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ARIA JAVIDAN:
Hello, my name is Aria Javidan, welcome to the latest Webinar Series the The Crystal Ball Project: Telehealth Technology in 3-5 Years. These webinars are designed to provide timely information to support and guide the development of your telehealth programs.

Just to provide background on the consortium, there are 12 regional -- telehealth resource centers.

A few tips before we get started today. Your audio has been muted. Please use the Q&A function to ask questions. Questions will be answered at the end of the presentation. Please also note that close captioning is available, but is located at the bottom of your screen. Today's webinar is also being recorded, and you can access today's and past webinars on the NCTRC YouTube channel.

I will pass it to Jordan Berg, director of TTAC.

JORDAN BERG:
Thank you, Aria. I am really pleased to be with you today. And to be able to talk to a little bit about Crystal Ball Project. This is the first time we are able to talk about this. We have a lot to go over. We are going to be moving at a pretty rapid rate. Like Aria said I am Jordan Berg, and the principal investigator for the telehealth technology assessment center.

We are here to talk about Crystal Ball Project, which is been in process since 2021. I'm going to talk to today about some of the things we have learned. About the project, and provide you with information and resources.

First we should talk about who we TTAC is. Like I said, we are the national telehealth resource Center focused on telehealth technology. We are federally funded through the office of telehealth. We provide technology assessment centers to the 12 regional telehealth resource centers, as well as the other national telehealth resource Center, and we work individually with individuals who are looking to make a telehealth decisions. And who are looking to learn more about telehealth technology.

We are part of the National Consortium of Telehealth Resource Centers, and arias math is better so we will skip that slide.

So, what does TTAC do. To quote Liam Neeson, we have a particular set of skills. But around the presentation of telehealth technologies. These are a few of the different ones we have looked at in the last three months here. We love to bring a new telehealth technology, to learn about it, talk about it, and help people create their own assessments and learn more about telehealth technology as it applies to their organizations.

What will we be talking about today? This is a little overview of what we will cover. We will talk about

 

what Crystal Ball Project is, how it is structured, what some of the deliverables are, limitations of the project... we will talk abut the six future technology areas that the Crystal Ball Project decided to feature, then we will go into each of those at a really, really high level.

And I say really, really high-level because each of these topics is probably worthy of a webinar in and of itself.

And on that note, I wanted to do a quick poll. We will do to polls, one now, and one closer to the end. Aria will put that up. Weird these are the telehealth technologies. We say six, and I know there are seven, and we will talk about why that is.

All of the new technologies listed here, AI machine learning, expanded use of telehealth applications, apps and solution platforms, virtual augmented reality, drones, robotics, and hereabouts, which is of most interest to you? Which would you like to see more webinars and content on in the future?

Like I said, we are in a rapid rate today, we will hit all of these on the surface, but we wanted to provide you with the lay of the land. So if you want to go ahead and fill out that poll, let me know what you think.

After we go through each of the different topics at a high level, we will wrap things up to conclusion and have some time for questions.

Area, can we put the result of that poll up? Alright, make sense. We are here the national telehealth resource centers. There is a lot of interest in the use of expanded health – our expanded use of telehealth. We will talk about that today, and maybe that is something we need to develop — or do a whole webinar for in the future.

What was the Crystal Ball Project? What were we trying to accomplish with it? This really requires some background into how the telehealth technology assessment centers identifies and reviews the different technologies that we look at.

There is a few ways we bring in information. One of the primary ones that we do is the telehealth technology survey. This is a survey we do every two years. We are due to do one early next year. When we reach out and ask anyone we can really get to fill out the survey what they are using, what they plan to use, what some of the challenges they have are, what technologies are interesting to them... that is one of the ways we look at the technologies that are out there.

Another way we do that is market reviews, market research, looking at the different sheets and things provided by manufacturers bringing technologies, doing assessments on technologies.

We also look at the requests received – technical assistance requests from users TRC's, different stakeholders across the country.

The problem with all of this is we are looking at current state or past state. We are looking at what

 

exists instead of looking ahead and seeing what's around the corner.

What we were thinking when we wanted to begin Crystal Ball Project, what if we took a little longer? What if we didn't look at what's currently on the market, what if we started to think what will happen in the next three to five years in the telehealth space. Instead of looking in the rearview we wanted to look around the corner of what is next and in the near view, and I love a good pun, and that's the only one you get today.

So we brought together an expert panel of different stakeholders that were in the telehealth marketplace, and say "what you think telehealth will look like in the next three to five years?"

Our objective was we want to examine what digital health technologies will be most impacted in the next three to five years, and provide credible vision and examples of near-term to advancements, and provided in readable usable examples by the telehealth technology community.

So what it does look like? We conducted bimonthly meetings. We had two meetings per month. From April until December 2021, and into 2022.

We had a group of panel experts were brought together – this was under the previous director Doris Barta, who is leading TTAC at that time. It was coordinated and led by Mark Vander Worth who was a real key expert in the telehealth field. We had 11 key authors that we worked with, and nearly 20 contributing participants from a variety of different aspects of the telehealth market space. This included folks who are experts in telemedicine, digital health, hospital administer raters, consumer services and products, CEOs, entrepreneurs, chronic disease management, expert in technology and how it is used with the elderly, and telehealth technology in general.

In these meetings we had a couple things we were trying to do. One, we wanted to identify the key technology areas we wanted to consider as we move into the next three – five years. We wanted to define what those areas were. He wanted you to find the key attributes. We wanted to make a list of potential applications and challenges we thought might coming around the corner as we gaze into our Crystal Ball, and we wanted to provide examples of technologies that were emerging in that market space. We wanted to compare the current state of that marketplace was, as compared to a future state. We wanted to provide easily digestible key considerations for each of these topics.

All of this would be put together and created into a Crystal Ball document, which will be published in the next two weeks.

That brings us to our deliverables. The toolkit will be available in two weeks on the telehealthtechnology.org website. We go into a lot more depth in each of these topics and then we have a planned webinar series we are working on, figuring out which one of these topics we want to address first. Then we will provide webinars around each of the telehealth technology trend topics that we have.

We want to talk a little bit about the disclaimers we have. We call this Crystal Ball Project, and that is a

 

really good and really apt. We are trying to guess what the future will be. It's an educated guess.

We probably had the smartest group of telehealth experts I have seen in one space, really thinking and diving into this. But it's impossible to look around corners. There is a couple of examples where that is impossible. This happened right as we were diving into this.

We begin this project at the beginning of COVID, and that really changed the landscape. We have also seen a few of the technologies that we looked at leap forward pass but we were predicting at the time. Then we have had some that sold out and dragged a little bit.

In summary, we are taking a best guess at what is coming up . You can't look around corners, you can't really predict the future.

And we will talk about a few vendors that are listed as examples of the types of technologies that we think are going to be changing things in the future.

So, what are the technology – future technology areas? The group initially found six future technology areas. Those of you quick accounting you will say, "But Jordan, there are seven things on this list." When we started this project, AI and machine learning we knew it was important, and we knew it would be threaded between each of these different topics. So we did not call that out as a whole a separate topic, but as we got further into actually writing and combining all of the content together for the toolkit, we realized that it really needed its own topic area.

The idea here is that each of the other six areas, expanded telehealth application, apps and solution flatworms, virtual and augmented reality, drones, robotics, and hereabouts, those are all affected by AI machine learning. It is threaded through each of these different topics at a very high level.

Let's dive into, and again this will be skimming the surface for each of these, but let's dive into some of the predictions the group had for what we would be seeing from these technologies in the next 3 to 5 years.

The first rehab is AIM machine learning. There are a lot of different topics that are bundled in with us, but what we are looking at is machine learning. Machines that can learn, that are given machine inputs, and through a learning process are able to create outputs and create valuable data for us and that we can use to make decisions.

This may be artificial intelligence, machine learning, natural language processing, image processing...

We've seen AI in healthcare accelerate over even the last 20 years. This is something that has been that long in the process. We find that within the last two years, or even within the last year or six months, we have been seeing more and more use of applications, excelling rapidly, and I like the illustration that we have here. Because AI's reach and use is reaching into every single aspect of digital life that we have, that we are currently working with.

 

What are the predictions for how AI and machine learning are going to be changing the healthcare and the telehealth landscape?

The group found that AI, the primary benefits for AI in healthcare were around personalized and targeted medicine, the ability to treat -- (Audio Issues) targeted medicine. The second was in differential diagnosis and treatment planning. This was to use AI to help diagnose and make offers for treatment plans. That was one of the key areas.

One of the ones that when we started working on this that we actually saw grow and a lot of the industry has become more familiar in actually using these tools now are around the workflow and revenue cycle optimization. We are already seeing industrywide benefits, and how AI is able to handle issues with billing, coding, documentation, really increasing the efficiency of the different workflows that organizations are using.

AIN machine learning are really good image and textile analysis. These are some of the things we are seeing, a few of the key things that this can do is identify cardiovascular abnormalities, detecting fractures, aiding in the diagnosis of neurological diseases, screening for common cancers and blood pathologies, screening for retinal imaging, dermatology screening, and recommendations. And then improvements in medicine notetaking and dictation. These are all the things we think will be changed by artificial intelligence and machine learning, and are being changed even as we speak.

One of the things we talked a lot about with our group and what we do identity was the potential for AI to provide us with different ways to approach healthcare and medicine, and to think differently than people think. The weighted artificial intelligence pull together information and processes information is different than the human brain works, even though it is built around similar concepts.

We see this in reflected in other things AI has been doing recently. For example, the way artificial intelligence may approach a game like 'Go' or chess, they find strategies and solutions that human opponents have not considered again it may not seem like something that would make a lot of sense, but because they are able to think so many moves ahead, because they are able to process so much raw data, there are ways to treat patients, to consider how to treat patients that we have not even considered yet that AI will be able to show to us, and we will be able to use.

Indicators we have not considered, drug applications that have not been thought of yet, that AI will be able to show us.

AI has a lot of potential issues and considerations that we need to look at.

Number one is the quality and the size of data sets. AI only becomes functional when you have very large data sets that you can train your algorithms on. Those data sets have to be really clean. They have to be really documented and really cute is that we know what we are getting and there is a programming term called 'Garbage in, garbage out'. If our data is not good going in, it will give us skewed results coming out.

 

That brings us to the second, even in these large clean data sets, there have been notes of biases in these data sets. A lot of times those biases are reflected in general society. The way be collected, and the way we interpret data in general is impacted by our human biases, and any program those biases into artificial intelligence and machine learning algorithms.

Another concern that we have is around – AI is used as a buzzword for many different technologies. Whether that is general algorithms, branching trees that used basic programming to help guide decisions, whether that is checkbox that simulates a human experience but are not powered by artificial intelligence or machine learning technology. So a lot of times when the word 'AI' is used, we want to be sure what we are talking about. Are we talking about a neural network algorithm that is processing data? Or are we talking about things that simulate a human experience?

So, AI is kind of thrown around a lot, but there is a lot of different types of applications in ways we want to think about it.

Another concern around artificial intelligence, machine learning, we call it the black box problem. What that means is when we trainees neural networks, when we train these artificial intelligence algorithms, we provide them with input, but there is very little insight into how these algorithms come to their conclusions. When you program NAI algorithm, which you are doing is basically saying "These are all the inputs and given you, and this is the expected result I have" and the meat week bunch of parameters in the middle until we get the desired result. The tweaking happens in so many iterations, and so fast, it's almost impossible to know how an AI is resulting in the decision that it's arriving at. So arriving at how these processes work is almost impossible. It's a black box, were providing inputs and getting outputs, but how it's generated a -- is very challenging to tell.

Another thing to think about is that AI is a form of automation. We are able to automate more and more complex procedures to more complex algorithms, and that is going to have an impact on jobs and workflows. Particularly in the short-term, in administrative functions, and workflows, but more and more complex and more specialized jobs are going to be impacted as we move further. There has been a lot of discussion about that.

I have linked to kind of interesting articles here on AI, how it is used to support behavioral health screenings. These are things we have been doing some research on recently at TTAC. There has been a lot of effort to turn AI loose on social media output, to diagnose depression and things like that. A lot of really interesting applications that are growing and... this is, again, it won't just change healthcare, but will change every aspect of her digital lives. It's something we want to watch.

The second topic that we discussed within the group with the expanded use of telehealth and telemedicine. This hit right as COVID was really ramping up. We were actually able to see this happen around us.

The predictions were that there would be continued growth in telemedicine and home monitoring. That we would see increased quantity and relevance in patient generated data, that the patient would be a source of data generated from their homes, generated from their devices that they have around them

 

in their everyday lives , things they were, things like that. We thought it would be a key tool to increase access and equity for patients... being able to provide telehealth to more people and more locations provides a greater level of access and that would be a key element of telemedicine moving forward.

There was a predicted trend that primary care would adopt more 'Virtual first' care models. Looking to use telemedicine as a first point of interaction with patients, in a lot of different models. There would be an increase in a lot of different on-demand care that was done via on-demand medicine. And then there was a lot of discussion around how telemedicine would provide a sick core benefits to every small rural hospital. And that as telemedicine in the next three to five years became more integrated into how we do healthcare. But every small hospital would have access to tele-ICU, Telus – stroke, telemedicine in the hospital. -- Tele-mental health.

Again, we are moving pretty quickly here, but we are going to keep going. We can talk about this at a lot more depth, but this is kind of a high-level overview.

The third topic we tackled was around solutions and platforms. And how this differs from a telehealth and telemedicine application is this is really a lot more focused on the endpoints that we will see in the next three to five years for telehealth and telemedicine. Applications – we live in an app-based society, so more and more applications are being used in applications, the two spaces we saw the potential for the most group were around decision support tools for providers, and the use of chat about technology for patient engagement and for decision support tools.

The decision-support tools for providers include AI-based tools that provide access – provide on-demand access to research, treatment protocols, and processes. We are seeing these began to hit the marketplace, but we think this is an area – a potential area for a large amount of growth. We also see the potential use for AI-based tools that allow non-physicians and allied health professionals to treat more complex issues. She really operate at the top of their license, or operate at the top of their capabilities support professionals.

Chatbox, we see these as important tools for triaging the patient to the right care provider. A lot of times our systems are dealing with patients that arrive in their not sure where to go. A lot of times our providers may not entirely sure where to send them. So using chatterbox technology, AI or basic decision tree, we can get the right patient at the right provider at the right time, and we believe it's an area of growth.

We believe more and more of these solutions are going to be integrated into the electronic health record. We are also seeing, currently, a lot of automation for administrative functions. We think that more and more E HR solutions are going to have automated check-in's, automated vital collections, and automated processing for coding and billing. Again, as we talked about, the coding and billing piece of this is already happening, but we've been looking into a lot of the different ways that these processes could be automated we have really seen, TTAC has seen interesting technology around vitals collection. Where vitals can be obtained just from a basic WebCam or from solutions where, without touching the patient, we can get temperature, heart rate, and pulse, and blood pressure just from a camera, instead of having to hook the patients up to a blood pressure cuff or pulse exhibitor.

 

These are things that we think will be automated through the HR, and that the DHRs will have automated process for doing these in the next 3 to 5 years. - EHRs.

We are also seeing a lot in by aware and biosensors. This is a big conversation in the group. We think remote monitoring, the tools, not just for chronic care, but really for almost any disease state, there will be a lot more monitoring tools for the patient either through their mobile device or through kits that are sent out. Wearable technology like smart watches, rings, things like that, they are becoming more robust. The biometrics data they can gather is becoming more valuable. What you do with those data sets is becoming a topic that we really need to tackle in the next 3 to 5 years.

The AI through line with this one is that AI and is able to crunch those large numbers, and create trend analysis from the data that we probably – we will... we will need to make sure that we have a plan for as we go forward. AI is able to see trends and be able to draw conclusions from disparate sense of data that we can't even consider quite yet.

The next topic we were looking at was around augmented and virtual reality. And I apologize a little bit for this slide. I had a slide and I went to look this morning and it was not there. But this is a key, and one of our favorite topics here at TTAC, but the Crystal Ball group looked at this and said the way that virtual reality and augmented reality are being rolled out in society has primarily been around entertainment, it has primarily been around a social interaction device. But we really do see applications, primarily in training for healthcare professionals. There is a lot of money every year spent on training facilities. There is a lot of money spent on continuing education for providers. By using augmented and virtual reality, the group found there was a lot of potential to standardize the training procedures that were happening. Provide less costly solutions to get the training into the people who need it. And to provide, not just provider education, patient education.

One of the advantages of augmented and virtual reality is its immersive nature, and for that – for those who learn not just from reading or from listening, but from interacting in doing, it is really effective way to learn.

We think that augmented and virtual reality is really key for training the next generation of healthcare providers. With also seeing a lot of applications for AR NVR in mental health and opioid recovery, we think this is one of the key things – again, due to that immersive nature of the technology, and the ability to get high-quality to all of these locations for patient education, for family education, for community education, being able to use these things.

VR and augmented reality, they are going to provide a lot of solutions around surgical planning, creating models, being able to visualize the structures. We are already seeing this you select for training for anatomical purposes. Instead of 2D anatomy guides, we are actually able to create plans for surgeries in 3D. Show a rear going to annotate on these -- 3D models, and show that to providers and patients. These are the changes we think AR and VR will have in the next 3 to 5 years.

Drones are primarily being driven from the consumer product deliveries. We think that these consumer

 

products and service will provide greater integration of these technologies into our system. One of the big challenges around this technology is around the regulatory concerns. Particularly in the United States. Getting is integrated into the FAAs system so we can actually use this technology in urban environments, around infrastructure. Making sure they are safe. Consumer use of this -- these devices, of consumer devices, that is what is driving this, really in the long term, that is what is gonna make these a big part of our society. Another big driver in the space, as far as the – at least as far as the US is concerned, is around the military. There is a lot of drone use in the military. Considerations for using casualty transport by drones, and being able to deliver a suite of lifesaving interventions in that drone as it transports the casualty from the battlefield.

Logistics around getting the supplies and materials needed to forward operating areas, to deliver care, including emergency supplies like blood, plasma, all of those resources.

The US military has a lot of active projects around drone use in healthcare, and we think those technologies, as a lot of these tend to, will trickle into the general healthcare market.

The US in most healthcare aspects, it is a little bit behind the curve, in terms of drone use. We have actually seen successful pilots for the use of defibrillator drones that can actually be dispatched to patient locations where they are having an out of hospital cardiac arrest. We have seen a successful pilot uses of this out of Sweden. There are also projects considered in the United States, but this sort of rapid response, getting key equipment out to locations is a great example of how drones will probably be used in the next three to five years.

We are also seeing, and particularly in rural and underserved medical communities, the ability to use drones, particularly fixed (unknown term) drones, for delivery of critical medical supplies. We've seen us out of Africa, and other countries, outside of the US.

We've had several examples of organizations, fixed wing drones to provide supplies rapidly and cost-effectively. You can see that there's a drone able to send blood, serums, vaccinations, and not have them refrigerated because we are able to get them out to the locations very rapidly.

Again, the delays around the use of this in the United States are primarily around, how do we integrate this — these technologies — into our really robust and safe FAA infrastructure. How do we make sure we are able to use these in urban locations around infrastructure, and make sure they won't interfere on the other activities happening.

We believe that the US will catch up, but probably when we will catch up will be beyond the five years that our drone use... we will continue to lag behind some of the other places in the world, but we will catch up once our regulatory concerns and our – once they have been addressed.

Another key topic that was identified by the crystal ball group is around robotics. Robotics — a little bit like AI, there is a lot of potential applications we could be talking about, we could be talking about a lot of different things. But robotics are generally machines that humans are either incapable of, or that are – were capable of doing, but provide a lot of wear and tear on the human being. So repetitive tasks,

 

finely detailed tasks, things like that.

We've seen a lot of increased — and the potential for increase, around prosthetics. Creating robotic prosthetics that are able to provide a greater range of motion, greater dexterity, greater fine motor skills. We also see robotics, or an area for growth is around physical therapy. Where robotic tools can provide a more accurate, more standardized approach to physical therapy interventions... In many circumstances.

We have seen a lot of robotics used in surgical applications. Whether that's in guided surgical applications where you actually have a surgeon that is guiding the use of robotic hands or robotic tools, and we think in the next three to five years we will see a lot more of those procedures automated. Where there will be less input needed from an actual surgeon, and these devices will actually be able to do more and more of these procedures with greater autonomy.

One of the growing areas for robotic use is in the patient home. Either as assistive or companion robots. These are tools that can go into the patient's home. It can be anything from a robotic coffee table that is able to move across the room and move things closer to where the user needs to use them. Companion robots that can check-in on people living at home. Just to make sure that they have the things that they need and alert if they notice anything out of range for that particular patient. And then provide things like medications, or be able to do light tasks around the house.

This is very think – we will see a lot more robotics in the near future. Well beyond what we are seeing from the robotic vacuum cleaners that we have today. Able to do a lot more task and provide a lot more interactions with patients in their home.

Another aspect of robotics that we think is going to be – that will grow and be a substantial impact on healthcare is around 3D printing. Particularly for rural communities. We think 3D printing is a large growth area. Not only just printing tools, things like that, which they can do. Printing custom orthotics, printing dental implants, printing critical parts for things that might break down. 3D printing is one of the areas we are looking – particularly for rural communities who need these things just-in-time.

This is another area that we have seen, that is kind of grown out of some of the technologies we've seen in the US military as well. Being able to put 3D printed resources closer to the things they need. You do not need a lot of your common items, but when you have a specialty think that breaks down, being able to print your own, get it out, and make sure those functions keep happening. That's the area of growth for that 3D printer.

The final aspect of robotics that we looked at in the crystal ball project was around nursing home in skilled nursing facilities. There was a lot of focus on being able to not only move materials around nursing homes and skilled nursing facilities, but also patients themselves.

In the toolkit, we talk a lot about the injuries and the risk that occurs to healthcare workers from having to move patients and lift patients and the risk to patients when they are moved and transported. Robotic systems provide a way to do this more safely, and provide a lot more ability to do this without

 

injuring healthcare providers. So we think that will be one of the large growth areas for robotics is in the movement and transportation of patients within facilities.

As well as some more of the mundane movement of materials and products around skilled nursing facilities, nursing homes, and hospitals in general.

when we started the Crystal Ball Project, this was one area that was just starting to perk up. But as we have moved through the program, we actually found that hearables... We've seen a lot of movement in this space.

What issues are you talking about when we talk about hearables. Well, historically, there is a large subset of the population in the population – in the United States, but need hearing devices that don't have them. One of the key elements that really reinforce that, the historic barriers, are the cost of hearing aid devices, the complexity and getting and obtaining ones that actually work, and the ones that do what you need them to do, and then the stigma around wearing these devices that look like prosthetic devices that are very noticeable, and people are aware of them.

We have actually seen the ability to provide over-the-counter hearing aids, hearing assisted devices that are available without the need for prescription. We have seen technology, that allows better access to more advanced screening, more advanced customization of these tools.

The other thing that has happened is that the stigma around a lot of these devices has really become less impactful in that we are all wearing ear buds, your pods, for a large portion of our day. And a lot of the assisted devices that we are wearing in this hearables, over-the-counter market space, looking very much like the tools that we are wearing, the devices we are wearing every day anyway.

The ladies look and the way they function are very similar to a lot of the earbuds and era pods that are being used by consumers every day, kind of across the country.

The other thing that makes these attractive is the ability to use our smart phones and the apps on our smart phones to create custom programming for these devices. Program them to react differently in different environments. To tune them to a particular patient that you have.

One of the things – one of the topics that came up as we discussed these devices, with the ability to use these tools... the ear is a great place to collect a lot of the vital signs we are looking for on a regular basis including heart rate, temperature, potentially blood pressure, track movements, head movement; be able to measure skin resistance, (unknown term) response... and things like that.

We've seen some of these being moved into these hearables devices. A lot of the mobility –- we might see more and more of tracking vitals in this hearables marketplace.

And like I said, we have moved through a lot of this really quick. Our toolkit will be up in the next two weeks on the telehealth technology.org website. But I wanted to leave you with a few conclusions and then open example. We want to reopen the poll and just see which of these technologies is the most

 

interesting to you. Which do you think will be the most impactful in the next three to five years. And what would you like to know more about? But before we do that I want to leave you with a couple key closing thoughts.

We know that the technologies we are using on a daily basis are rapidly and fundamentally changing. They're not just changing the technologies themselves, but they are changing how we administer care. We need to change our approaches, our policies and procedures to match. We think that these technologies will provide better outcomes. We also think they can do that while reducing costs.

We think AI is really the one technology that will underpin and support all of these used cases that we described. The growing data sets, of biometric and sociological data that we have access to are going to feed a lot of the algorithms that were used, and will be able to draw conclusions and draw interventions that we have not even imagined before as AI algorithms and data sets improve.

We do have some serious concerns we want to talk about. The fact that technology is advancing faster than regulation and policy can really keep up. There is a lot of potential uses for technology, but there is not the regulation and policy in place to make sure we are delivering the potential of this technology in the safe and effective way that we really need to.

As we move more and more of our care into the digital environment, broadband accessibility becomes more and more important. The divides that we already have established around social, economic, racial, cultural... All of the disparities that we see, will only be increased on the faultlines of the same, around broadband accessibility, as they are around us other determinants. And in the importance of digital literacy. Making sure every household, every individual has access to devices and tools, and training to make sure that they can use the next generation of tools that we need to deliver the next generation of healthcare. And then around all of that talk about these large data sets we talk about all of this biometric data being collected, and owned by organizations and companies, in a lot of cases. So how do we make sure that data is secure and private? Accessible when we need to access it, but inaccessible to those who should not have it.

We've covered a lot of different topics here. We have covered a lot of different things. The survey results, as you can see there, I think we have a lot of difference in the AI and machine learning that we had before. Again, the telehealth is still one of the big key topics, and we definitely will do a separate webinar around the next 3 to 5 years in telehealth applications.

I do want to take a few minutes here to answer some questions. It looks like we have some that popped up in the Q&A. We will go ahead and take a look at some of these.

The first question that came up is (Reads) Does the workgroup have any findings down national policy may adjust as telehealth continues to expand and develop? Does the group anticipate policy will continue to be dictated state-by-state?

The general consensus is that how we are creating policy and doing it – we need to have a more rapid cycle approach to how we are looking at technologies, and how we are addressing some of the policy

 

concerns around them. A lot of this – the United States is different in that we have policies at the state level.

One of things we looked at, particularly around apps and emerging technologies, is the role of the FDA in evaluating and analyzing the different technologies coming out. There is a lot – we do think that the FDA is going to become more involved in regulating how apps are developed, and what apps are available to provide healthcare information and at what level.

There are things that need to be addressed.

There is a question about GDPR which is the privacy rules for Europe. I can't imagine we aren't going to have some type of similar regulation and legislation, one that is not just at the state level as here in the United States. Especially as we continue to build these massive data sets. Not only at a community level, or a national or state level, but just about ourselves. We develop more and more, we wear more and more technology that attracts our biometrics. How will retract that? I think that will be something we hear a lot more about in the next three to five years.

There is a question about how advancements are led by large urban organizations. And then how do we think that will kind of affect rural and small organizations.

A lot of the technology changes, and a lot of these pilot programs are led by University groups. That tends to be one of the big groups in the United States that drive these innovations and changes. But what we see is that there is a whole market for small, rural hospitals, and I think what tends to happen is that large organizations tend to adopt first. They do pilots and they prove that the technology.

And then we see the industry built some of these tools and make them available to smaller organizations. We saw this with electronic health records, we have seen this with a variety of different software and tools around radiology, and critical care, and things like that.

I think a lot of these will be available to rural organizations, and be more affordable as they get more embedded into how we deliver care.

(Reads) how are some effective ways to improve digital literacy and accessibility at a rate matching the change in development of these technologies?

The rate of change is too great. I think we are always gonna have a struggle to keep up. We are reaching a point where we are more able to change with the digital times, but it really – that becomes a part of education. I think, you know, as important as it was to learn how to balance a checkbook when I was in high school, I am learning how to manage digital trends is part of our education at every stage of the education process, even for our medical providers. Those are key things we will have to think about and consider. We need to insert those at the educational level, kind of at every level. Managing and improving.

And then having targeted education for particular at-risk populations. For older communities, for

 

communities of color, for urban and rural communities that are generally left out – of where the gaps are. I think finding, mapping where those gaps are, turning to digital literacy, and providing education targeted for those communities is really, really important.

Like this question (Reads) Is there growth in the technology industry for development of the care and compassion component delivered in healthcare by all professionals?

I want to stop sharing here. I think this is a good one to end the Q&A on, and then I will turn it over to Aria. I think COVID really taught us that we can deliver compassionate care using technology, and we can deliver non-compassionate care in person. I think there are gaps that we need to be aware of, and there are challenges that we need to work a little bit harder at as we are using technology to deliver care, but I think humans interacting with humans... there will always be a need to make sure we are delivering compassionate care, that were taking the time to listen, that were taking the time to engage, and that — as we do more automation, and as we do more... we are using more tools, and to the right care, that we are not — that we are using that technology to create efficiencies to create better conversations at the right time, rather than offloading as much of the work – much of the hard, compassionate work that we have to do.

That is a great question! But I think that what we have seen is we are able to deliver compassionate technology equipped care, and that is part of the healthcare experience. So...

Again, we are out of time. I want to turn it back over to Aria to wrap things up, but I appreciate you – I appreciate this opportunity to talk to you about what the Crystal Ball Project was, and what some of the things we are looking at in the next three to five years in the telehealth technology is.

ARIA JAVIDAN:
Thank you, Jordan. Just a reminder that our next webinar will be held on Thursday, September 21, that will be led by TexLa TRC. More information is on the NCTRC website.

Lastly, we ask that you take a few short minutes to submit the survey that will pop up at the end of this webinar. Your feedback is very valuable to us. Thank you so much to Jordan for his presentation, and the National Telehealth Technology Assessment Center for this webinar. Have a great day everyone!

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