.

They might go to a regional hospital that receives the patient and now the images follow them into that site as well; and then the next thing was trauma hand and burn technology.

Again the model keeps that we evolve is that we have a call center that routes the call to a specialist, subspecialist and then that person aids the local ER and local hospital with an aide where that patient kind of wherever it is.

And we have a bunch of 12 hospitals down in the Delta that are critical-access hospitals that we're establishing even more relationships with through sort of the government helping us as the State of Arkansas government helping us as well to build sort of a connected intimate network. Okay, next slide.

And so these are different programs in this plug and play model. You can see cardiology, geriatrics, trauma by an injury, trauma brain injury, pre-op and post-op visits, school-based clinics, primary care to home, prisons, jails and then openly direct to consumer which we haven't done as much as some of the other programs.

Mainly we've been kind of working in this top-down model but our goal is actually to make the patient ultimately part of this connected system as well. I mean, the best thing would be with an MI or a stroke if we can directly to consumer and begin treatment even earlier in the whole process.

Okay, next slide. And you know, we already talked about telemedicine reimbursement. You know, we have got a law so called parity law which is one of the better parity laws in the nation in terms of equivalency pay for the originating site and the consulting site.

And the next thing that we're trying to do is to do value based care in which we negotiate contracts for the management of the patient populations and then you take all the disincentives to transferring patients and managing patients out of the care delivery because in the fee-for-service world, places tend to want to hold on to patients and do as many things as they can to the patient in order to be profitable and really that's not always in the patient's best interest.

We want to optimize the performance of the system so that we back-transport patients back to the referring centers when they need to be but also move

patients up to tertiary care when they need to be. You sort of design and optimize performance systems so that we're matching patient needs with resources. Next slide, please.

And so this just shows that evolution of the system and you can see since we started way back in 2003 with our first contract with Medicaid and all through the evolution of different things that we've added and we're continuing to add more and more as we build this connected health system in which the resources are shared amongst the members of the system.

And this represents even the addition of large hospital networks like Baptist Hospital and some other networks now that are part of the whole system.

Once you build a non-competitive fee-for-service world, then it becomes essential that hospitals work and physicians work together as a team to optimize the performance and drive down costs for and improve quality for the patients. So that's where all this stuff is going towards value-based care delivery. Next slide.

And so you know, we're living in a very stressful time in health care. We're expected to increase production, cut production costs and improve safety and quality of care delivery and, you know, I believe you can do that because once you improve the performance of a system and you start taking the disincentives out of the system, you can do these sort of things.

Successful businesses and industry have done this for many years. Next slide. And you'll see in healthcare the big insurance payers and companies are shifting the risk onto the provider. So in a fee-for-service world the consumers, employers and healthcare plans and government payers assume all the risk.

If there's a flu epidemic and healthcare costs jump-up this year, it will not be the healthcare system of today. They'll have to shoulder that cost, but as we begin to take-on risk, we'll be responsible for a lot of that risk but also if we do well and improve quality and drive-down costs, then we'll be able to take advantage of some of that cost savings as a result of this new remodel.

And who better to make these decisions about healthcare delivery than the providers? I think we're the ones that should be making the, I mean, I take a Hippocratic oath that will say I will first do no harm as part of becoming a doctor and I think that we're the ones that should be figuring these things out and providing optimized care at a low cost. Next.

And there's where we're going to be and this is the University of Arkansas and I think this is the last slide. Then you can you know, you can look-up Angels and UAMS or University and you can find our program.

We have a pretty big web footprint that you can find the education programs and a lot of the other things. I think that's it Scott so and I want to thank you too Scott for all the help you did in the deployment of the BTOP grant. You were one of the best officers that I've ever had on any of the grants we've gotten in terms of positive attitude and helped us move forward. So thanks a lot Scott.

Damon Darsey: And Scott didn't pay Dr. Lowery to say that, FYI.

((Crosstalk))

Scott Woods: I did not well thank you Roy and Dr. Lowery for your information and the presentation and also the kind words. Now we will open-up the webinar for

questions from our attendees. Aimee Meacham my Broadband USA colleague will facilitate the question-and-answer session. Aimee over to you.

Aimee Meacham: Great, thank you Scott and thank you both to Dr. Darsey and Dr. Lowery and Roy for their great presentations. We've gotten a couple of questions but feel free to continue to ask questions. I'm actually going to start with something a little bit more general at first and I think we touched on this a little bit.

But one of the I think one of the questions that folks have generally about how telemedicine works and how telehealth programs work is really like how does that actually impact costs and healthcare outcomes in your state and if I can, you know, let's start with Arkansas and then jump to Mississippi.

Curtis Lowery: Well, I can tell you that one of the things that happens right now today is that the personnel are the greatest cost of healthcare delivery and so if you can provide an expert, a subspecialist within the system, and so you can take advantage of economies of scale and in fact providing a vascular neurologist on-call 24/7 would be impossible in many parts of the state particularly the little hospitals.

They just can't afford to do that by having a central resource, then they can provide quality care at a lower price and even they couldn't even afford to do it without this kind of stuff. So MFMs maternal fetal medicine they're very expensive. You have to have a high volume of deliveries to be able to do that.

I mean, there are often hospitals, two hospitals in one place that'll compete with one another to try to, you know, buy a subspecialist in that facility because of the competitive nature of healthcare, but in many cases you can find these resources you know, at a much lower cost.

Also, you can help make better decisions about where the patient moves and transports by having an expert system to oversee some of those transports so you could filter incorrect delivery of care in many ways through this system.

Damon Darsey: Aimee, I'll add-on to that a little bit. One of the challenges with what we have now and Arkansas folks and I've said we are the same way. There's a lot of dollars here that had been extended.

It's some phenomenal work that's been done not only by Arkansas but by many others in the country and where we're seeing is that is a disconnect between outcomes in terms of clinical outcomes which are typically a lot more longitudinal than really the timeframe we've been in this industry.

And then the costs of those intangibles, some that Dr. Lowery just talked about but others are the ability to go to care. We've seen the small pilot study and it's (unintelligible) looking at diabetes management, savings of around \$700,000 with only you know, two handfuls, three handfuls of people based on hospital readmission rates.

So the dollars are there for savings where we as an industry as healthcare really got to double-down on looking at outcomes longitudinally and letting our federal partners and our state partners and our commercial partners really looking at the longitudinal benefit of this as we go out further.

All the policies that I've seen recently have shown significant improvements not only in systems of care but also in dollars. The question is what does that turn into outcomes? You know, what is the outcome of the stroke patient getting that medicine many minutes before? We have a lot of that data but we don't have a lot of data connecting to the wire with camera and a provider.

Aimee Meacham: Thank you so just to stay with Dr. Darsey for a second, one of the questions that came in had to do with broadband coverage in your state and I know the folks from Arkansas talked a little bit about how they built their network between the hospitals but you, you know, you look at this a little bit differently I know on the emergency medicine side.

And if you could talk a little bit about what you, how you work with your local ISPs and then also what you're doing in Mississippi to combat connectivity issues in rural areas.

Damon Darsey: Yes, so a couple of pieces there so yes, we all focused on a pretty robust wired telemedicine system. That's not really where I spend a lot of my time. Our time is looking at the wire list side of it, looking at the LTE if you will, the 4G and coming 5G technology. We're very blessed in Mississippi to have a regional carrier that's statewide, was Mississippi grown and covered.

So we have a lot of conversations talking with them. That's a bit of an anomaly here and we're very lucky to have that; but we also look at national providers and if you get to the right person, you sign the right documents, they'll show you the actual map of what they currently have as a broadband coverage and you'll see it's very population based.

That makes complete sense, not a knock on them at all. It's capital-based, that's where the subscribers are but knowing where you have the coverage and knowing where you don't helps drive some of the conversation about universal service funds and some of the other things that are out there that help a wireless carrier bring broadband, mobile broadband, into rural areas.

There are dollars for that often times if the squeaky speaks-up, that's where the dollars get spent and then you have FirstNet which has state plans across

every state which is a first responder network. It's geared for first responders but what we told them, quite candidly, medicine is where this is going. First responder medicine is where the section is if you will and the statewide or nationwide projects.

So those are the three big pieces, looking at the FirstNet state plan or your statewide interoperability coordinator, and then looking at your national carriers or if you're very lucky like we are to have a regional carrier be able to have those conversations.

But that's what I talked so extensively on, knowing your network and building your ops plan to your network, not the other way around because quite frankly we don't control where those things go, where the coverage is.

Roy Kitchen: Hey, and this is Roy. Let me piggyback off of that too so because I didn't want to give the impression that Arkansas is just wired. We are in the wireless business as well. In our RFP we did have a tab for cellular connectivity. We have talked extensively to our FirstNet here in the state.

We have talked to every cellphone carrier in the state. We do have an EMR ambulance project pilot going-on as we speak. So we are having many conversations about where connectivity is and where it's not and how to get it there. So we're extensively in that field as well.

Curtis Lowery: Yes, I think it's interconnected, it's in a hospital network so our staff is we're trying to say we're going to extend the hospital and clinics out directly to the patient and we have seen the penetration in Arkansas of national telehealth companies in this big old way yet, you know, as it evolves and I'll tell you, no one ever delivered a baby over the cellphone before. So that's, you know, you need to have traditional healthcare and I think it's up to use to build this

hybrid sort of model of how we take it out of the wire down to the level of each individual patient.

Roy Kitchen: So and currently we have stroke neurologists that beaming into the ambulance when they pick-up a stroke patient and the vascular neurologists are consulting with the ambulance personnel en route and telling them whether or not to administer the TPA, giving advice with them all the way. So we're doing many things. We just can't talk about everything we're doing in Arkansas in this time period. Okay.

Aimy Meacham: Understood. So it sounds like from both of your perspectives, it's really a multi-prong approach to address these issues. Well thank you that's really, that's extremely helpful.

So something that you just said, Dr. Lowery and something that Dr. Darsey has said earlier, was really sort of hit home for me was something that we think about sometimes is often times we hear about patients that, you know, trust their local healthcare practitioners whether it's a nurse practitioner or it's a doctor that's local.

And Dr. Darsey was talking about supporting local decisions and Dr. Lowery was talking about you know, making sure that there's healthcare out in local areas. Can you talk a little bit more about how important that is and how trust plays a factor in telemedicine decisions and this time let's start with Arkansas again.

Curtis Lowery: Yes, no, we believe very much that you have to have a traditional healthcare network. I mean, we would like to see less people admitted to the hospital but you got to have a hospital. I mean, there's still going to be appendectomies

and hips and knees and babies delivered and so there has to be a traditional healthcare system.

A lot of the things that we do can be moved down to a lower level. So the idea would be that all providers would be, we should be able to maximize their ability to practice at the upper level of their license. So nurse practitioners supported by, in my case, MFM can do more than they could if they're completely independent of the healthcare system.

And we need to be thinking about that. How we build a connected system going all the way down to the level of the patient but also supporting the local practitioners at a lower level so they don't feel so alone and that they can be practicing state-of-the-art, up-to-date medicine.

It is hard to keep up with changes in obstetrics, let alone cardiology and neurology and all these other areas. So I think the way we do it is that we optimize the primary care physicians to be able to do what they can do well but make readily available subspecialists to consult with them when they need it, whether it's in the hospital or in their office. Does that answer the question?

Aimee Meacham: I think so.

Damon Darsey: The only thing I would add is you know, when talking to a nurse practitioner at a rural ER, you know, the comment that is made often times almost scripted is, you know, your local MP's done an exceptional job. Thank you for allowing me to help in your care and that reinforces the supportive nature of telemedicine not the oversight nature that has been in some ways discussed in other forums and it's been a bit of a challenge.

As we see that roll-out more to the field providers, that supportive nature is vital to integration and adoption.

Curtis Lowery: Well, Damon you do this I know in Mississippi a lot, a lot of what we have to do is we have to prepare them for this. You have to go out there and you got to prepare the ER for the stroke and prepare the ER for other problems.

And so I think that's the way this has all going to roll out is that we help them get ready to perform at the level that they should but when they're faced with a novel situation they don't understand, then it's not send the patient to Little Rock, it's less bring Little Rock to the patient.

Roy Kitchen: I want to echo that because number 1, I see the budgets. So we spend an enormous, to echo Dr. Lowry's comment, we spend an enormous amount of money and time and resources in going to those communities, going to those ERs, building those relationships with those communities so they can trust that we know what we're doing.

So and that's where it starts at, you know, being able to trust and as Dr. Lowery forestated that provider at that little clinic is not on an island by themselves. They know that they can connect to a subspecialist for ...

Curtis Lowery: Well, they also have to feel that we're not taking patients away from them ...

Roy Kitchen: Exactly.

Curtis Lowery: That's the other side of this.

Roy Kitchen: Yes.

Curtis Lowery: If you're not careful, they think we're trying to steal people and we've never done that and that's not the purpose of what we're doing. We're trying to keep patients there more.

Roy Kitchen: Yes. Okay.

Aimee Meacham: Great, okay, so I have one last quick question because we're almost out of time and it really had to do it was a question that someone asked early on which was are there any particular medical apps that you're using and anything that other folks should be thinking about and if we don't want to point out anything in particular that's fine too but just wanted to post it in our last minute or so. Damon or Dr. Darsey do you want to start?

Damon Darsey: Yes, from our side, I mean, there's tons of them out there, you know, I'd be careful from this perspective about endorsing something but there's tons of them out there. My biggest statement is make sure the one that you've got is designed for what you're doing. There's a lot of we can make this happen stuff to really engage in the conversation. I'm not even going to endorse anything but that's my recommendation.

Roy Kitchen: And I want to echo Dr. Darsey's comment. There is a plethora of apps out there and you just have to be careful and we don't endorse any neither. What we do here is we thoroughly vet them out, you know, to ensure that number 1 they're doing what they say they're going to do and that it's performing like it said it would.

Damon Darsey: So then the other caveat is make sure it's HIPAA compliant because you're held to HIPAA you know, anytime you're doing care delivery to the patient.

Aimee Meacham: No, so that's so thank you, that's a perfect way to end. We're at the top of the hour. I want to thank you all again for your time. We really appreciate it and thank you to the audience as well and just as a reminder our next webinar will be on January 16th called Measuring the Digital Divide and we'll be reviewing recent surveys and data at 2:00 pm on January 16th.

And then so the recording, the transcript and the slides will be available in about a week on our website. Thank you Dr. Darsey, Dr. Lowery, thank you to Arkansas and to Mississippi for all of your great work in this area and your leadership in this area and we really appreciate all of your time, and I'm sorry Roy, thank you too, Roy Kitchen as well and you have a great day.

Roy Kitchen: I'm not a doctor so I didn't get offended.

Aimee Meacham: And thank you, with that we are ending.

Scott Woods: Yes, thank you Aimee and just want to remind everyone that BroadbandUSA is available for technical assistance to help expand broadband connectivity and promote digital inclusion and broadband adoption. For more information please e-mail us at broadbandusa@ntia.doc.gov or you can visit our website for more information and to access our toolkits and publications.

Thank you all again for your time and participation today and have a wonderful afternoon.

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