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12 CONNECT2HEALTHFCC TASK FORCE
13 VIRTUAL LISTENING SESSION - TECHNOLOGY AND
14 BROADBAND SERVICES FORUM

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21 Washington, D.C.

22 Friday, September 22, 2017

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1 P R O C E E D I N G S

2 (1:32 p.m.)

3 OPERATOR: Ladies and gentlemen, thank
4 you for standing by. Welcome to Connect2Health
5 FCC Virtual Listening Session Technology and
6 Broadband Services Forum. At this time all
7 participants are in a listen-only mode, later
8 there will be an opportunity for your comments and
9 instructions will be given at that time. If you
10 should require assistance during this call you may
11 press * followed by 0 and an operator will assist
12 you offline. Also, as a reminder, today's
13 teleconference is being recorded. Now at this
14 time I will list the parties who are on the
15 conference. We have with us John Windhausen with
16 SHLB, Tim Koxlien with Telequality Com, Jordy
17 Goldberg with Hughes Network, Preston Wise with
18 FCC, Syed Hosain with Aeris, Stewart Ferguson of
19 Alaska Tribal Health, Troy Clavel with Avera
20 eCARE, Courtney Neville with Competitive Carriers,
21 Ethan Lucarelli with Inmarsat, Jane Snowdon, IBM,
22 Darryl Cooper, FCC, Jackie McCarthy with CTIA,

1 David Ahern with FCC, Rick Hampton, Partners
2 Healthcare, Tracy Brewer, Ohio University, Marc
3 Siry with Comcast, Verné Boerner with Alaska
4 Native, Stephen Berger with TEM Consulting, Rick
5 Shadelbauer with NTCA Rural Broadband, Steve
6 Garland with Anderson Court Reporting, Steven Dorf
7 with Telequality, Terre Logsdon with Lake County
8 Broadband, Ben Bartolome with FCC, Susan Malloy
9 with SES Networks, Colin Underwood with Alaska
10 Communications, Jeff Riordan with FCC, Joel Thayer
11 with ACT Application, and also in the room with
12 FCC Connect2Health Task Force we have Michele
13 Ellison, Karen Onyeije, Ben Bartolome, Dr. Chris
14 Gibbons, Dr. David Ahern, Dr. Kelly Murphy, Katie
15 Gorscak, Louis Peraertz, and Dr. Yahya Shaikh.
16 And at this time we'll turn the conference over to
17 your host, Mr. Louis Peraertz. Please go ahead.

18 MR. PERAERTZ: Good afternoon, everyone.
19 On behalf of our Chair and Deputy General Counsel
20 of the FCC, Michele Ellison, I would like to
21 welcome all participants to the Third Virtual
22 Listening Session held by the Connect2Health Task

1 Force.

2 These sessions serve two important
3 purposes. First, they support the Connect2Health
4 Task Force development of recommendations on key
5 regulatory policy technical and infrastructure
6 issues concerning the broadband-enabled health and
7 care ecosystem as described in the April 2017
8 public notice issued in GN docket No. 16-46.
9 Second, they facilitate targeted input from
10 non-traditional stakeholders and those outside the
11 Washington D.C. geographic area.

12 In today's forum we will focus on policy
13 measures that could accelerate broadband
14 deployment and provide greater access to merging
15 broadband-enabled health technologies and
16 solutions. We want to know about the most
17 advanced broadband- enabled healthcare
18 technologies currently available, but also about
19 emerging solutions that we should expect to see
20 five to ten years from now. The FCC wants to know
21 what policies it can explore that could ensure
22 that these new and emerging tech solutions are

1 available to all Americans including those in
2 rural areas, low-income communities, on tribal
3 lands, and people living with physical
4 accessibility challenges.

5 The participants in this session include
6 companies providing internet-of-things solutions
7 and artificial intelligence capabilities and
8 engineers working with large healthcare systems
9 and organizations representing rural interests.
10 It also includes representatives of wireless
11 service providers, state and local governments,
12 healthcare providers, researchers, and providers
13 of telemedicine and telehealth services. This is
14 your opportunity to be the voice for your
15 constituents and communities and to provide input
16 to the Task Force.

17 I would now like to turn it over to Dr.
18 Yahya Shaikh for his introductory remarks.

19 DR. SHAIKH: Thank you, Louis. Over the
20 past decade we've seen connectivity become an
21 integral part of our health and care. Connected
22 environments are no longer luxuries, they're

1 imperative for healthy and fulfilling lives for
2 most people in the information age. The impact of
3 connectivity on health is not just linear but is
4 in fact multiplicative. If we consider factors in
5 which we are born, live, and grow, factors that
6 public health practitioners call social
7 determinants of health, we see that better access
8 to education leads to more facilities online
9 resources which in turn can increase access to job
10 training and employment opportunities, and in a
11 recursive loop strengthen the connected health
12 ecosystem around the person.

13 We also see that communities with the
14 poorest resources in the physician environment
15 also tend to have the least access to connectivity
16 and resources in the virtual environment. While
17 20 percent of Americans live in rural communities
18 only 10 percent of primary care physicians work
19 there. These are the same communities with the
20 worst broadband access levels. When communities
21 that lack physical resources in their environment
22 are also the same communities with poor virtual

1 access to them then the digital disparity is not
2 only widening but it's widening faster and faster.

3 A major part of making connected
4 ecosystems effective are the innovations that
5 emerge from them that make opportunity available
6 for everyone. A major part of facilitating
7 innovation is ensuring that infrastructure exists
8 for innovators to imagine a vision of the future,
9 and that infrastructure also exists to deploy
10 those innovations to markets.

11 In this session we want to understand
12 connectivity barriers to your visions of the
13 future. Hopefully by the end of the session we
14 will be able to understand visions of a connected
15 future, connectivity barriers to achieving them,
16 and possible recommendations for ways forward.

17 The first issue we would like to discuss
18 is identifying new and emerging broadband-enabled
19 health technology services. Help us think five to
20 ten years in the future. Should we expect to see
21 widespread adoption of advanced technology such as
22 virtual reality, augmented intelligence

1 technologies and internet things in the healthcare
2 services industry? What other types of products
3 and services do you envision being developed that
4 could support telemedicine, telehealth, or
5 individual community- based health and care in
6 general?

7 MR. PERAERTZ: Tony, at this point we
8 would like to open the lines for the participants
9 to speak.

10 OPERATOR: Thank you very much. Ladies
11 and gentlemen at this time if you'd like to pose a
12 comment you may press * followed by 1. Again, if
13 you have comments on today's conference you may
14 queue up by pressing * followed by 1. Our first
15 comment comes from Jane Snowdon with IBM. Please
16 go ahead.

17 MS. SNOWDON: Good afternoon. My name
18 is Jane Snowdon, I am Associate Chief Health
19 Officer at IBM Watson Health. Thank you for the
20 opportunity to share some thoughts and engage in a
21 meaningful dialogue on the important topic of new
22 and emerging broadband-enabled health technologies

1 and services.

2 The mission of IBM Watson Health is to
3 improve lives and give hope by delivering
4 innovation to address the world's most pressing
5 health challenges through data and cognitive
6 insight. Cognitive computing is broadly defined
7 as the computational approach to augmenting human
8 intelligence. Cognitive systems use natural
9 language processing and understanding and deep
10 machine learning to answer questions, uncover
11 trends, and formulate insights based on evidence
12 that can expand a human's ability to solve
13 problems and aid in decision-making.

14 With the advent of enhanced connectivity
15 advances in technology coupled with the explosion
16 of data from medical records, journal articles,
17 and genomics to wearable social and behavioral
18 determinants of health and the weather are helping
19 clinicians to take better care of their patients,
20 government program leaders to efficiently care for
21 their clients, and individuals to take better care
22 of themselves.

1 IBM Watson Health is supporting our
2 clients' missions to simplify, solve, care, and
3 cure across six key focus areas. In oncology,
4 cognitive helps to reduce the variability of care
5 to get the right medicine to the right patient.
6 In imaging, cognitive tools help radiologists
7 reach definitive diagnosis faster. In value-based
8 care, we help institutions understand the cost and
9 paths for chronic disease. For life sciences, we
10 help organizations discover and develop new
11 lifesaving medicines, devices, and diagnostics.
12 In government, we provide actual data and tools to
13 identify and act on fraud, waste, and abuse. In
14 consumer health, we are exploring behavioral
15 economics and blockchain.

16 Technology and services are available
17 today that are effecting fundamental change in the
18 healthcare and life sciences industry. With IBM
19 Watson For Genomics, for example, oncologists can
20 use advanced analytics and cognitive technologies
21 to help them quickly translate DNA data into
22 recommendations for personalized treatment options

1 for patients by helping doctors identify potential
2 cancer-causing mutations and mapping those
3 mutations to evidence-based therapeutic options.

4 Now, through partnerships with Quest
5 Diagnostics and Alumina, clinicians and patients
6 around the world can access via Watson For
7 Genomics the deep cancer expertise from over 20
8 leading healthcare intuitions and the genomic
9 sequencing capabilities of Broad Institute of MIT
10 and Harvard.

11 Internet of things solutions help enable
12 medical device manufacturers and healthcare
13 providers to achieve increased levels of patient
14 engagement and medical adherence. For instance,
15 Medtronic and IBM have partnered to tackle
16 diabetes. In 2015, 30.3 million Americans or 9.4
17 percent of the population had diabetes. One
18 solution, Sugar IQ, is a personalized diabetes
19 mobile companion with real-time glucose insights
20 for individuals with diabetes to help make daily
21 diabetes management easier and more effective.
22 Sugar IQ provides personalized real-time insights

1 based on time of day or week, glucose, meals, and
2 other behaviors. It discovers impact on glucose
3 levels from a specific food or therapy action and
4 identifies patterns based on retrospective
5 continuous glucose monitor and pump data to help
6 change patient behavior and make better informed
7 diabetes decisions.

8 A second solution turning point is an
9 integrated and personalized diabetes care program
10 with coaching services and risk stratification for
11 healthcare systems to help high-risk and at-risk
12 individuals with diabetes improve their lives and
13 reduce the cost of care by helping them avoid
14 acute episodes, increasing their insulin therapy
15 adherence, and controlling their A1C weight, blood
16 pressure, and LDL.

17 Thinking five to ten years into the
18 future I'd like to mention two broader health
19 ecosystems plays: Healthcare services in rural
20 areas blockchain. According to a recent American
21 Society of Clinical Oncology study demand for
22 healthcare will increase 42 percent over the next

1 decade. By 2020 there are likely to be 26 million
2 new cases of cancer, many of which will be in
3 developing countries. In places like China,
4 India, and Africa cancer rates are exploding,
5 there are not enough doctors to manage the
6 patients, and cancer treatment drugs may be in
7 short supply. There may be some areas where
8 broadband or cellular are not available such as in
9 rural areas. Hangzhou Cognitive Care in China is
10 working with hospitals to increase efficiencies
11 and enabling physicians to deliver care in rural
12 areas.

13 In sub-Saharan Africa the American
14 Cancer Society and IBM Health Corps work together
15 with the National Comprehensive Cancer Network and
16 the Clinton Health Access Initiative to create
17 ChemoQuant, an online chemotherapy forecasting
18 tool to assist African health ministries with
19 constructing forecasts and budgets and planning
20 procurements to secure the best quality cancer
21 treatment products at the best prices from
22 suppliers.

1 Finally, the healthcare ecosystem is
2 complex with multiple stakeholders and intricate
3 sensitive interactions. This leads to both data
4 security and privacy challenges and operational
5 inefficiencies. Ownership and trusted access to
6 medical information and administrative data is
7 critical, yet the process must be made simpler and
8 less costly. IBM Watson Health and the U.S. Food
9 and Drug Administration have entered into a
10 two-year research initiative to study the use of
11 blockchain for secure exchange of healthcare data.
12 New healthcare research is seeking to apply
13 blockchain's distributed ledger and decentralized
14 database solutions to the critical issues of
15 interoperability, security, record universality,
16 and more.

17 Intriguing uses in other industries are
18 being extended to healthcare, such as extending
19 blockchain's smart contracts to provider network
20 management or connecting myriad medical devices
21 through common blockchain-enabled systems of
22 information relationships. Moving forward,

1 blockchain technology and encryption will drive
2 innovation in healthcare services and
3 administration.

4 In conclusion, IBM encourages the FCC in
5 collaboration with other federal agencies such as
6 HHS and the states as articulated in the policy
7 blog to Secretary Price to use advanced
8 technologies to improve program quality for the
9 nation including the country's most vulnerable
10 populations, rural communities, the elderly, and
11 other health despair groups. The need for speed
12 increases when sending data images and video.
13 Telehealth services and systems have made the most
14 progress in remote management of post-acute care
15 among patients with chronic conditions many of
16 whom have one or more core (inaudible) such as
17 heart disease, cancer, diabetes, or opioid
18 addiction. Broadband-enabled health technologies
19 and services will help to marketize healthcare.

20 MR. PERAERTZ: Thank you very much,
21 Jane. That was terrific. We're really interested
22 in learning about approaches to bridging digital

1 divides and bridging digital disparities in rural
2 areas and international examples such as the one
3 you brought up would be really exciting for us to
4 learn from.

5 Tony, would you please invite the next
6 participant to speak?

7 OPERATOR: Thank you. The next comment
8 will come from Marc Siry with Comcast. Please go
9 ahead.

10 MR. SIRY: Hello, my name is Marc Siry
11 and I am a vice president of Strategic Development
12 at Comcast and the general manager for our Comcast
13 Connected Health Initiative. We're thankful for
14 this opportunity to participate in the exploration
15 of new technologies, techniques, and approaches to
16 bring our collective vision of connected health to
17 life. This is a very exciting time for the
18 industry, for this entire field, and for the
19 consumers, providers, and other participants in
20 the healthcare economy who will ultimately benefit
21 from these technologies and new innovations.

22 Comcast initiatives are helping

1 healthcare providers unlock the promise of
2 broadband-enabled healthcare technologies through
3 the use of our connectivity technology and media
4 to improve the patient experience in the hospital,
5 in the home, or on the go. We really believe that
6 the patient experience is core and central to
7 accessing the promise of connected health.

8 Comcast Connected Health and provide
9 transformative solutions for the healthcare
10 industry through the use of video messaging, home
11 device monitoring, and patient data analytics
12 capabilities. For example, we provide innovative
13 ways for providers and patients to communicate
14 through patient- clinician video messaging and
15 screen-sharing capabilities that allow doctors,
16 patients, and their caregivers to share documents
17 and other information around the delivery of a
18 personalized care plan.

19 We will also smooth the transition of
20 care from provider facilities to patients' homes
21 where we obviously have a significant footprint by
22 enabling in-home connected device networks that

1 can monitor patient activities, collect data
2 useful for ongoing treatment, and provide
3 reminders and pop-ups to allow for better
4 medication adherence.

5 We also have high quality educational
6 content that can help patients understand how to
7 access their care more effectively, provide them
8 with the information they need to make better
9 health choices both in their personal lives and in
10 the lives of those they care for, and help them
11 understand how they can access and leverage new
12 technologies to improve their care.

13 We brought this promise to life in
14 several partnerships that I'd like to talk about
15 now. First with Kaiser Permanente a leading
16 integrated delivery network, we worked to create a
17 maturity-focused application which expressed
18 itself on every screen a consumer can access
19 including their televisions. The app features
20 videos along with interactive elements that allow
21 mothers-to-be and their caregivers to complete
22 surveys and set preferences for their own

1 pregnancy timelines. Our initial trials were
2 highly successful with the rate for sign-up and
3 use of the app much higher than expected. We
4 found that bringing these educational videos onto
5 the television set allowed for mothers-to-be to
6 access this health content in a comfortable
7 location and often with several of their family
8 members alongside them, and it really changed the
9 way they were able to access this information.

10 We're now in the process of launching an
11 exciting pilot with AmeriHealth Caritas, a managed
12 care provider. We're partnering with AmeriHealth
13 Caritas to provide online tools and content to
14 patients in an effort to empower Medicaid
15 recipients with more robust health resources. We
16 launched a pilot starting in June 2017 in
17 Pennsylvania and it includes patient-facing care
18 content, video messaging, and care community
19 support with an effort to really activate all of
20 the caregiving resources that are already in the
21 community and connect them more effectively to
22 then help drive better care for the members of

1 AmeriHealth Caritas. We are rolling out
2 additional launches in other areas in the very
3 near future.

4 Finally, we are partnering with payers
5 and other providers in order to drive these
6 platforms to underserved communities in a way that
7 will allow these communities who, as mentioned
8 earlier, often have difficulty accessing physical
9 healthcare resources to more effectively access
10 digital healthcare resources. We think that there
11 is an enormous opportunity to completely transform
12 the way that these communities regard these tools,
13 access these tools, and use them in order to help
14 overcome some of those social determinants that
15 were mentioned before.

16 We're excited to be a part of this. We
17 think that we can play a key role in delivering
18 these tools at scale which is always very
19 important for success in these initiatives. And
20 we're excited to partner with all of the entities
21 on this call to make sure that this future can
22 become a reality. Thank you very much.

1 MR. PERAERTZ: Thank you, Marc. That is
2 a very interesting project that you have going on
3 with AmeriHealth Caritas. Tony, would you please
4 announce the next participant?

5 OPERATOR: Thank you. The next comment
6 will come from Joel Thayer with ACT Application.
7 Please go ahead.

8 MR. THAYER: Hi, my name is Joel Thayer
9 and I am the Policy Counsel of App Association's
10 Connected Health Initiative, or CHI. We submit
11 the following comments in support of the
12 Commission's efforts to address the growing need
13 for interconnectivity in the healthcare industry.

14 CHI is leading the effort by connected
15 health ecosystem stakeholders to encourage
16 responsible and secured use of connected health
17 innovation throughout the continuum of care. By
18 doing so we will create an environment in which
19 patients and consumers experience improved
20 telehealth. CHI incentivizes the use of connected
21 health technologies and supports an environment in
22 which patients and consumers can see improvement

1 in their health.

2 As a leader in healthcare regulatory
3 space, CHI filed briefs with a myriad of federal
4 agencies and has participated in countless
5 proceedings. CHI supports the Commission's
6 efforts to realize a connected continuum share
7 that will benefit countless Americans. The
8 Commission will play an integral role in closing
9 the digital divide and the CHI is committed to
10 assist the Commission in its efforts.

11 As the Commission's Connect2Health Task
12 Force knows, more than 320 million people in the
13 U.S. could require healthcare services at any
14 time. With nearly 280,000 primary care physicians
15 on hand this statistic becomes even more stark.
16 CHI urges the Commission to ensure that the broad
17 diversity of connected health technologies and
18 services are available through its policies and
19 actions. The wide array of connected health
20 technology products and services available today
21 like telehealth and remote monitoring of patient
22 generated health data and telemarketing, those

1 developments offer the ability to save countless
2 Americans' lives while lowering costs.

3 The connected health sector is at the
4 brink of incredible growth and has the potential
5 to create thousands of high paying jobs across the
6 United States but the American patient remains the
7 primary beneficiary. The critical nature of the
8 healthcare sector necessitates that improvements
9 be made to America's critical infrastructure.
10 This includes broadband infrastructure and
11 measures to give healthcare providers the ability
12 to use connected health technology products and
13 services throughout the continuum of care both
14 inside and outside the doctor's office.

15 Ample evidence exists and continues to
16 grow identifying telehealth and remote patient
17 monitoring of PGHD as cornerstones of advanced
18 healthcare systems particularly with respect to
19 (inaudible) and chronic care (inaudible) for
20 patients of rural healthcare in the country. The
21 benefit of broadband adoption in connected health
22 includes improved care, reduced hospitalizations,

1 prevents complications and (inaudible)
2 particularly for those that are chronically ill.
3 To inform the Commission's work, we have appended
4 a non-inclusive list of studies demonstrating the
5 improved patient outcomes and cost-saving members
6 savings of telehealth and remote patient monitors
7 for patients. Given the extraordinary advancement
8 in telehealth space the Commission must maintain
9 its focus on building 5G while closing the digital
10 divide.

11 CHI is encouraged by Chairman Ajit Pai's
12 recent actions to make 5G deployment a priority
13 for the Commission. Additionally, we applaud the
14 Chairman's efforts to close the digital divide by
15 establishing the Broadband Development Advisory
16 Committee (inaudible) opportunities on programs and
17 in particular the digital empowerment zones
18 objective which would bring broadband and digital
19 opportunity to our nation's most economically
20 challenged areas.

21 CHI urges the Commission to continue on
22 this trajectory to ensure that the necessary

1 infrastructure is in place to facilitate more
2 innovative healthcare solutions in this country.
3 CHI also encourages the Commission to coordinate
4 with other key agencies in the connected health
5 space such as the Department of Health and Humans
6 Services. CHI stands ready to partner with the
7 Commission as the Connect2Health Task Force
8 focuses on these specific goals and measures and
9 hopefully helps telehealth policy take shape.

10 Moreover, the Commission should allow
11 innovators to leverage TV white spaces to bring
12 much needed broadband to rural areas. Providing
13 the industry with more unlicensed bands can assist
14 with success of deployment of 5G infrastructure
15 and we urge this Task Force to support the
16 increased innovation within the unlicensed
17 spectrum. Unlicensed bands will play a key role
18 in the success of 5G networks and the Chairman and
19 this Task Force should consider it as a viable
20 solution to remote and structure buildout and to
21 IOT.

22 While this proceeding addresses the

1 challenges to 5G deployment in the long term,
2 especially when it comes to healthcare services,
3 we believe that the Commission can take an
4 important step to greater connectivity in the
5 short term including the resolution of several
6 pending matters related to unused TV white sets
7 and bands.

8 In conclusion, we appreciate the
9 opportunity to comment on this very important
10 topic and look forward to working with everyone on
11 this Task Force and including all those industry
12 stakeholders to accomplish this ever-growing and
13 every-challenging goal. We appreciate your time,
14 thank you.

15 MR. PERAERTZ: Thank you very much,
16 Joel, for your suggestions on 5G, digital
17 empowerment zones, and TV white spaces. Tony,
18 would you please announce the next participant?

19 OPERATOR: Thank you. The next comment
20 will come from Courtney Neville with Competitive
21 Carriers Association. Please go ahead.

22 MS. NEVILLE: Great, thanks. Courtney

1 Neville with Competitive Carriers Association; I'm
2 our policy counsel. I just want to thank you all
3 for the opportunity to be here today and
4 participate in this exciting discussion. I think
5 there are a lot of great initiatives and
6 innovations on the horizon and hopefully our
7 collaboration can help foster those.

8 Before we get into that I want to give
9 you a brief background on CCA. We represent
10 nearly a hundred wireless carriers that serve
11 urban centers and most rural parts of our country
12 along with vendors and supplies that feed the
13 mobile ecosystem. Something exciting about CCA
14 members is that most of them are small businesses
15 that are members of the communities that they
16 serve, so they are really engaged in the
17 Connect2Health Initiative and our members applaud
18 the FCC on the Connect2Health Task Force for all
19 of the efforts to promote the advancement of these
20 broadband-enabled health technologies especially
21 this year with the release of the PN and with
22 these virtual listening sessions.

1 I wanted to first highlight some CCA
2 member programs that some of our members have
3 deployed across the U.S. and especially in rural
4 and remote areas. One of the exciting things
5 about these initiatives is that they help to
6 bridge the digital divide, especially in the
7 health arena. They connect rural residents with
8 the same medical attention that is provided by
9 their urban counterparts which is really exciting.

10 First, I want to highlight CCA member's
11 C-Spire in Mississippi. You might know that they
12 launched a pilot program called the Diabetes
13 Telehealth Network which focused on improving
14 healthcare in rural Mississippi for individuals
15 struggling with chronic diabetes through remote
16 monitoring and data analytics. They relied on
17 their own mobile broadband communications and
18 participants in the program were provided tablets
19 to enable their healthcare providers to remotely
20 manage their patients and automatically capture
21 individual health data to deliver the connected
22 monitoring that was necessary and their

1 cost-effective care.

2 According to the Sunflower Medical
3 Center, which is the local medical center there,
4 the first six months of the program saved
5 approximately \$400,000, reduced A1C levels by 1.7
6 percent, and saw no ER visits or hospitalizations
7 among the 100 residents involved in the pilot
8 program. Initial results also saw not a single
9 case of hospital re-admission and over 10,000
10 miles of patient travel saved in patient visits
11 which is really exciting.

12 So, because of this success the program
13 has been tentatively extended for the next five
14 years and they project that these initiatives will
15 save \$189 million a year in Medicaid expenses
16 which over five years equates to nearly \$1
17 billion. I think we can all agree that that's a
18 pretty penny, so that's really exciting.

19 Another CCA member, General
20 Communication, Inc., or GCI, has implemented a
21 successful telehealth program called ConnectMD.
22 Through this program GCI supports telemedicine

1 services like remote patient monitoring to
2 customers in Alaska and in most instances the
3 ConnectMD network is the only way that rural
4 Alaskans can gain access to specialist. The
5 program also allows these communities to offer
6 readily available cost-effective health services
7 to their residents and have eliminated the need
8 for residents to take long and expensive trips for
9 medical attention.

10 Additionally, a lot of CCA members
11 participate in programs like iSelectMD which
12 offers a mobile platform and online portal for
13 patients to connect with medical professionals in
14 their area. Members that participate in this
15 program include Blue Grass Cellular, Carolina West
16 and MTPCS which cover consumers in states like
17 Kentucky and North Carolina. The iSelectMD
18 program is exciting because like I noted it allows
19 a lot of CCA members to engage in the portal and
20 can ensure consumers in their network's footprints
21 continue to have access to the best service and
22 programs available.

1 I also wanted to note that Sprint has
2 partnered with a technology vendor called IDEAL
3 LIFE to provide devices that transmit patient
4 monitoring data directly to patients' physicians
5 and their relative family members which is
6 particularly important especially for young
7 patients and senior care as well.

8 Finally, Accapability which is based in
9 Iowa recently launched a quote Heartland Global
10 Health Initiative which is a specially equipped
11 van that offers meek mobile health services and
12 creates an electronic medical record for
13 communities in the areas across the state.

14 These are really exciting programs and
15 we're proud that CCA members are really engaged in
16 telehealth solutions but it's important to note
17 that their success hinges on FCC and industry
18 action and collaboration and without the proper
19 network capabilities their efforts could be
20 thwarted. So, CCA continues to engage with the
21 FCC to ensure that competitive carriers have
22 access to low, mid, and high band spectrum. The

1 low band spectrum is particularly important
2 because it has the latency and capability to
3 travel far distances which is critical for these
4 networks that are especially working in rural and
5 remote areas. And then mid and high band spectrum
6 of course is important because it will be the
7 foundation for these 5G networks and next
8 generation technologies that will eventually
9 support these telehealth solutions.

10 CCA continues to advocate for
11 streamlined infrastructure sighting processes and
12 is honored to participate in the FCC's Removing
13 State and Local Barriers Working Group of its
14 Broadband Deployment Advisory Committee, or BDAC.
15 We are excited to partner with industry and help
16 to spur mobile broadband across all areas of the
17 United States.

18 Finally, we have continued to applaud
19 the FCC's Universal Service Fund, or USF, efforts
20 particularly in the Mobility Fund II Program. A
21 recent report and order just allocated
22 approximately \$4.5 billion to fill coverage gaps

1 over the next ten years which is something that's
2 really exciting and will be imperative to making
3 sure that these rural consumers are accessing
4 medical technologies remotely and can continue to
5 have those services available to them.

6 Lastly, I just wanted to thank you all
7 again for allowing CCA to participate and we are
8 excited to hear what the rest of the participants
9 bring to the discussion today.

10 MR. PERAERTZ: Thank you, Courtney, very
11 much. The Connect2Health Task Force with
12 Commissioner Clyburn travelled to Mississippi in
13 December 2014 and saw all of the great work that
14 the partnership that C-Spire had with University
15 of Mississippi Medical Center and the Diabetes
16 Telehealth Network, all the great work that was
17 being done there. And you're right, \$189 million
18 a year is quite a pretty penny. So, thank you
19 very much for that and your recommendations as
20 well.

21 MS. NEVILLE: Thanks, Louis.

22 MR. PERAERTZ: Tony, would you please

1 identify the next participant?

2 OPERATOR: Thank you. The next comment
3 will come from Jackie McCarthy with CTIA. Please
4 go ahead.

5 MS. MCCARTHY: Thank you. My name is
6 Jackie McCarthy and I am Assistant Vice President
7 of Regulatory Affairs at CTIA. We thank you for
8 the opportunity to participate today and we're
9 glad to be here.

10 CTIA represents the U.S. wireless
11 communications industry and companies throughout
12 the ecosystem including carriers, device
13 manufacturers, and suppliers. I lead CTIA's
14 internet of things policy participation in sectors
15 like mobile health and I lead CTIA's Mobile
16 Healthcare Working Group.

17 We commend the Commission and the Task
18 Force for focusing on the steps that we can take
19 to stay ahead of the health technology curve.
20 Wireless technology, as you've heard from some of
21 our colleagues, enables increased access to
22 healthcare, improved outcomes, and reduced costs

1 especially for seniors, rural Americans, and those
2 with accessibility needs.

3 In terms of wireless technology it's
4 particularly well-suited for costs and outcomes
5 issues. Wireless technology supports applications
6 like remote patient monitoring and diagnostics
7 which can facilitate clinical trials, also allow
8 healthcare providers to care more efficiently for
9 patients, and can empower patients and consumers
10 to manage chronic conditions and stay healthy.
11 Wireless innovations can also enable seniors and
12 consumers with disabilities to engage fully with
13 their communities through functionalities like
14 voice commands, artificial intelligence platforms,
15 and location information technology. One of the
16 other speakers mentioned 5G wireless networks and
17 their promise. 5G mobile broadband definitely
18 will enable a lot of the future uses of mobile
19 health and broadband-enabled health technologies.

20 Some of the characteristics from the
21 network perspective of 5G that makes it especially
22 useful for healthcare applications include

1 increased bandwidth for data intensive services
2 like high resolution medical imaging or remote
3 procedures or remote surgery. Also, 5G enables
4 many more devices and centers to be on the network
5 receiving and sending data and that will allow for
6 the proliferation of connected devices, not just
7 phones and tablets but things like fitness
8 tracking devices, connected medical devices, and
9 in- field and public safety or first responder
10 related connected devices.

11 5G networks will also enable very low
12 latency on wireless networks. Latency is the time
13 between when a device requests to begin a task and
14 when it actually completes that task. So, for
15 things like, again, remote surgery or critical
16 care applications that low latency and almost
17 real- time or very, very close to real-time data
18 receipt is critically important.

19 Just to step back a little bit on data
20 usage. It has been sky rocketing in recent years
21 and we expect it will continue. Americans are
22 using 35 times more mobile data today than in 2010

1 and data usage is projected to increase five-fold
2 from this year to 2021. So our companies are
3 building the 5G wireless networks that will
4 accommodate these and other uses.

5 In terms of policy objectives, very
6 similar to what we've heard from other speakers,
7 we urge the Commission to make available both low,
8 mid, and high band spectrum for licensed uses. We
9 need all levels of this spectrum to make 5G a
10 reality. Likewise, the Commission's efforts to
11 alleviate delays and unreasonable costs associated
12 with infrastructure deployment for wireless
13 broadband is much appreciated and then the
14 continued availability of Universal Service Fund
15 subsidies through the Mobility Fund and the Rural
16 Health Care Program is also really important to
17 achieving these objectives. Thank you.

18 MR. PERAERTZ: Thank you very much,
19 Jackie. The Connect2Health Task Force worked with
20 CTIA to have an event down in Florida. We very
21 much appreciate the President and CEO of CTIA and
22 former FCC Commissioner, Meredith Atwell Baker's

1 remarks during that convergence. Thank you.

2 Tony, can you please announce the next
3 speaker?

4 OPERATOR: Thank you. The next comment
5 will come from Stewart Ferguson with Alaska Native
6 Tribal Health Consortium. Your line is open,
7 please go ahead.

8 DR. FERGUSON: Good morning. My name is
9 Stewart Ferguson, I'm the Chief Technology Officer
10 for the Alaska Native Tribal Health Consortium in
11 Anchorage, Alaska. My organization is the largest
12 most comprehensive tribal health organization in
13 the United States. We not only co-manage the
14 largest tribal hospital in the United States, we
15 also are part of the Alaska Tribal Health System
16 which provides care to 153,000 Alaska natives
17 through a partnership with 30 tribal health
18 organizations and managing more than 200
19 facilities in Alaska.

20 So, thank you for the opportunity to
21 address the Task Force. Knowing where we were ten
22 years ago with connectivity in Alaska it's very

1 exciting to think where we might go in the next
2 ten years with your leadership.

3 The point I wanted to emphasize here,
4 and I'm not sure if it's becoming clear through
5 the other presenters, is that connectivity is now
6 absolutely mission-critical to my colleagues and
7 partners in delivering healthcare to some of the
8 country's most remote communities. We simply
9 can't live without it and our needs continue to
10 grow, and we have to think about how this Task
11 Force can help us develop the new technologies in
12 an affordable manner.

13 Let me start by reiterating the earlier
14 statement that the patients simply are not where
15 the providers are, and that's incredibly true in
16 Alaska. Without connectivity patients now become
17 more portable than their data. Quite seriously we
18 have travelled patients for many years while their
19 data stayed behind. Now with connectivity the
20 data becomes more portable than the patient and we
21 can change how we deliver healthcare.

22 As evidence of this, the Alaska Tribal

1 Health System has relied on telehealth programs
2 for more than 20 years to deliver care throughout
3 the state at over 600,000 square miles. The
4 system has been used by 4,500 providers for more
5 than 300,000 clinical cases. We've generated
6 almost 70,000 EKGs for heart patients, over
7 200,000 images of ear disease, and another 500,000
8 images of trauma wounds and rashes that have been
9 moved through our conNectivity supported by the
10 telecommunications program and USAC funding.
11 (inaudible) percent of our entire native
12 population are involved in telehealth on an annual
13 basis, which I would suggest is one of the
14 greatest penetrations of telehealth in any system
15 in the world. Most specialty consultations are
16 completed within four hours regardless of where
17 the patient lives. For the first time, I think
18 we're providing access to care in our remote
19 regions that's actually better than what you can
20 get in major urban areas in the lower 48. Our
21 major medical center offers 30 different
22 specialties by videoconferencing. More than 70

1 percent of all our consultations prevent patients
2 from having to travel resulting in a statewide
3 savings of approximately \$10 million annually just
4 in avoided patient travel.

5 The bottom line is that people living in
6 rural and frontier locations such as Alaska
7 villages squeeze more out of every bit of
8 connectivity than anyone else in the world in my
9 opinion. The partnership between the FCC and the
10 tribes has done much to address disparities, not
11 only in connectivity but in the delivery of
12 healthcare over the last 15 to 20 years. But my
13 worry, and it's important I believe for the FCC
14 Task Force to hear this, is that the subsidy
15 program, the telecommunications program, the USAC
16 funding is unquestionably the only reason we are
17 able to do this in Alaska, otherwise connectivity
18 is too expensive. It can cost between \$10- and
19 \$20,000 per month for a T1 line in Alaska. Recent
20 limits that force prorating of use (inaudible)
21 subsidies have a dramatically unfair effect on
22 Alaska tribes raising our out of pocket costs for

1 connectivity by more than 1000 percent and
2 creating a real risk of staff cuts, reduction in
3 healthcare, and potentially dismantling the
4 programs I've just discussed.

5 This is perhaps the most important point
6 I can make today, that we continue to expand our
7 infrastructure in a cost-effective manner and that
8 we support remote communities for both our needs
9 and where the costs are the greatest. I urge the
10 Task Force to make sure that we do not leave our
11 remote communities behind. Thank you for this
12 opportunity.

13 MR. PERAERTZ: Thank you, Stewart. I
14 hope to delve into your engineering expertise with
15 regard to the challenges faced by wireless
16 connectivity in Alaska and other rural areas later
17 on in this conversation.

18 Tony, would you please announce the next
19 participant?

20 OPERATOR: Thank you. The next comment
21 will come from Ethan Lucarelli with Inmarsat.
22 Please go ahead.

1 MR. LUCARELLI: Sure, thank you. And
2 thank you Louis and Michele and the entire FCC
3 team. Inmarsat greatly appreciates the
4 opportunity to participate in this event. By
5 background, for anyone not familiar with our
6 company, we're a global provider of mobile and
7 broadband communications leveraging more than a
8 dozen active satellites in the 1.5 and 1.6
9 gigahertz bands, 2 gigahertz, 28 gigahertz, and
10 several other frequency bands. We are very happy
11 for the great work being done by the
12 Connect2Health Task Force at the FCC. It's very
13 important that the FCC address this issue at this
14 time.

15 Our experience whether supporting
16 healthcare, diagnosis, or training in rural and
17 remote areas or supporting emergency responders
18 around the world has been that the most important
19 aspects from a connectivity perspective are that
20 the connectivity be available, that it be
21 sufficient for its purposes, and that it be
22 reliable. While our health operations at Inmarsat

1 are largely international by virtue of our
2 business, some examples of the projects we've been
3 involved in might be of interest to the Task
4 Force.

5 In Benin we worked with clinics in two
6 rural areas to monitor, diagnose, and treat adults
7 and children. Using a telemedicine application to
8 gather patient information on tablets and send it
9 back using Inmarsat (inaudible) links to urban
10 hospitals and doctors these clinics are able to
11 monitor and evaluate health in rural areas. When
12 we deployed this program first in 2014 in these
13 two African villages within three months remote
14 doctors using this technology were able to
15 identify instances of various diseases like
16 diabetes, hyperglycemia, hypertension, and other
17 conditions in over 850 adults and children
18 referring those for further treatment. It also
19 enabled over 250 consultations for people who
20 previously didn't benefit from any social programs
21 and we were able to identify almost 100 people
22 with serious conditions that needed immediate

1 attention that they wouldn't have gotten for weeks
2 or months without this sort of connectivity.

3 Currently we're also partnering with
4 funding from the UK Space Agency with an
5 organization called InStrat Global Health
6 Solutions and others on a project that brings
7 training videos and medical service applications
8 to medical workers in Nigeria. So, this training
9 focuses on maternal and newborn child health
10 issues and provides information that's vital and
11 that can help save lives using mobile satellite
12 broadband services which are portable and
13 deployable, we can transmit information directly
14 to medical workers on the front lines, (inaudible)
15 communities that otherwise wouldn't have access to
16 this information.

17 Getting this affordable and reliable
18 connectivity into the hands of health workers also
19 can support additional applications like
20 healthcare database management, identity
21 registration, insurance claim tracking, disease
22 surveillance and monitoring that can help improve

1 early response to epidemics before they develop.

2 A little closer to home, in light of
3 recent tragic headlines, I don't think any of us
4 need any reminding about the horrific destruction
5 that can be caused by natural disasters. As we've
6 seen this isn't limited to far off lands.
7 Inmarsat and other satellite operators partner
8 closely with relief organizations. In my company
9 we've been working for over 15 years with groups
10 like Télécoms Sans Frontières and Doctors Without
11 Borders, other organizations so that we can
12 support relief efforts in the immediate aftermath
13 of major disasters. We and other satellite
14 operators are there in every major disaster in
15 recent memory including the hurricanes that we've
16 seen in the last several weeks. When all the
17 other connectivity is down, when an entire island
18 is without power, when networks are otherwise
19 completely compromised its mobile satellite
20 services that relief workers use and rely upon for
21 those critical communications.

22 So, getting back to the question that

1 was asked, I'd say that looking five to ten years
2 out I think it's important to focus on those three
3 aspects I identified first: Availability,
4 sufficiency, and the reliability of connectivity.
5 In terms of availability some of these eye-
6 catching and exciting technologies that we hear
7 about like remote surgery or 5G terrestrial
8 networks, they might be more than five to ten
9 years off especially for rural and remote areas
10 that have unique economic, social, and geographic
11 challenges. Reiterating what a speaker just said
12 a few moments ago from Alaska Native, connectivity
13 is mission- critical. It's an unfortunate reality
14 that many areas in the U.S. Remain unconnected to
15 broadband including wireless, and despite the best
16 efforts of everyone on this call and everywhere
17 else those challenges might not be resolved in the
18 next five to ten years.

19 But the satellite sector is a leader in
20 connecting these areas. Satellite by its nature
21 is a ubiquitous service. Looking at sufficiency,
22 again, I'd say current networks aren't always

1 sufficient for the purposes that we want to date
2 let alone the services that we need five to ten
3 years or that we expect more than ten years down
4 the road. But current and future satellite
5 broadband services are robust, blanketing the
6 entire United States in broadband connectivity in
7 excess of the FCC's current 25-3 advanced
8 telecommunications service definition. New
9 services that are going up, new satellite
10 constellations going up, are going to provide
11 greater capacity, lower latency, really unlocking
12 all sorts of new applications and solutions.

13 Finally, reliability. A lot of areas
14 have real challenges with reliability, whether
15 it's weather related, whether it's geography,
16 whatever the case may be. But again, I would say
17 with satellite systems these systems are developed
18 with reliability built in. It's sort of the core
19 requirement for a lot of our customers is that
20 these services be 5-9s reliable, something along
21 those lines. A lot of that is based on the lack
22 of reliance on local terrestrial infrastructure.

1 So, in each of these cases it's my
2 belief that both current and future satellite
3 communications can be an important part of
4 telehealth solutions. We look forward to
5 continuing to work with partners globally and in
6 the United States on these matters, and we urge
7 the FCC as well as local and regional stakeholders
8 to keep these solutions in mind. Promoting
9 continued availability and growth to satellite
10 services, ensuring sufficient access to necessary
11 input resources like spectrum for service links
12 and gateway links.

13 With that I'll yield the floor back and
14 look forward to continuing the conversation.
15 Thank you.

16 MR. PERAERTZ: Thank you, Ethan, for
17 that passionate and persuasive explanation about
18 why satellite services still remain an important
19 part of the connectivity picture.

20 Tony, can you please announce the next
21 participant?

22 OPERATOR: Thank you. The next comment

1 will come from Stephen Berger with TEM Consulting.
2 Please go ahead.

3 MR. BERGER: Thank you. I'd like to
4 bring some network-based comments, talking about
5 two networks. The first is the supply chain
6 network that develops technology builds and
7 supports, broadband networks and services, and the
8 second is the networks themselves.

9 I think it's clear that healthcare is
10 not the technology driver but it has to
11 participate in these networks. It just simply
12 isn't large enough to create the new technologies
13 and independent networks in parallel with the main
14 stray networks that exist and will be built in the
15 future.

16 The issue in my view is that healthcare
17 delivery has different quality needs and even
18 metrics than other users of the networks and the
19 dominant drivers for those networks. So, the
20 question becomes how do we make sure that in the
21 future healthcare delivery can maintain its
22 quality needs and unique metrics it has while

1 using mainstream technology? Will the network
2 support the ability of healthcare services and to
3 achieve their required reliability levels?

4 Clearly as we think about moving out we
5 have to assume the past is not the future. If
6 we're going to see wider dispersion of broadband
7 services, devices and services of which the cost
8 of deploying networks is a significant cost are
9 going to have to come down. We see efforts in a
10 variety of places to dramatically reduce network
11 deployment cost as well as device cost, trying to
12 reduce them by factors of 10 or more.

13 The question I think that we need to
14 contemplate is what do networks look like if their
15 built of equipment of 1/10th or even 1/100th of
16 the current cost? They certainly are not going to
17 be like the networks we have today. So, then
18 what's the possibility of healthcare providers to
19 achieve their quality needs on those networks?

20 Another future development -- again
21 picking up on the past is not going to be the
22 future -- beyond artificial intelligence I think

1 we can anticipate that we're going to have
2 increasingly ontological-based networks in which
3 the network itself can reason on the data it's
4 passing. So, let's just think about what that
5 does fundamentally. Even the programming
6 languages change at that point. Picture a patient
7 calling a doctor from Houston either just before
8 or just after Hurricane Harvey that just happened.
9 If you have an ontological-based network
10 potentially the doctor then gets the information
11 currently that that patient who may be asking
12 about who knows what, some healthcare related
13 issue, is in danger of being flooded and he may
14 want to first treat the patient some assistance in
15 getting relocated versus the thing they called
16 about. Or alternately let's say that call happens
17 today and the network provides the doctor because
18 it sees a connection the information that there is
19 a flood claim on the patient's house. The doctor
20 may then want to explore whether mold and impacts
21 of mold are an important component in the
22 patient's healthcare picture.

1 I would also champion the comments that
2 have been made about important ways this is a risk
3 management issue and we need to remember the
4 possibility of low probability-high impact events.
5 Clearly today we're all aware of Harvey, Maria,
6 Mexico City and what's the probability of any one
7 of those things let alone three of them in a short
8 timeframe and looking to the future are we
9 planning networks and healthcare delivery that can
10 withstand natural disasters and even multiple
11 natural disasters?

12 So, I would say it's not enough just to
13 make spectrum available to healthcare. Spectrum
14 needs to be made available in ways that attract
15 supply chains to develop and deploy technology and
16 networks in ways that meet the dispersion needs
17 reaching rural and disadvantaged communities, but
18 also do so in a way that healthcare providers can
19 maintain the quality levels that they need to
20 achieve as they delivery healthcare. And then it
21 needs to be maintained in a variety of
22 circumstances, particularly in disaster scenarios

1 and others, that healthcare delivery can continue
2 to be delivered.

3 Thank you for the opportunity and I look
4 forward to the rest of the conversation.

5 MR. PERAERTZ: Thanks Stephen. That was
6 an awful lot of really great stuff. I very much
7 appreciate it. I hope I can follow up with a
8 couple of detailed questions on your
9 recommendations if we have time.

10 MR. BERGER: Sure.

11 MR. PERAERTZ: Tony, could you please
12 announce the next participant?

13 OPERATOR: Thank you. That next comment
14 comes from Jodi Goldberg with Hughes Network.
15 Please go ahead.

16 MS. GOLDBERG: Hi, and I want to echo
17 everyone's gratitude for hosting this call. I
18 think it's a very important initiative that the
19 FCC is hosting. Hughes is the largest satellite
20 broadband provider in the United States and
21 globally. We recently launched our newest
22 (inaudible) satellite in December and started

1 service on it in March.

2 FCC defines broadband speeds as 25-3
3 ubiquitously across the United States from Puerto
4 Rico into southeastern Alaska. We're excited to
5 be able to assist in providing telehealth services
6 throughout the United States, especially in
7 communities that aren't as connected as urban
8 centers. We believe that we are an excellent
9 partner in these initiatives.

10 We're currently working on managed cloud
11 access and cloud services for hospitals to help
12 with patient portals, medical record-sharing.
13 Hughes has a long history in distributive networks
14 which is actually one of our biggest avenues, one
15 of the areas that we focus on through our
16 satellite networks and through our ground
17 infrastructure.

18 We are also focused on senior care and
19 providing different access to skilled nursing
20 facilities, post-acute care facilities in
21 residential communities where healthcare is woven
22 into the operational environment to make sure that

1 they can connect with their doctors whether
2 they're local or commuting between cities.

3 To echo what Ethan was saying, one of
4 the benefits of satellite broadband is that it is
5 reliant and it is cost-effective. The broadband
6 that we provide through our satellite network is
7 actually cost-comparable to a terrestrial network
8 and the speeds are comparable. Where people start
9 to get concerned about satellite broadband is the
10 issue of latency. Often latency gets a bad rep
11 when talking about satellite broadband because
12 people become concerned about the delays in
13 services, but what we actually notice latency in
14 is a lot less significant than what most people
15 think. It's really just in things like high speed
16 interactive gaming or if you actually want to do
17 robotic surgery.

18 But a lot of telehealth services would
19 benefit from the addition of satellite services
20 because it's large data files or voiceover IP and
21 connecting people with their doctors, and these
22 are services that actually are highly beneficial

1 through satellite services and the connections
2 that we can make. So, it's actually facilitated
3 by these wide networks that we provide and this
4 ubiquitous service that connects these communities
5 to their doctors.

6 So, we think it's very important that we
7 focus on what is currently available and what will
8 be available in the future. The truth is
9 satellite broadband capacity is increasing greatly
10 and there are a lot of filings for additional
11 capacity at the FCC. My company has recently
12 filed to construct and launch an additional
13 satellite in the next four years. There are
14 several non-geostationary satellite
15 constellations, which Suzanne Malloy from SES is
16 also on the call and can talk to, which will have
17 a lower latency than most terrestrial networks
18 actually. She can speak to that hopefully. And
19 they will add additional capacity to communities
20 that do not have access to built-out terrestrial
21 networks.

22 It's important that when designing

1 regulations going forward we consider the fact
2 that regulations have to be technology neutral to
3 allow the technologies that have the ability to
4 build out to these communities, that can connect
5 these communities and provide telehealth services
6 now and in five to ten years, that they're the
7 ones who are able to provide the services, and
8 that they're the ones who are able to get the
9 funding they need to build out into these
10 communities.

11 Because the truth is satellite broadband
12 is available now and in these communities that
13 need it. It's available in southeastern Alaska
14 and at 25-3 speeds. Unfortunately a lot of people
15 don't know that it's there. One of the most
16 important aspects is to make sure people know it's
17 there, and that it's available, and that it works
18 really well, and that it can enable these
19 telehealth services to take root and be available
20 to their customers.

21 MR. PERAERTZ: Thank you very much,
22 Jodi. That was a very passionate and persuasive

1 argument again for the importance of satellite
2 connectivity.

3 I think, Tony, we should pause at this
4 moment and just -- our intention was to get
5 through four questions before 3:00 o'clock and
6 using this format it doesn't look like we're going
7 to be able to go to the next three questions in
8 successive order the way that we had planned.

9 So, what we would like you to do is ask
10 you about a couple of issues that we would like
11 you to provide us some information on during this
12 phone call. One of them is the type of
13 connectivity and connectivity speed that is going
14 to be necessary to the support to the deployment
15 of health IT applications today and in the near
16 future, connectivity whether it be fixed,
17 wireless, or mobile wireless, as well as
18 connectivity speeds.

19 Jodi was talking about this a little bit
20 when she mentioned that since medical services
21 require large data sets, the transfer of large
22 data sets, at the Task Force we've been really

1 trying to figure out what level of connectivity
2 and connectivity speeds will be necessary to
3 enable the deployments of advanced technologies in
4 the future.

5 I think Yahya has another question that
6 he would like you to focus on.

7 MR. SHAIKH: Well, in relation to
8 existing product offerings you might have are
9 there any that, for example, might require
10 physical deployments that might shift to the cloud
11 if sufficient cloud activity exists? Or are there
12 innovations that are currently being shelved or
13 features not currently being deployed in existing
14 products because of limitations with connectivity,
15 whether it's the issue of speed or whether it's
16 the issue of coverage or anything else related to
17 connectivity which prevents sufficient market
18 reach?

19 MR. PERAERTZ: Tony, you can identify
20 the next participant.

21 OPERATOR: Thank you. That will come
22 from Syed Hosain with Aeris Communications.

1 Please go ahead.

2 MR. HOSAIN: Thank you very much. I
3 thank the FCC for the opportunity to speak over
4 here. Very quickly I'll talk about who Aeris is
5 and then dive into some of the applications which
6 might determine the technology in questions that
7 you have raised here.

8 We are a provider of IOT services all
9 the way from connectivity to analytics including
10 our cloud-based analytics solutions, and we've
11 been providing this for more than two decades. I
12 am one of the founders of the company (inaudible)
13 CTO responsible for architectures for the future.

14 In terms of number of cellular units
15 which is what we deploy today we're the third
16 largest in the U.S. and sixth largest globally.
17 We offer services around the world, but are based
18 here in North America and a large majority of our
19 devices are obviously based right here in the
20 U.S., Canadian, and Mexican markets.

21 Healthcare is the most rapidly growing
22 opportunity in the IOT industry that our customers

1 which are enterprises are deploying. That
2 necessarily drives us to be concerned about some
3 things that I'll talk about in a second. I'd like
4 to give you a couple of examples overseas and then
5 come right back to the U.S.

6 We are working with organizations that
7 are working on vaccine quality monitoring in
8 Africa, and for that technology to work properly
9 just the availability of even a simple 2G
10 connectivity service is sufficient because frankly
11 while the next generation broadband technologies
12 will enable capabilities that are somewhat more
13 futuristic today's deployments of healthcare IOT
14 devices simply doesn't need them. Wide coverage
15 and longevity is far more important so something
16 like that vaccine application at 2G coverage is
17 sufficient.

18 In India we're working with a company
19 that is providing a tuberculosis medication
20 compliance monitoring device that is incorporated
21 as a battery-powered unit inside the box itself so
22 every time it's opened that is a proxy for

1 medication being taken.

2 Here in the U.S. we are working with
3 companies that are doing I will say relatively non
4 mission-critical IOT healthcare applications. I
5 define mission-critical in the manner that if
6 coverage were not available or if there is a
7 failure in the network it would not result in a
8 medical emergency or God forbid a fatality.

9 So, applications such as home elder
10 healthcare monitoring systems where people might
11 be monitored for their presence in the home,
12 monitoring their ovens, their shelves, their
13 medicine cabinets, is something that is being
14 rapidly deployed today. We have companies who are
15 deploying tracking devices for shoes for
16 Alzheimer's patients so that if they're living at
17 home they can be monitored by their caregivers, et
18 cetera.

19 And we're working on some capabilities
20 for diabetic patient monitoring. The reason being
21 that when there was a study done from one of our
22 customers with regards to what kind of monitoring

1 of healthcare parameters that physicians wanted
2 literally two-thirds of the doctors who were
3 responding said they wanted weight, blood sugar,
4 and blood pressure to be the primary monitoring
5 that patients do. So, we're working with a small
6 start-up that is coordinating an effort to make a
7 sugar level monitor, a blood pressure monitor, and
8 a weighing machine all connected together to
9 provide information particularly for low income
10 families who may not have an ISP or a home
11 transmission device of some sort that they would
12 be able to use our cellular network to transmit
13 that data to their local county and regional
14 healthcare systems and coordinate that information
15 with supermarkets in the area who could provide
16 coupons, for example, to those patients to allow
17 them to get the kinds of foods that would be
18 beneficial to improving their diabetic problems
19 rather than causing them harm as they might tend
20 to do otherwise.

21 In terms of the connectivity, as I
22 mentioned, today coverage and longevity of service

1 is far more important. In a self-contained unit
2 such as what our customers provide with these
3 devices the ability to plug-and-play or
4 battery-powered units is essential. What 5G and
5 other technologies in the future might enable are
6 perhaps more mission-critical apps where these
7 speeds and the necessary transmission of medical
8 information associated with medical emergencies
9 might be more relevant. Today we don't see that.
10 And the benefit of having widespread coverage in
11 the future for those what I will call the more
12 speed-oriented technologies would be essential.

13 I'd like to thank you all for the
14 opportunity to provide this information. If there
15 is any additional information that we can provide
16 later on we'd be happy to do so.

17 MR. PERAERTZ: Tony, I would like to ask
18 Z a follow up question. Z, because Aeris is able
19 to manage its always-on, 24-7 connectivity across
20 2G, 3G, 4G, LTE, LTEM networks I think you have a
21 unique view into the spectrum needs for the future
22 of healthcare. In our PN we specifically ask for

1 how could the Commission make an assessment of the
2 spectrum in the wireless infrastructure needs for
3 the future of health and care in the United
4 States?

5 Because time is short I would appreciate
6 it if you could provide just a broad general
7 approach that the Commission could take to
8 ensuring that we have sufficient spectrum and
9 think about other sort of coexistence issues that
10 we need to think about going forward to ensure
11 there is sufficient spectrum for the future of
12 health.

13 MR. HOSAIN: Yes, that's a very good
14 question. The issue is very simplistically that
15 we piggyback on the cellular networks that are
16 deployed for entirely other purposes. The
17 applications that are running IOT cloud for less
18 than 1 percent of the revenue of a typical large
19 carrier in the United States, and therefore change
20 technology decisions tend to be driven by the
21 smartphone user community rather than the IOT
22 community, let alone healthcare that is using

1 those kinds of technologies.

2 So, I think that in particular the way
3 we manage it is that we like to be as technology
4 agnostic as we can from our support perspectives.
5 We have built in solutions for monitoring the
6 device performance regardless of the technologies
7 operating, including hybrid solutions that include
8 both Wi-Fi such as the information from Comcast or
9 satellite services that was mentioned earlier
10 today. For us, information and processing that
11 data is far more important so we will be very
12 careful to locate a device no matter where it
13 happens to be, which network it happens to be
14 operating in, to provide the kind of reach and
15 connectivity that is necessary.

16 Now, from a perspective of capacity,
17 today's applications simply don't have to worry
18 about that yet because even 2G is quite sufficient
19 for a large class of applications such as
20 reporting basic health parameter monitoring, et
21 cetera. It's the more futuristic applications
22 that I think will require extensive coverage in 5G

1 and LTE expansion, more spectrum expansion for the
2 networks that are available today. Since we
3 piggyback traditionally those networks are
4 deployed by the larger carriers who have the
5 ability put the tower resources up to make
6 coverage happen as best they can.

7 MR. PERAERTZ: Great, thank you. For
8 other participants who have a unique view on
9 wireless spectrum needs of healthcare participants
10 if we have time I would appreciate it very much if
11 you could think about the question I just posed to
12 Zaeem of Aeris. Thank you.

13 Tony, would you announce the next
14 participant please?

15 OPERATOR: Thank you. That next comment
16 will come from Colin Underwood with Alaska
17 Communications. Please go ahead.

18 MR. UNDERWOOD: Hello, thank you very
19 much to the Committee for hosting all of us on
20 this important topic. My name is Colin Underwood
21 and I am the Healthcare Program Manager for Alaska
22 Communications, a telecommunications provider

1 providing consumer and business commercial
2 services in the great state of Alaska. Among
3 those commercial and business providers we provide
4 services to healthcare and education customers.

5 I would just like to first voice my
6 support of everything that Dr. Stewart Ferguson
7 mentioned earlier. He and I have the privilege of
8 working together as one of the telecommunications
9 providers providing connectivity to his
10 organization and some of the other tribal health
11 organizations around the state. What he spoke
12 about in the critical need of telecommunications,
13 universal services, is something we all see here
14 in Alaska.

15 However, I would like to add to what
16 everyone has been saying on consumer need
17 broadband connectivity as well. To really
18 recognize the potential for telehealth consumers
19 are going to need this connectivity in their
20 homes, as we in Alaska in many cases do not have
21 that access and where it is accessible it may not
22 be affordable. So, we see consumers not able to

1 recognize the full potential of telehealth
2 services.

3 One way to meet that demand is through
4 wireless technologies. Needless to say, it is
5 very expensive to build in very remote Alaska any
6 wired infrastructure to these homes that are
7 across mountain ranges, through rivers, lakes,
8 miles and miles away. So one avenue we are
9 looking at is wireless deployments using a
10 fiberoptic network terrestrial service to bring
11 into a community and then deploy a wireless mesh
12 network across the community that would then
13 benefit consumers, small businesses, healthcare,
14 and education businesses alike.

15 However, to make such a network
16 available as I mentioned requires a strong
17 terrestrial network, the backbone to bring that
18 connectivity in there. I've heard many people
19 talk about wireless technologies, spectrums, and
20 5G technologies; those are all great, we are
21 looking at those. I heard someone mention earlier
22 TV white space. That's a technology we're looking

1 at as well as millimeter wave technologies to
2 deploy these in a much more cost-effective manner.

3 I'm going to come back to Alaska lacking
4 infrastructure. Technology, I'm going to equate
5 it to much like an elementary school where you
6 have a third grade class and you might have one
7 third-grader that is reading at a fifth grade
8 level and you have another third-grader that's
9 reading at maybe a second grade or third grade
10 level. You're not going to want to give both of
11 these the same reading material and expect them to
12 advance at the same manner; you're going to give
13 that one student who is advanced something a
14 little more challenging and that other student
15 something that's more appropriate for their level,
16 that way both are going to feel success and
17 advance.

18 Technology is much the same way. The
19 idea that there is one solution for the entire
20 country is not always the case. In Alaska we are
21 lacking infrastructure and that is reflected in
22 basically our 25 percent use of the Universal

1 Services Fund for rural healthcare. Those high
2 costs are due to lack of infrastructure and
3 competition, real competition, in the state of
4 Alaska.

5 So, I'd ask the Committee to consider as
6 we go forward looking at the future ways that we
7 can encourage different regions in the country to
8 advance and get the benefits they need while also
9 supporting the higher advancements of other parts
10 of the country. For the entire country to really
11 truly benefit from the advancements of digital
12 healthcare and telehealth we need not only the
13 healthcare centers to have good connectivity but
14 also the consumers at an affordable level.

15 Lastly, as far as broadband speeds go we
16 have seen just in the past couple of years
17 critical access hospitals and community health
18 centers in Alaska asking more and more for 100 meg
19 and even in some cases, some of the larger rural
20 locations, even gig services to support the EICU
21 and other advanced real-time critical care
22 delivery systems that are out there. This is in a

1 large part due to a few years ago Congress passed
2 laws that said, you know, thou shalt adopt digital
3 healthcare, electronic health records, that sort
4 of thing and we've seen healthcare really take off
5 in this field. As a consequence the demand in
6 connectivity in broadband has exponentially grown.

7 In conjunction with that the USAC and
8 the FCC have seen to add additional service types
9 in facilities that are eligible to participate in
10 the Rural Healthcare Program. So, we've had two
11 major impacts to the Rural Healthcare Fund and at
12 no time has that fund been adjusted to match this
13 increase in both the broadband demand that's being
14 brought in by laws, saying thou shalt adopt
15 digital transformation, and also the additional
16 demand from new facility types. And rightfully
17 so.

18 But I ask the Committee to think both
19 about how we can incentivize different parts of
20 the country for their own acceleration as well as
21 how we can address the Rural Healthcare Program
22 and its funding caps issues right now. As Stewart

1 Ferguson mentioned it is a critical, critical need
2 in Alaska and is the only reason we are able to
3 see the success we have in Alaska. Thank you very
4 much.

5 MR. PERAERTZ: Thank you very much,
6 Colin. Enabling communities to find solutions
7 that are tailored to the unique situations of
8 those communities is something that the
9 Connect2Health Task Force is laser focused on.

10 Tony, would you please announce the next
11 participant?

12 OPERATOR: Certainly. The next comment
13 will come from the line of Suzanne Malloy with SES
14 Networks. Please go ahead.

15 MS. MALLOY: Hi, this is Suzanne Malloy
16 and I'm Vice President of Regulatory Affairs for
17 o3b, which is now going to be known as SES
18 Networks. We really appreciate the opportunity to
19 participate in this particular forum to explain
20 how specifically satellites fit in to helping
21 deliver the kinds of services and applications
22 we've been talking about on the call.

1 By way of introduction into who we are
2 and the facilities we use to provide our services,
3 SES is one of the world's largest commercial
4 communication satellite operators operating more
5 than 50 geostationary satellites that can reach 50
6 percent of the world's population. Many of these
7 satellites have been authorized under commission
8 authority.

9 The specific division that I work for,
10 SES Networks, formerly known as o3B, provides high
11 throughput low-latency connectivity via a
12 non-geostationary satellite network that delivers
13 performance of fiber in places where terrestrial
14 networks don't reach. It makes this broadband
15 connectivity affordable for billions of consumers
16 and businesses globally in reaching 180 countries.

17 SES Networks provides these capabilities
18 over a 12 satellite medium-earth orbit satellite
19 constellation and we will be launching starting
20 next year 8 additional satellites using additional
21 spectrum to address what is a really fast growing
22 demand for the kind of high performance

1 connectivity that we can provide.

2 SES is unique in that it's the only
3 joint medium- earth orbit and geostationary
4 satellite operator in the world and can therefore
5 access both of the satellite technologies to
6 deliver telehealth, eHealth applications, and
7 telemedicine services. These would be in hard to
8 reach areas that have limited internet access.
9 SES Networks NEO-enabled satellites provide low
10 latency and high throughput connectivity, and I
11 emphasize those two points because these are at
12 speeds that can support 4G or LT applications like
13 cloud computing. These capabilities allow for
14 really fast, flexible, and affordable solutions to
15 challenges that we have in delivering telemedicine
16 and eHealth applications.

17 SES uses spectrum in the CKU and KA
18 bands to support a range of eHealth applications.
19 Just as Hughes and Inmarsat have noted, this
20 spectrum supports both geostationary and
21 medium-earth orbit eHealth applications depending
22 on the specific requirements of each activity, and

1 which particular speed and latency are needed for
2 the specific applications that we're talking
3 about. So, the speed and latency that we've been
4 talking about are just a few of many factors that
5 determine how you can effectively deliver advanced
6 satellite technologies or advanced eHealth
7 technologies.

8 SES' effort to specifically provided
9 satellite connectivity to maternity and children's
10 hospitals, floating hospitals, and mobile clinics,
11 as well as to military ships and to humanitarian
12 response vehicles. So, a couple of examples would
13 be an SES collaboration with the Luxembourg
14 government called SATMED. It's an IT-enabled
15 cloud infrastructure that facilitates data
16 exchanges between professionals and medical
17 facilities and framework. Specifically SATMED
18 provides satellite connectivity for areas where
19 there is inadequate mobile or terrestrial internet
20 coverage. It also provides eHealth tools in a
21 single access platform, so this would cover the
22 full spectrum of eHealth including eLearning,

1 eCare, eSurveillance. This would also include the
2 ability to maintain medical records, and a
3 specific example might be having at-home nurses
4 have the ability to videoconference with nurses in
5 hospitals.

6 The services were deployed for the first
7 time during the 2014 Ebola outbreak in Sierra
8 Leone. Other deployments have included a
9 maternity hospital in Benin, a children's hospital
10 in Niger, and three floating hospitals in
11 Bangladesh.

12 Now, that's a well-known existing
13 technology but the NEO constellation, medium-earth
14 orbit constellation, can offer low latency and
15 very high throughput. It combines the kind of
16 capabilities that we just talked about for
17 geostationary satellites, with one particular
18 example being rapid response vehicles. This is
19 the kind of application that can be used in
20 something like restoration which with the recent
21 hurricanes is a very sort of real need. So, this
22 particular rapid response vehicle is the first

1 mobile platform that can offer collaborative
2 communication technologies over multiple orbits
3 and frequencies, specifically, the band user Ku,
4 Ka and military X-band. It works across the
5 geostationary fleet and across the NEO
6 constellation. Using this rapid response vehicle
7 we can provide high speed connectivity and
8 communication services globally that can be
9 tailored to a range of commercial, civil,
10 humanitarian, and defense missions including
11 telemedicine.

12 One thing I wanted to mention is that
13 satellite services can operate hand in glove with
14 terrestrial services and they do. So, they
15 support local terrestrial applications. One of
16 the unique capabilities of satellite is one to
17 many transmissions of information or satellite
18 services can support terrestrial services by
19 extending their reach of terrestrial networks.

20 In the future our own satellite
21 deployment and those of the others in the industry
22 will include innovations and increases in

1 throughput that will enable support of the kinds
2 of terrestrial networks that we're hearing about
3 on this call while they develop. And they will
4 also enable the provision of even more advanced
5 satellite services directly to end users via
6 satellite.

7 If there is time for questions I'm happy
8 to take them. But again, thanks for the
9 opportunity to participate in this forum.

10 MR. PERAERTZ: Thank you very much,
11 Suzanne. Tony, would you please announce the next
12 participant?

13 OPERATOR: Thank you. That's from Tim
14 Koxlien with Telequality. Please go ahead.

15 MR. KOXLIEN: Thank you, Tony. Thanks
16 to the Task Force for the opportunity to talk with
17 you. You had brought up the connectivity type
18 speed and then also added some cloud issues. I'll
19 really not spend much time talking about the other
20 items, I think your other guests have spent time
21 talking about infrastructure and so on.

22 We're a telecommunications company that

1 services healthcare providers throughout rural
2 America. It's great to hear the important
3 initiative that the chairman has at the FCC on
4 bridging the digital divide. Lots of ideas going
5 on with regards to the MPRM and so on, and I'll
6 just leave it at that for what's written down.
7 But I'd like to touch on two items in terms of
8 connectivity type and speed.

9 We serve about almost a thousand
10 locations throughout rural America. The type of
11 connectivity that we have is pretty much probably
12 two-thirds fiber and the remaining amount mainly
13 copper but with some coax. There are some
14 wireless connectivity serving those locations that
15 can't get reasonable priced access into those
16 sites. But pretty much anything that can get them
17 a good amount of bandwidth is satisfactory until
18 higher bandwidths or better latency can be taken
19 care of by buildout, whether it's wireless or
20 wireline or anything else.

21 When we take a look at a lot of these
22 applications too I think we've talked about an

1 enabled --

2 MR. PERAERTZ: Excuse me? Tony, are you
3 there?

4 OPERATOR: Lines are still open.

5 MR. PERAERTZ: It's now two minutes past
6 3:00. We would like the listening session to
7 extend for about another 15, 20 minutes if that's
8 okay.

9 OPERATOR: Certainly, you may proceed.

10 MR. KOXLIEN: Is that referring to me
11 with a couple more comments regarding speed?

12 MR. PERAERTZ: No, please go ahead, Tim.
13 We'd love to hear from you.

14 MR. KOXLIEN: Well, we have seen speeds
15 increase in the last three years. Our average
16 customer was using an average of 7 meg, it is now
17 up over 300 on our average customer sites. It's
18 more than just the typical healthcare applications
19 that these folks need, they are also using these
20 services for emails, internet access, training, et
21 cetera. So the bandwidth needs going into a
22 specific location are beyond just the healthcare

1 delivery. It also includes the important business
2 administration needs for that facility as well.
3 So, these increases have continually exponentially
4 grown, and I would say that the number one
5 indicator that's really driving that is the
6 electronic health records systems themselves
7 because these businesses are now being operated in
8 a digital format versus with what it had been in
9 the past.

10 The next item I think is really
11 important for the Commission to look at and
12 understand, and this probably incorporates
13 interagency work on behalf of the FCC and other
14 agencies, and that is there is a lack of skillset
15 within especially rural America in supporting the
16 IT and medical tools that clinicians would be
17 using in a telemedicine network. These people
18 that are struggling today trying to manage the
19 business of just getting a patient from a waiting
20 room to an exam room are now being called upon to
21 do some higher-skilled types of functions and
22 roles, perform these roles within their work.

1 There is an important lack of training for not
2 only those that are supporting, maintaining, and
3 keeping these tools working so that the clinicians
4 themselves can perform the medical service using
5 these tools, but also for the clinicians because
6 the work flow of having some of these telemedicine
7 applications within their business is an important
8 difference doing it in an analog environment
9 versus digital. So, we see the skillset piece
10 really becoming a jobs issue and something that I
11 think the Commission should really take a look at,
12 especially on your interagency work on shoring up
13 this digital divide.

14 I'll leave it at that. Hopefully that
15 addresses in terms of connectivity type fairly
16 ubiquitous need there, speed. And I'm thankful
17 again for the opportunity to talk with you all
18 today.

19 MR. PERAERTZ: Tim, thank you very much
20 for that data that you were providing, that you've
21 seen needs go from 7 meg all the way up to over
22 300.

1 Tony, please announce the next
2 participant. We have about three or four more
3 people in queue. We would like to extend the
4 conference until all speakers have had a chance to
5 present what they would like to tell us. Thank
6 you.

7 OPERATOR: Thank you very much. The
8 next comment will come from Stephen Berger with
9 TEM Consulting. Please go ahead.

10 MR. BERGER: Thank you. I just want to
11 add one issue to the mix, and I'm going to open
12 the issue not suggest solutions, but that is the
13 cost and complexity of compliance. That's clearly
14 something the FCC has a great deal of influence
15 on.

16 Clearly we want healthcare services to
17 be delivered where they have the highest possible
18 reliability which means they can operate on the
19 greatest number of bands and protocols to find one
20 that they can connect on, and we want them to
21 remain technologically current. But if we look at
22 more complex areas of regulatory compliance, and

1 we might look at the Wi-Fi DFS channels and look
2 at how many devices support only the non-DFS --
3 that's dynamic frequency selection channels --
4 where there is not transmit power control, you see
5 quite a disparity that the cost of compliance
6 discourages devices from making use of those
7 additional bands and channels.

8 So, it's a complex issue but I would
9 suggest we first of all definitely want to see the
10 FCC and the FDA coordinate for example with the
11 newer requirements the FDA is bringing for
12 coexistence reliability analysis. We definitely
13 want to do anything we can to encourage high
14 reliability equipment and part of that would be
15 anything we can come up with creatively to lower
16 the cost of compliance for equipment that supports
17 multiple bands, multiple protocols. We want to
18 improve test repeatability which is materially
19 connected to cost of compliance. And we want to
20 improve international harmonization. If equipment
21 can be tested for regulatory purposes and
22 qualified for multiple markets that's a

1 significant cost reduction. So, thank you.

2 MR. PERAERTZ: Thank you very much,
3 Stephen. Really appreciate that and would love to
4 hear more. If you are interested in filing
5 comments with us on that specific point we would
6 really appreciate it.

7 Tony, would you please announce the next
8 participant?

9 OPERATOR: Our next comment comes from
10 the line of Rick Schadelbauer with NTCA Rural
11 Broadband. Please go ahead.

12 MR. SCHADELBAUER: Thank you very much,
13 and thank you for the opportunity to speak today.
14 My name is Rick Schadelbauer, I am the Manager of
15 Economic Research and Analysis for NTCA-The Rural
16 Broadband Association. NTCA is an industry
17 association comprised of approximately 850 rural
18 local exchange carriers, all of whom are defined
19 as rural telephone companies under the
20 Communications Act of 1934. All of our member
21 companies provide a mix of advanced
22 telecommunications and broadband services and many

1 also provide video or wireless services to the
2 rural communities they serve despite the numerous
3 challenges inherent to serving rural areas.

4 Many of our member companies are
5 involved in projects with hospitals and healthcare
6 providers to bring the benefits of telehealth to
7 rural America. While there is a tremendous
8 potential for telehealth to benefit rural America
9 it's important to remember that telemedicine is
10 not viable without access to robust and reliable
11 broadband service. Currently rural areas lag
12 somewhat behind non-rural areas in broadband
13 deployment but they continue to make impressive
14 gains due in large part to the efforts of small
15 providers such as our member companies.

16 I'd like to just spend a couple of
17 moments talking about a recent white paper that we
18 published entitled Anticipating Economic Returns
19 of Rural Telehealth. In this white paper we
20 looked at both the quantifiable and non-
21 quantifiable benefits of telemedicine. Now, among
22 the non- quantifiable benefits we identified were

1 greater access to specialists, the timeliness of
2 treatment, increased patient comfort, reduced need
3 for transportation, benefits to the healthcare
4 provider, as well as improved overall outcomes.

5 We looked at five quantifiable benefits
6 as well and attempted to estimate the cost savings
7 that would be associated with each of these
8 benefits. Those benefits included travel expense
9 savings, money that was not spent having to go to
10 a distant site to seek treatment. We calculated
11 that the U.S. average -- now, in the white paper
12 we did this on a state by state basis, but the
13 U.S. average for travel expense savings due to
14 telehealth we estimated at \$5,700 per medical
15 facility per year. Savings in terms of lost
16 wages, which would be the time that folks would
17 have to take away from their job to go seek
18 treatment, we calculated the U.S. average to be
19 \$3,400 per medical facility per year. Savings
20 accruing to the hospital itself due to the reduced
21 need to have full-time specialists on staff, their
22 ability to share specialists with other

1 facilities, we calculated that to be \$20,800 per
2 medical facility per year. Increased local
3 revenues for lab work, so when being treated
4 locally those moneys that would be spent for lab
5 work would stay in the local community as opposed
6 to going to a distant location, we estimated those
7 savings to be between \$9,000 and \$39,000 per type
8 of procedure per medical facility per year. And
9 finally, increased local pharmacy revenues, again,
10 spending would not be done remotely but in the
11 local community, and we estimated that savings to
12 be between \$2,300 and \$6,200 per medical facility
13 per year depending on the specific drug
14 prescribed.

15 So, there are substantial potential
16 benefits to be gained from telehealth, but
17 realizing these benefits will first require
18 overcoming several challenges including
19 reimbursement cost, patient privacy, and
20 licensing.

21 Now, as I mentioned previously rural
22 telemedicine's ultimate role in addressing the

1 significant health problems inherent to rural
2 areas will depend in large part on the
3 availability of an underlying future proof
4 fiber-based broadband infrastructure, and further
5 investment in and expansion of that infrastructure
6 is a critical need for our nation. In rural areas
7 particularly ongoing broadband deployment will
8 depend in large part on the availability of
9 critical universal service funding and that that
10 funding be sufficient and predictable.

11 The three most critical components of
12 the Universal Service Fund program for telehealth
13 are the High Cost Program which allows funding for
14 broadband deployment, the Lifeline Program which
15 allows low income Americans to afford service, and
16 the Rural Health Program which helps healthcare
17 providers afford connectivity.

18 So, our member companies have begun the
19 task of deploying high quality broadband in rural
20 America and ongoing sufficient universal service
21 support will allow them to continue this important
22 work. Thank you very much for this opportunity.

1 MR. PERAERTZ: Thanks, Rick. I commend
2 Rick's work on this topic to all the participants
3 on this call.

4 Tony, would you please announce the next
5 participant.

6 OPERATOR: That will come from the line
7 of Verné Boerner with the Alaska Native Health
8 Board. Please go ahead.

9 MS. BOERNER: Hi, there. This is Verné
10 Boerner, President and CEO for the Alaska Native
11 Health Board. I just wanted to say first of all
12 thank you for hosting these forums to allow us to
13 provide the FCC input.

14 I wanted to state our support for
15 Stewart Ferguson's presentation. I am hoping that
16 he's actually in the queue. I think he's got a
17 few more points that he would like to make
18 regarding connectivity on how 2.0 will empower
19 healthcare delivery and another point on the
20 future not necessarily being evenly distributed.
21 So, I will yield my time in order to make some
22 space for him if he's able to get in the queue and

1 speak to these issues.

2 MR. PERAERTZ: Thank you very much,
3 Verné. We appreciate your participation in some
4 many of the fora. Tony, would you announce the
5 next participant?

6 OPERATOR: It comes from the line of
7 Stewart Ferguson, Alaska Tribal Health. Please go
8 ahead.

9 DR. FERGUSON: Good morning, and thank
10 you very much again for the opportunity to speak
11 here, and thank you, Verné, for yielding your time
12 there.

13 I think I would just like to finish with
14 two kind of key points I'd like the Task Force to
15 be cognizant of. The first one as Verné said is
16 really -- I call it connectivity 2.0, whatever
17 we're calling this kind of next gen connectivity.
18 It will empower healthcare delivery 2.0.

19 The telecommunications program and USAC
20 support has absolutely allowed our
21 telecommunications carriers to really change the
22 way they deliver communications in Alaska and to

1 build a comprehensive fiber microwave network
2 across our state. What that did is it resulted in
3 40 percent of our communities making a shift from
4 satellite-based connectivity to terrestrial
5 connectivity in the last seven years. That
6 brought reduced latency, increased bandwidth, and
7 increased reliability.

8 More importantly, that created the
9 possibility for us for sharing a single unified
10 electronic health record with our rural hospitals.
11 We tend not to put them on a shared EHR when
12 they're satellite-based, the latencies just make
13 it harder for the physicians to do their job. So,
14 now we're doing something that is the ultimate
15 goal I think for most health systems, moving our
16 patients to a single shared electronic health
17 record.

18 In the last six years we've created a
19 single unified health record that's used by most
20 of our tribal health systems. 66 percent of all
21 the healthcare activity at more than 200 sites
22 throughout Alaska now happens in a single

1 electronic health record. It's one of the few
2 times that physicians thank us for their
3 electronic health record. Our physicians will
4 point out that, for instance, our children on the
5 shared domain get better, more comprehensive, and
6 more complete care. In physicians' words they say
7 it results in seamless care, fewer mistakes, and
8 less guessing. One physician described it as
9 beyond fabulous.

10 The next step for us though with this
11 better infrastructure is through the use of
12 population health and big data solutions. We're
13 currently deploying smarter patient registries and
14 beginning to use predictive algorithms for patient
15 care. We're investigating options for an
16 enterprise analytics solution that's smarter and
17 faster than anything we've ever seen because it
18 will have complete patient data from all of our
19 sites, it will run on hyper parallel computing
20 systems in the lower 48, and it reaches all the
21 way back to our most remote locations through this
22 connectivity. So, the bottom line is the new

1 infrastructure that's being supported now and will
2 be supported in the future will absolutely change
3 the way we deliver healthcare and make it smarter
4 and better.

5 The last point I'd like to make, and
6 Verné pointed out, the future is not evenly
7 distributed and that's really important to
8 understand. The present is certainly not evenly
9 distributed. As you think about building out 5G
10 capability recognize that some rural villages may
11 never have that capability. It may not be
12 technically or financially feasible to bring 5G
13 into villages with 300 residents with a single
14 (inaudible) station for satellite link, but
15 bringing 3G into these sites is transformational.

16 We recently started a pilot program to
17 take care of some of our most desperately ill
18 patients that need palliative care in their home
19 because we finally have 3G abilities in the home.
20 These patients are desperately ill. It takes more
21 than an hour to disconnect them from the oxygen
22 and move them across the village to the clinic for

1 a healthcare session, and imagine doing that in
2 the winter. These patients must be seen in their
3 homes and they only need 3G or better to do this.

4 But without subsidies or other support
5 3G connectivity to the home is very expensive in
6 Alaska and often there are limitations placed on
7 usage. We have subsidies to support connectivity
8 at clinics through USAC but it leaves a tremendous
9 gap for the homes where there is no subsidy or
10 support. Affordable connectivity into the homes
11 is usually important. Simply put, the Task Force
12 must not develop an infrastructure plan that
13 simply broadens the existing digital divide. 5G
14 to homes and urban areas cannot be our sole focus
15 if we forget to deliver affordable 3G or better to
16 homes in rural and frontier locations. Those are
17 the places where we need it and we use it the
18 most.

19 I know if anything we need reliable high
20 (inaudible) and affordable connectivity and it
21 will continue to pave the way for better
22 healthcare in Alaska and beyond. Thank you very

1 much for your time.

2 MR. PERAERTZ: Thank you so much,
3 Stewart. Thank you, everybody, for your
4 thoughtful and in many cases passionate
5 recommendations. We invite you to provide
6 additional comments into our docket. You can do
7 so by following the instructions in the last email
8 we sent. If you have questions you can send them
9 to Connect2Health@fcc.gov. Thank you. Tony,
10 would you please close the conference?

11 OPERATOR: Ladies and gentlemen, that
12 does conclude today's conference. Thank you for
13 your participation. You may now disconnect.

14 (Whereupon, at 3:20 p.m., the
15 PROCEEDINGS were adjourned.)

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1 CERTIFICATE OF NOTARY PUBLIC

2

3 I, Carleton J. Anderson, III do hereby
4 certify that the forgoing electronic file when
5 originally transmitted was reduced to text at my
6 direction; that said transcript is a true record
7 of the proceedings therein referenced; that I am
8 neither counsel for, related to, nor employed by
9 any of the parties to the action in which these
10 proceedings were taken; and, furthermore, that I
11 am neither a relative or employee of any attorney
12 or counsel employed by the parties hereto, nor
13 financially or otherwise interested in the outcome
14 of this action.

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16 Carleton J. Anderson, III

17 (Signature and Seal on File)

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19 Virginia

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