

ADVANCING TELEHEALTH THROUGH CONNECTIVITY

HEARING

BEFORE THE

SUBCOMMITTEE ON COMMUNICATIONS,
TECHNOLOGY, INNOVATION, AND THE INTERNET
OF THE

COMMITTEE ON COMMERCE,
SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE

ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

APRIL 21, 2015

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ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

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ADVANCING TELEHEALTH THROUGH CONNECTIVITY

TUESDAY, APRIL 21, 2015

U.S. SENATE,
SUBCOMMITTEE ON COMMUNICATIONS, TECHNOLOGY,
INNOVATION, AND THE INTERNET,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Subcommittee met, pursuant to notice, at 10 a.m. in room 253, Russell Senate Office Building, Hon. Roger F. Wicker, Chairman of the Subcommittee, presiding.

Present: Senators Wicker [presiding], Thune, Blunt, Ayotte, Fischer, Johnson, Gardner, Daines, Schatz, Cantwell, Klobuchar, Blumenthal, Markey, Booker, Udall, Manchin, and Peters.

OPENING STATEMENT OF HON. ROGER F. WICKER, U.S. SENATOR FROM MISSISSIPPI

Senator WICKER. Welcome. Welcome to the first hearing of the year for the Subcommittee on Communications, Technology, Innovation, and the Internet.

I'm joined this morning by my colleague and Ranking Member, Brian Schatz.

There is a lot of interest among Senators and Members of the Committee in this topic. They will be coming in and out participating in the hearing, and I expect to have a lot of questions and discussion as we proceed.

Advancing telehealth through connectivity is a timely topic for the Committee this year as we look at ways to modernize our communication laws. I hope today's discussion will serve as an educational forum on the progress we've made, as well as an opportunity to identify ways we can assure all Americans have access to the great advancements in patient care and delivery.

In fact, this year Senator Cochran and I plan to introduce the Telehealth Advancement Act, which is aimed at improving Medicare reimbursement and working toward payment parity. Many payments to telehealth exist outside the realm of communications. However, without broadband, telehealth is not possible. Ensuring all Americans, particularly those living in rural and remote areas, have access to high-speed broadband has long been a priority of mine.

In Mississippi, for example, AT&T provides broadband service to the University of Mississippi Medical Center. The hospital's telehealth solutions include the deployment of portable medical carts to rural hospitals and clinics, allowing patients and doctors in re-

remote locations to interact in real time with medical center specialists through video transmission of diagnostic information.

Also, the Diabetes Telehealth Network pilot in Sunflower County, the first of its kind nationally, is intended to forge a stronger connection between clinicians and people with diabetes. It supports earlier clinical intervention, more effective use of health services, and positive health habits and behavior changes.

In this instance, C SPIRE provides the high-speed mobile broadband communications network needed to support this connection between patients and clinicians in even the most remote parts of Mississippi.

The state of Mississippi has made great strides in telehealth and in closing the digital divide, but there's still work to be done. Fifty-four percent of our citizens live in rural areas, and we have the lowest ratio of physicians to patients. Nationwide, more than 53 percent of Americans living in rural areas lack access to what the FCC now classifies as broadband service. Fifty-three percent of Americans in rural areas lack this access. Only 8 percent of Americans living in urban areas lack this technology.

I would like to welcome all of our witnesses and thank them for testifying this morning. Our panel today represents a wide range of public and private stakeholders working to identify barriers and improve access to telehealth throughout the country.

It's a special privilege for me to introduce Dr. Kristi Henderson from the University of Mississippi Medical Center. Dr. Henderson was kind enough to educate me, to the extent that that could be done, on all the wonderful things going on at UMMC to connect patients throughout the state with doctors and health care professionals remotely.

I'm pleased to welcome her and other distinguished members of our panel: Mr. Jonathan D. Linkous, Chief Executive Officer of American Telemedicine Association; Dr. M. Chris Gibbons, Distinguished Scholar in Residence, Connect2Health^{FCC} Task Force, Federal Communications Commission; Mr. Todd Rytting, Chief Technology Officer, Panasonic Corporation of North America.

I look forward to the testimony from this distinguished panel and to the opening remarks by my distinguished Ranking Member, Mr. Schatz.

**STATEMENT OF HON. BRIAN SCHATZ,
U.S. SENATOR FROM HAWAII**

Senator SCHATZ. Thank you, Mr. Chairman, and good morning.

As a strong believer in the power of telehealth to reach more underserved populations, address gaps in our health care system, and ultimately improve both physical and mental health care in the United States for everyone, I'm grateful for this opportunity to discuss telehealth in this hearing today.

Increasing broadband and improving funding for telecommunications are critical. But beyond broadband, we've got to push providers to reimburse for telehealth services. Health policy is driven by what is and what is not reimbursed. Medicare has to lead the way. As some say, as goes Medicare, so goes everyone else. The United States has 49 million Medicare enrollees. Medicare spend-

ing occupied 14 percent of the Federal budget in 2013, representing \$492 billion in net Federal Medicare outlays.

The market share of Medicare is tremendous, and the impact of payment reforms in Medicare are far-reaching. Innovative markets, including in mobile technology, could be unleashed if Medicare were to step out and reimburse more extensively for telehealth services.

The reimbursement policy for telehealth for Medicare is defined statutorily under Section 1834 of the Social Security Act. Under this statute, many potential episodes of telehealth do not occur because they're not reimbursed. For example, Medicare will not reimburse for telehealth services if the patient is not located in a rural area. If Mrs. Smith is elderly and homebound but lives in downtown Honolulu, her telehealth services would not be covered.

Number two, Medicare will not reimburse for store and forward technologies, other than in demonstration projects in Alaska and Hawaii. Store and forward technologies allow a provider to store clinical information like data or images and then forward it to a provider at another location for clinical evaluation. If a primary care doctor in rural Iowa wants to take a picture of a suspicious arm lesion on a 68-year-old male patient, then send it to a dermatologist hours away, that episode would not be reimbursed by Medicare.

Number three, Medicare will not reimburse for telehealth services if patients are located at home. If a bed-bound and disabled 83-year-old woman had a sinus infection in New York, she and her caregivers could not utilize telehealth services from their home. They would need to expend significant time, effort, and travel expenses to get to their nearest physician, if they could indeed get an urgent appointment.

Number four, Medicare will not reimburse for federally Qualified Health Centers, or FQHCs to be sites that furnish providers for telehealth. As such, if a mental health provider at an FQHC, for instance, on Maui Island wanted to stream services via a telecommunications system to a patient at an FQHC on Lanai Island, she would not be reimbursed for those services.

Number five, Medicare will not reimburse for physical, occupational, or speech therapists to provide telehealth services as they are not considered a physician or practitioner according to the statute. A grandfather who suffered a stroke in New Mexico would need to travel multiple times per week to his therapist to get the appropriate therapy.

As you know, I could list many more examples, but the bottom line is this: Medicare needs to lead the way in payment methodology and thus guide the telehealth sector, and Medicare is lagging significantly behind not just the private sector but what VA is doing.

So I look forward to this conversation and many more on a bipartisan basis to look at payment reform so that we can improve outcomes on the clinical side and reduce costs on the fiscal side.

Thank you, Mr. Chairman.

Senator WICKER. And thank you, Senator Schatz.

We are delighted now to begin hearing testimony from our witnesses. Your written testimony will be submitted and included in

its entirety in the record, and we ask each member to summarize using approximately 5 minutes.

We begin at this end of the table with Dr. Henderson and move down the table.

Dr. Henderson.

**STATEMENT OF DR. KRISTI HENDERSON, DNP, NP-BC, FAEN,
CHIEF TELEHEALTH AND INNOVATION OFFICER,
UNIVERSITY OF MISSISSIPPI MEDICAL CENTER**

Dr. HENDERSON. Chairman Wicker, Ranking Member Schatz, and members of the Committee, I thank you for the opportunity to appear today to discuss how we can work together to advance telehealth through connectivity.

My name is Kristi Henderson, and I serve as the Chief Telehealth and Innovation Officer at the University of Mississippi Medical Center.

Telehealth in our state is increasing access to care, improving health outcomes, and lowering costs. Nowhere in America are health care challenges greater than in Mississippi. Not only do we lead the Nation in prevalence of multiple chronic diseases, we also have the lowest number of doctors per capita. More than half of the state's 2.9 million citizens live in a rural community, and almost a quarter live at or below the Federal poverty line.

Telehealth is a vital tool in delivering health care. The UMMC Center for Telehealth began in 2003 with the TelEmergency program connecting community emergency physicians to our trauma center. This program has resulted in a 25 percent reduction in rural emergency-room staffing costs and a 20 percent reduction in unnecessary transfers, and has produced patient outcomes in rural hospitals that are on par with that of the academic medical center.

Twelve years later, telehealth technologies deliver over 35 medical specialties to 166 sites across the state, including community hospitals and clinics, mental health facilities, schools and colleges, corporations, prisons, and even the patients' homes. The network connects to sites in 52 of the state's 82 counties and serves an average of 8,000 patients per month.

As we work to expand telemedicine services, we continue to run into two primary obstacles, reimbursement parity for telehealth services and connectivity challenges. Prior to 2013, insurance companies in Mississippi did not reimburse equally for telehealth services. We argued that Mississippi would ultimately save money by providing reimbursement and undertook a series of pilots to prove it. We were successful.

In 2013 and 2014, Governor Bryant signed legislation mandating that health insurance companies pay for telehealth services at the same rate as in-person services. These changes at the state level were the catalyst for the rapid growth of our state's telehealth system, and I strongly believe adoption of reimbursement parity at the Federal level would have a greater impact.

The second obstacle we encounter is insufficient connectivity. Due to the largely rural nature of our state, we cannot take for granted that support for telehealth services will be available at the level we require or, frankly, at all. To ensure connectivity, we partner with cable, wireless, and broadband telecommunication compa-

nies in the state to maximize our existing resources and leverage the strength of incumbent utilities. Through these partnerships we were able to bring much-needed healthcare to rural Mississippi.

Nothing tells this story better than the Diabetes Telehealth Network program. Last fall, we partnered with public and private stakeholders to launch a groundbreaking research pilot aimed at managing 200 uncontrolled diabetics in rural Sunflower County through aggressive in-home monitoring and intervention. The goal is to improve the health of participants while reducing cost of care. People in this program were sent home with electronic tablets that monitor glucose on a daily basis, provide education, information, and transmit this health data hundreds of miles away to specialists at our center. Many of our patients have never used a computer, and some can't read beyond a sixth grade level. But despite those challenges, our patients are thriving.

Preliminary results show that the majority of patients have already met or exceeded the goals set for the end of the year-long study. With the exception of one patient, no one has been hospitalized or sent to the ER because of their diabetes since entering the program.

But let me be clear. This connectivity between the providers and the patients would not exist but for the Universal Service Fund support that this region enjoys. This is true for many parts of our state where we serve, and is critical for our continued success. As we look to expand this pilot, our biggest concern is the ability to connect with patients in their homes and communities.

Despite this, our needs remain the same, increased reimbursement parity and continued access to reliable, high-quality connectivity. Given the jurisdiction of this committee, I urge you to consider three issues: the need for continued support of Universal Service Funds; the need for broader application of the FCC E-rate program so that we can use telehealth services in the schools and take advantage of the E-rate program; and the need for a more inclusive Healthcare Connect Fund. As a large hospital, we don't enjoy the pleasures of the full benefits of that program.

So I thank the Committee for the opportunity to testify, and I'm happy to answer any of the questions that you may have. Thank you.

[The prepared statement of Dr. Henderson follows:]

PREPARED STATEMENT OF DR. KRISTI HENDERSON, DNP, NP-BC, FAEN, CHIEF
TELEHEALTH AND INNOVATION OFFICER, UNIVERSITY OF MISSISSIPPI MEDICAL
CENTER

Chairman Thune, Chairman Wicker, Ranking Members Nelson and Schatz and fellow panelists, it is a pleasure to appear before this subcommittee to discuss how we can work together to advance telehealth through connectivity. I thank the Subcommittee, and especially my Senator, Chairman Wicker, for the opportunity to testify and look forward to a robust discussion.

Telehealth was born out of necessity. Patients living in rural areas have always lacked access to healthcare, and, even today, those who are not able to travel often receive inadequate care, or no care at all. Many patients are not able to see a specialist or get the treatment they need without traveling long distances. Long gone are the days when each small town had its own "Jack of all trades" doctor who could deliver babies, set broken bones and check on Grandma's aching back. While patients in urban areas may be located in closer proximity to medical services, the waiting time for appointments with specialists can be several weeks, resulting in increased severity of disease equivalent to that in the rural areas.

Why is this?

The physician shortage is partially to blame. The Association of American Medical Colleges (AAMC) predicts that by the year 2020, there will be a national shortage of more than 90,000 doctors, including 45,000 primary care physicians.¹ Rural communities rely on family medicine physicians because they are often the only healthcare providers in the area, yet in the last decade, the number of medical school graduates choosing to specialize in family medicine has declined.² Of those who do elect to study family medicine, only 11 percent choose to practice in rural areas.³ Chronic disease is another major challenge, particularly for poor, rural Americans. A review of data provided by the CDC reveals that approximately 117 million people—about half of all adults in the US—have one or more chronic health conditions. More than 75 percent of health care costs are due to chronic conditions, nearly \$7,900 for every American with a chronic disease.⁴ One in five, or 2.6 million Medicare patients are readmitted to the hospital within 30 days of discharge due to chronic conditions, which generates costs of over \$26 billion each year. In Mississippi alone, seven of the leading causes of death in 2011 were chronic disease-related.

Due to limited local medical services and lack of transportation, patients are often unable to access vital primary care health services that focus on prevention and management of chronic illnesses, which leads to inadequate continuity and coordination of care. The result is inflated health care costs, poor outcomes and repeated readmissions. Telehealth is a critical tool in addressing these challenges, one that Mississippi has used with great success to increase access to health care and reduce cost.

The Telehealth Solution

In its infancy, telehealth simply connected hospital sites to rural clinical sites, linking health providers to each other and bringing much needed services to remote areas. Telehealth, however, can be used in many different settings beyond the traditional hub and spoke model. From corporations to correctional facilities, telehealth is providing access to care and reducing costs for both providers and patients.

- In the workplace—In 2011, 11 percent of employers with at least 5,000 employees said that they have a telehealth program in place, up from 5 percent in 2010, according to a study by Mercer. Participating employers are seeing productivity savings of up to three hours and an average cost savings of \$55 in medical costs per visit.
- In correctional facilities—From a baseline of 94,180 transports made annually from correctional facilities to emergency departments at a cost of \$158 million, telehealth technologies could avoid almost 40,000 transports with a cost savings of \$60.3 million a year. Further, from an annual baseline of 691,000 physician office visits at a cost of \$302 million, telehealth could avoid 543,000 inmate transports with a cost savings of \$210 million.⁶
- In schools—School-based telehealth provides access to healthcare for students to receive mental health, chronic disease management, and other care in schools. In an Onondaga County, New York, remote diabetes care program, students' A1C levels were lowered and urgent visits and hospitalizations during the course of the study were reduced.⁷ The availability of telehealth in schools has been shown to reduce students' absenteeism, enabling healthy children to become better students.⁸

¹ Association of American Medical Colleges, 2010.

² Rosenblatt, Roger A.; Chen, Frederick M.; Lishner, Denise M.; Doescher, Mark P. The Future of Family Medicine and Implications for Rural Primary Care Physician Supply. WWAMI Rural Health Research Center. Final Report, #125 (2010).

³ Chen, F., Fordyce, M., Andes, S., & Hart, L. (2010). Which Medical Schools Produce Rural Physicians? A 15-Year Update. *Academic Medicine*, 594–598. Retrieved April 17, 2015, from http://www.siumed.edu/academy/jc_articles/Distlehorst_0410.pdf

⁴ Centers for Disease Control and Prevention. 2009. Retried on March 27, 2014, from <http://www.cdc.gov/chronicdisease/resources/publications/aag/chronic.htm>

⁵ Center for Disease Control and Prevention. Chronic disease overview: Costs of chronic disease. 2012. Available at <http://www.cdc.gov/nccdphp/overview.htm>

⁶ Vo, Alexander. "The Telehealth Promise: Better Health Care and Cost Savings for the 21st Century." *AT&T Center for Telehealth Research and Policy*, no. May 2008 (2008): 10. [http://telehealth.utmb.edu/presentations/The Telehealth Promise-Better Health Care and Cost Savings for the 21st Century.pdf](http://telehealth.utmb.edu/presentations/The%20Telehealth%20Promise-Better%20Health%20Care%20and%20Cost%20Savings%20for%20the%2021st%20Century.pdf).

⁷ Daniels, Stephen R. School-centered telemedicine for type 1 diabetes mellitus. *The Journal of Pediatrics*. September 2009; 155(3): A2.

⁸ McConnochie KM, Wood NE, Herendeen NE, ten Hoopen CB, and Roghmann KJ. Telemedicine and e-Health. June 2010, 16(5): 533–542. doi:10.1089/tmj.2009.0138.

- In nursing homes—From a baseline of 2.7 million transports made annually from nursing home facilities to emergency departments at a cost of \$3.62 billion, telehealth could avoid 387,000 transports with a cost savings of \$327 million. In addition, of the 10.1 million physician office visits made annually from nursing facilities at a cost of \$1.29 billion, telehealth could avoid 6.87 million transports with a cost savings of \$479 million.^{9 10}
- Into the home—Remote patient monitoring is a form of telehealth that is being used to address chronic disease. A national home telehealth program started by the Veterans Administration resulted in a 25 percent reduction in numbers of bed days of care, a 19 percent reduction in numbers of hospital readmissions and mean satisfaction score rating of 86 percent after enrollment into the program. This is just one example of how remote monitoring can lead to a dramatic reduction in costs and an equally dramatic increase in quality.¹¹

Telehealth in Mississippi

Nowhere in this great nation are health care challenges greater than in Mississippi. Not only do we lead the Nation in prevalence of multiple chronic diseases, we also have the lowest number of doctors per capita of any state in the Nation. Add to that persistent poverty and low educational achievement spread throughout a rural, agrarian state, and you can begin to see why telehealth is our best option for changing health outcomes for Mississippi.

Mississippi has a population of roughly 2.9 million people, with more than 1.6 million people living in a rural community and 23 percent living at or below the Federal poverty level.^{12 13} Mississippi ranks the worst in the country for overall health, obesity, heart disease, diabetes, infant mortality and preventable hospitalizations.¹⁴ We rank fifty-first in the Nation for the deaths before the age of 75 years resulting from conditions that could have been prevented with timely quality healthcare.¹⁵

Seventy-two of Mississippi's ninety-nine hospitals are in rural areas and suffer from the lack of resources and corresponding access to care common in rural areas. The state's expenditure on healthcare exceeds the national average with 32 percent of the budget being spent on health care. Almost half of payments to health care providers in Mississippi were from Medicare and Medicaid.

UMMC Center for Telehealth

The University of Mississippi Medical Center in Jackson is home to Mississippi's only academic medical center, only Children's hospital, only transplant program and only Level One trauma center. We have the state's only allopathic medical school, dental school and pharmacy school, and are the major player in clinical and translational research. While these programs and services are more readily accessed by those living in the Jackson area, we know that, in order to make progress toward improved health statewide, we have to bring our health care experts to the patients in the communities where they live.

The UMMC Center for Telehealth got its start over ten years ago with the TelEmergency program, connecting 15 emergency departments in rural hospitals with our Level One trauma center at UMMC. Through this system, UMMC's emergency medical team consults with rural providers using a real-time, video and audio connection, interacts with the patient and gives guidance to the provider regarding treatment options. Our TelEmergency program has resulted in a 25 percent reduction in rural emergency room staffing costs, a 20 percent reduction in unnecessary transfers and has produced patient outcomes in rural hospitals that are on par with that of our academic medical center.

Twelve years later, using a similar audio/video platform, the UMMC Center for Telehealth is providing over 35 medical specialties in 166 sites around the state, including community hospitals and clinics, mental health facilities, FQHCs, schools and colleges, mobile health vans, corporations, prisons and patients' homes. UMMC

⁹ Center for Information Technology Leadership Partners HealthCare System, Inc., 2007.

¹⁰ State Health Care Spending Project, 2013. Pew Charitable Trusts and John D. and Catherine T. MacArthur Foundation. www.pewstates.org

¹¹ Care Coordination/Home Telehealth: The Systematic Implementation of Health Informatics, Home Telehealth, and Disease Management to Support the Care of Veteran Patients with Chronic Conditions. Adam Darks, Patricia Ryan, Rita Kobb, Linda Foster, Ellen Edmonson, Bonnie Wakefield, Anne E. Lancaster. *Telemedicine and e-Health*. December 2008, 14(10): 1118–1126.

¹² US Census, 2010.

¹³ Rural Assistance Center, 2013.

¹⁴ Kaiser State Health Facts, 2009.

¹⁵ Commonwealth Fund State Scorecard, 2014.

Center for Telehealth connects to sites in 52 of the state's 82 counties and serves an average of 8,000 patients per month.

As we worked to expand telemedicine services, we ran into several laws and regulations that complicated its delivery. The first obstacle we encountered was the financial disincentive to practice telemedicine. Prior to 2013, insurance companies in Mississippi did not reimburse for telehealth consults in a way that made it an attractive alternative to a clinic visit. We argued that Mississippi would ultimately save money by reimbursing for telehealth and undertook a series of pilots to prove it. We were successful.

In 2013, Governor Phil Bryant signed legislation mandating both public and private health insurance companies reimburse for Telehealth services at the same rates as in-person services. The following year, the Governor signed legislation mandating equal reimbursement coverage for store-and-forward and remote patient monitoring services. Thanks to the Governor's leadership in clearing the barriers to reimbursement parity, Mississippi is now recognized as a leader in telehealth. Last year, Mississippi was awarded an "A" rating by the American Telemedicine Association, one of only 7 states in the Nation to receive that distinction. These changes at the state level were the catalyst for the rapid growth of our state's telehealth system, and I strongly believe that adoption of reimbursement parity at the Federal level would have an even greater impact.

Another obstacle we encountered was connectivity. Due to the largely rural nature of our state, we could not take for granted that support for telehealth services would be available at the level we required, or frankly, at all. In order to achieve the connectivity required, we partnered with many of the telecommunications companies in the state—cable companies, wireless and broadband providers—to maximize existing resources and leverage the strength of incumbent utilities in the areas where they serve.

Thanks to support from the Universal Service Fund and our telecommunications partners across the state, we are able to bring much needed, life changing health care to rural Mississippi. Nothing tells this story better than the success of our Diabetes Telehealth Network pilot.

In 2012, diabetic medical expenses in Mississippi totaled \$2.74 billion, according to the American Diabetes Association. Because Mississippi leads the Nation in chronic disease, we wanted to begin disease management where it is the worst. Ruleville, Mississippi is ground zero for diabetes. Sunflower County, where Ruleville is located, has one of the highest percentage of diabetics per capita of any county in the country. This means repeated visits to the ER, amputations and early death for too many members of this community.

Last fall, UMMC Center for Telehealth partnered with the Governor, GE Care Innovation, CSpire and the North Sunflower Medical Center to develop a research pilot with the ambitious goal of managing 200 uncontrolled diabetics through aggressive in home monitoring and intervention. The centerpiece of the partnership is a population based health care model that leverages telehealth technology delivered over state-of-the-art fixed and mobile broadband connections. Its goal is to improve the health of participants while reducing the total cost of care. Once a patient meets criteria to be admitted to the pilot, he or she is sent home with a tablet that monitors glucose readings daily, provides educational health information and transmits vital health data to specialists monitoring them in real time. For the first time, these patients have access to a team of professionals dedicated to their care—ophthalmologists, endocrinologists, pharmacists, nutritionists, diabetic educators and nurses. Many of our patients have never used a computer and some can't read beyond a sixth grade level. Despite these challenges, our patients are thriving.

Of the 85 patients currently enrolled in the pilot, all report that their disease is under control for the first time and that they have lost weight and are feeling better. While our goal was for 75 percent of patients to reduce their hemoglobin A1C levels by 1 percent in the first year, study results show that after only six months, the average reduction in A1C levels among participants is almost 2 percent. In addition, with the exception of one patient who needed to be hospitalized at the time of enrollment, none of our participants have gone to the ER or been admitted to the hospital for their diabetes.

It's important to recognize that the connectivity between UMMC and these patients would not exist but for the Universal Service Fund support that this region enjoys. This is true for many parts of the state where we serve, especially in areas like the Mississippi Delta where health challenges are most extreme. As we look to roll out this successful program beyond Ruleville and beyond diabetes, our foremost concern is whether we will have the ability to connect with these patients in their communities today and into the future.

Given the impressive and immediate results to date of our pilot in Ruleville, we are not waiting for it to officially wrap up before we begin implementing this model in other areas. We already have plans in place to allow doctors and patients in Jackson, Grenada and Lexington to take advantage of this chronic disease management tool.

The Future of Telehealth

As we look to the future, we must consider opportunities and challenges to the growth of telehealth. Right now, the greatest challenges lie in winning the Federal level reimbursement parity that will make telehealth attractive in the marketplace and securing the reliable, high quality connectivity that telehealth requires. Given the jurisdiction of this committee, I urge you to consider these three issues:

1. *The need for continued support of USF.* Today, in rural Mississippi, there is connectivity thanks to the success of the Universal Service Fund's High-Cost program. A reduction in funding will not only impact current operations, but will significantly impede our efforts to grow remote patient monitoring and hinder connections between patients and medical professionals.
2. *The need for a broader application of the FCC E-rate program.* The sooner that children's health issues are addressed, the better, particularly when it comes to prevention of chronic disease. As such, we would like to see telehealth services into schools be allowed to take advantage of the E-rate program. Many children, particularly in rural areas, may not receive care in other settings, making school based evaluation and treatment even more important. Data shows that healthy children perform better in school, have less absenteeism and are more likely to reach higher levels of educational attainment.
3. *The need for a more inclusive Health Care Connect Fund.* Under today's framework, hospitals like ours are not able to receive the full benefit available to other participants in a network due to our size. However, without a large partner like an academic medical center, many of these smaller hospitals and clinics wouldn't be able to manage the paperwork and administrative burden of the program. We would urge a review of the Health Care Connect Fund, with an eye toward allowing large hospitals to receive a more robust reward for serving as a consortium lead for a network of smaller rural hospitals and clinics.

The mission of the UMMC Center for Telehealth is to increase access to health care, improve outcomes and reduce costs. Communities that have limited medical services can now take advantage of health care services delivered to their community virtually. Providing our state with improved emergency medical services and specialty health care through telemedicine technology, UMMC Center for Telehealth is eliminating barriers to quality health care for Mississippians.

I thank the Subcommittee for the opportunity to testify today and look forward to answering any questions you may have.

Senator WICKER. Thank you very much, Dr. Henderson. And thank you for staying within the 5 minutes.

Dr. Gibbons, we're pleased to hear your testimony.

**STATEMENT OF CHRIS GIBBONS, MD, MPH, DISTINGUISHED
SCHOLAR-IN-RESIDENCE, CONNECT2HEALTH^{FCC} TASK FORCE,
FEDERAL COMMUNICATIONS COMMISSION; ASSOCIATE
DIRECTOR, JOHNS HOPKINS URBAN HEALTH INSTITUTE;
ASSISTANT PROFESSOR OF MEDICINE, PUBLIC HEALTH
AND HEALTH INFORMATICS, JOHNS HOPKINS UNIVERSITY**

Dr. GIBBONS. Thank you and good morning, Subcommittee Chairman Wicker, Ranking Member Schatz, and members of the Subcommittee.

My name is Chris Gibbons. I am a Physician and Assistant Professor at Johns Hopkins University, and a Scholar-In-Residence at the Federal Communications Commission, where I work with its Connect2Health Task Force. I greatly appreciate the opportunity to appear before you today to discuss telehealth advancements and connectivity issues from a physician's perspective working at the FCC. We greatly appreciate your leadership in this area.

For almost a decade-and-a-half, as the Associate Director of the Johns Hopkins Urban Health Institute, it has been my privilege to work on one of the most challenging problems in health care, improving population health. My work has taken me from the so-called ivory towers of Johns Hopkins to the homes, alleys, and communities of inner-city East Baltimore.

Through these experiences, I have realized that although we have amazing therapies that are treating diseases and curing illnesses, too little was being done to prevent the problems from occurring in the first place. Also, there were simply too many people who needed medical care and not enough providers to meet their needs.

I'm often asked, "Why would a Hopkins doctor come to the FCC?" My answer is simple. I can't see how we're going to improve our Nation's health without aggressively pursuing the potential that telehealth and other broadband-enabled health technologies have to offer.

Let me explain what I mean. It's well-documented that demand for physicians is growing faster than the supply. A study released just last month indicated that over the next 10 years, if nothing is done, the shortfall will be from 46,000 to 90,000 physicians, and as high as 800,000 nurses. These shortfalls are expected to affect everyone, but they will be particularly acute in rural and underserved areas.

So with approximately 300,000 primary care doctors, 2.6 million nurses, and 5,800 hospitals and health clinics available, it is a challenge to conceive how we will provide face-to-face care for 320 million-plus Americans when they need it without broadband-enabled technologies, tools and services such as telehealth. The broadband imperative is clear, and from my perspective there is no better place to be than the FCC.

So how is the FCC pursuing this broadband imperative? Last year, Chairman Wheeler created the Connect2Health Task Force to move the needle on broadband and advance health care technologies, and to serve as an umbrella for the FCC's health-related activities. Although broadband by itself is not a panacea, telehealth and other broadband-enabled health solutions are playing a significant role in helping us achieve our national health objectives.

The Task Force is charged with making concrete recommendations about regulatory barriers and incentives, updating the health care section of the National Broadband Plan as needed; and raising awareness about the value proposition of broadband and health, and about the potential for addressing health care disparities in rural and underserved areas.

To meet these goals, we are getting outside of Washington, D.C. to gather information and data and to explore successful experiences with broadband-enabled health solutions. We first went to the University of Virginia, their Center for Telehealth, in November. They have over 20 years of experience and have built a 126-site telehealth network across the State of Virginia, many of which are in rural areas.

We also visited Jackson and Ruleville, Mississippi. We saw firsthand the groundbreaking and impressive work of Dr. Kristi Henderson and the University of Mississippi Medical Center. Mis-

Mississippi has shown that novel public-private partnerships with health care providers, telecommunications carriers, IT specialists, software developers and government are critical in addressing the growing diabetes problems that affect 370,000 adults in Mississippi and over 29 million people nationwide. In the coming months, the Task Force will visit other states and communities to learn from their experiences and to shine a spotlight on their work.

Finally, in my view, the largest threat to the widespread advancement of telehealth lies in thinking too small. If we allow ourselves to believe that the value of telehealth is only to connect patients, doctors and hospitals, we will reap tangible benefits that will be substantial, but we may fail to achieve the transformational possibilities that broadband can offer our Nation.

I commend the Committee, and Chairman Wicker in particular, for tackling these critical issues and for recognizing that the future depends on what we do today. I look forward to answering any questions that you may have.

[The prepared statement of Dr. Gibbons follows:]

PREPARED STATEMENT OF CHRIS GIBBONS, MD, MPH, DISTINGUISHED SCHOLAR-IN-RESIDENCE, CONNECT2HEALTH^{FCC} TASK FORCE, FEDERAL COMMUNICATIONS COMMISSION; ASSOCIATE DIRECTOR, JOHNS HOPKINS URBAN HEALTH INSTITUTE; ASSISTANT PROFESSOR OF MEDICINE, PUBLIC HEALTH AND HEALTH INFORMATICS, JOHNS HOPKINS UNIVERSITY

Introduction

Subcommittee Chairman Wicker, Ranking Member Schatz, and Members of the Subcommittee, I greatly appreciate the opportunity to appear before you on the critical topic of “Advancing Telehealth through Connectivity.”

For almost a decade-and-a-half, I have served as an Associate Director of the Johns Hopkins Urban Health Institute, and it has been my privilege to work on one of the most challenging problems in healthcare: improving population health. My work has taken me from the so-called “ivory tower” of Johns Hopkins to the homes, alleys, and communities of inner-city East Baltimore.

Through these experiences and my years of training as a surgeon and preventive medicine doctor, I realized that too little was being done to reduce the endless flow of patients coming into emergency rooms and hospitals for care. My colleagues and I could treat many physical and psychological ailments, but we often felt powerless to provide the support patients and families needed to manage their chronic diseases or truly live “well.” While we tried to provide the best care to every patient, there were—and remain—too many people who need treatment and not enough providers to meet their needs.

Consumers rely on many resources for their health—doctors certainly, but also nutritionists, pharmacies, caregivers, social services, and many others. Take for example older Americans. We know that seniors who are socially isolated are twice as likely to die prematurely. While the exact causes of these realities are not fully understood, we know that older patients are prone to depression, which is in turn associated with lack of medication adherence, poor diet, and other risk factors. To put it simply, when providers, consumers, and caregivers remain “unconnected,” it is a prescription for frustration, burnout, high costs, and suboptimal outcomes.

I am sometimes asked, “Why would a Hopkins doctor come to the FCC?” My answer is simple. It’s because I can’t see how we are going to improve our Nation’s health—especially in rural and underserved areas which have higher rates of chronic illness, poorer overall health, and persistent provider shortages—without aggressively pursuing the potential that telehealth and other broadband-enabled health technologies have to offer.

Take for example, the worsening health care provider shortage and distribution problem we face. Demand for physicians continues to grow faster than supply. According to a March 2015 report by the Association of American Medical Colleges, the physician shortage will grow over the next 10 years leading to a projected shortfall of between 46,100 and 90,400 physicians by 2025. Similarly, projections suggest a shortage of 400,000 to 808,000 registered nurses by 2020. While the provider shortfall is expected to affect everyone, it will be particularly harmful to vulnerable

and underserved consumers and patients who live in rural areas. And, I should emphasize that nearly 3 out of 10 Americans live in a rural area or a small city. Thus, with approximately 300,000 primary care providers, 2.6 million nurses and 5800 hospitals and clinics, it is hard to imagine how we can provide face-to-face care for the more than 320 million Americans when they need it without a greater reliance on broadband-enabled technologies, tools, and services, such as telehealth.

I therefore believe the broadband imperative is clear, and many broadband health benefits are already on the horizon. For my work, there is no better place to be than the FCC, given its charge under the Telecommunications Act of 1996 to “encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to *all* Americans.”

As detailed below, three key points are driving and shaping the work of the Connect2Health^{FCC} Task Force.

I. Broadband is Transformative in Health

There is one overarching reality that underscores the importance of this hearing, the Committee’s work, and the FCC’s role: future advances in health care increasingly are premised on the widespread availability and accessibility of high-speed connectivity.

Although broadband, by itself, is not a panacea, telehealth and other broadband-enabled health solutions are playing (and likely will continue to play) a significant role in helping to achieve the national objective of a healthier America. Recent estimates suggest that broadband-enabled health information technology (health IT) can improve care and lower costs by hundreds of billions of dollars in the coming decades, yet the United States remains behind some advanced countries in the adoption of such technology.

It almost goes without saying, that technology is transforming how we get and stay well. At the SXSW conference in mid-March, a health technology innovator announced a working medical tricorder, previously a concept relegated to Star Trek movies and other science fiction. The prototype was designed to diagnose 15 different medical conditions and monitor vital signs for 72 hours. It reportedly also conducts lab tests for conditions like diabetes, pneumonia, tuberculosis, and more. And, it includes a lipstick-sized attachment that serves as an otoscope (to examine ears) or spirometer (to measure breathing). On an almost daily basis, other broadband-enabled technologies are now being used and giving clinicians and consumers alike more (and often, better) tools for diagnosing illness and monitoring health.

These technologies are also spawning novel partnerships and unusual bedfellows. Consider the new collaboration between Qualcomm Incorporated and Walgreens that will enable consumers to connect their digital health devices (like a wrist-worn blood pressure cuff) and automatically capture all their health data in one place, with the potential to share the information with their care team.

But, as recognized by the 2010 National Broadband Plan and the 2015 Federal National Health IT Strategic Plan, achieving the full promise of telehealth and other advancements rests, in large part, on adequate broadband health infrastructure. To put it another way, we must focus on the underpinnings of tomorrow’s health care system today.

II. Telehealth Can Level the Playing Field for Rural and Underserved Areas

The FCC is actively engaged in proactive efforts to ensure that telehealth and other broadband-enabled health technologies are accessible in rural and remote areas, on tribal lands, and in other underserved sectors of the country.

Americans living in rural areas face particularly acute shortages of primary care physicians and specialists, and they often must travel long distances to obtain medical care. The increasing cost of providing health care and the demands of an aging population also put pressures on rural health care providers, many of which struggle to keep their doors open.

There is enormous potential for telehealth to help address these problems. In a broadband-enabled health future, access to physicians, specialists and high-quality health care will no longer be driven by geography. Three-hour drives to see a maternal-fetal medicine specialist, cardiologist, or diabetologist could be a thing of the past. Through telehealth, broadband connectivity can be a force-multiplier, helping to address real concerns about provider shortages. Telehealth can also be instrumental in meeting the health needs of our military veterans in rural areas where access to VA facilities is difficult (or distant).

I am going to focus primarily on how the new Connect2Health^{FCC} Task Force is pursuing this broadband imperative.

A. *Connect2Health^{FCC} Task Force Mission and Goals*

In March 2014, Chairman Wheeler created the Connect2Health^{FCC} Task Force, a senior-level, multi-disciplinary effort to move the needle on broadband and advanced health care technologies. This is a deliberate attempt to get ahead of the curve and to think across various agency silos, with the Task Force serving as an umbrella for the FCC's health-related activities.

Recognizing that technology-based innovations in clinical practice and care delivery are poised to fundamentally change the face of health care, the Task Force is charged with: making concrete recommendations about regulatory barriers and incentives in this area, updating the Health Care section of the National Broadband Plan, and raising awareness about the value proposition of broadband in health and the potential for addressing health care disparities in rural and underserved areas. Among other things, we will also work to highlight effective telehealth projects, broadband-enabled health technologies, and mHealth applications across the country to identify lessons learned, best practices, and regulatory challenges. Additionally, we hope to stimulate additional public-private partnerships on telehealth to move us forward.

The objectives of the Task Force, working in collaboration with internal and external stakeholders, include the following:

- Promoting effective policy and regulatory solutions that encourage broadband adoption and promote health IT;
- Identifying regulatory barriers (and incentives) to the deployment of RF-enabled advanced health care technologies and devices;
- Strengthening the Nation's telehealth infrastructure through its Rural Health Care Program and other initiatives;
- Raising consumer awareness about the value proposition of broadband in the health care sector and its potential for addressing health care disparities;
- Encouraging the development of broadband-enabled health technologies that are designed to be fully accessible to people with disabilities;
- Highlighting effective telehealth projects, broadband-enabled health technologies, and mhealth applications across the country and abroad to identify lessons learned, best practices, and regulatory challenges; and
- Engaging a diverse array of traditional and non-traditional stakeholders to identify emerging issues and opportunities in the broadband health space.

B. *Connect2Health^{FCC} Beyond the Beltway Series*

To meet these goals, we are getting outside Washington, D.C., to where the action is.

Virginia. As part of its "Beyond the Beltway Series" to gather information and data and explore and leverage on-the-ground experiences with broadband-enabled health solutions, particularly in rural and underserved areas, the Task Force held its inaugural broadband health roundtable at the University of Virginia (UVA) Center for Telehealth last November. The roundtable drew on expertise from the Secretaries of Health and Technology for the Commonwealth of Virginia as well as representatives from the senior executive ranks of the University of Virginia. The Task Force heard a compelling story about the UVA Center of Telehealth and its two decades of innovation and leadership. In part relying on funding from the FCC's Rural Health Care Program, UVA's current telehealth network comprises 126 sites across Virginia. Dr. Karen Rheuban, a national telehealth expert, and her team explained in detail how the Center has expanded in recent years and conducted approximately 44,551 telemedicine-based services across 45 subspecialties, saving Virginians 15 million patient travel miles. Globally, the Center also supports healthcare delivery in Tanzania, Uganda, Rwanda, and Guatemala.

The Task Force was fascinated to learn how UVA's telehealth program in high-risk obstetrics achieved a 25 percent reduction in pre-term deliveries. Interestingly, this teleobstetrics program currently provides consultation, counseling, and education services, giving high-risk pregnant mothers in rural Virginia access to maternal fetal medicine specialists at UVA. UVA's success in this area amply demonstrates the substantial impact of the so-called, "non-clinical, social determinants of health." Indeed, given estimates from the Institute of Medicine that the cost of caring for these fragile infants in neonatal intensive care units exceeds \$50,000 just in the first few weeks of life, these results are remarkable.

In addition, in the area of telestroke, UVA is also on the cutting edge. We were privileged to meet one the Center's telestroke patients from Culpepper, Virginia, whose life and neurological function—like the ability to speak, move, hear and see—was saved by UVA's cutting-edge telestroke program. The UVA telestroke program

has increased the use of powerful clot-busting, “brain-saving” medication in Virginia to 17 percent, 14 percentage points above the national average. We are watching with interest ongoing mobile broadband telestroke trials, the next generation of life-saving telehealth innovations that UVA is pursuing.

Mississippi. In December, I and other members of the Connect2Health^{FCC} Task Force, joined by Commissioner Mignon Clyburn, were privileged to visit Jackson and Ruleville, Mississippi. The meetings, conferences, site visits, and FCC-hosted health technology forum at the Jackson Medical Mall reminded us of good old American ingenuity and creativity, which were evident throughout our two-day visit.

We saw first-hand the groundbreaking work of the University of Mississippi Medical Center (UMMC) and its national telehealth expert Dr. Kristi Henderson, as well as the work of many other clinicians, policymakers, and technology innovators, who are all laser-focused on improving health in Mississippi through broadband. Mississippi has shown that novel public-private partnerships—with healthcare providers, telecommunications carriers, IT specialists, software developers, and government—will be instrumental in transforming the trajectory of broadband-enabled health and care in rural and underserved areas of our country. UMMC is driving telehealth beyond the boundaries of its health system, with more than 30 specialties, 550 telehealth partners, and 165 non-affiliated providers. Reportedly, its corporate telehealth program not only improves employee health and morale, but also reduces absenteeism (and increases overall productivity) associated with time taken to make an appointment and see a doctor.

During day two of our visit, Governor Phil Bryant and Commissioner Clyburn, along with a few members of the Connect2Health^{FCC} Task Force, visited North Sunflower Medical Center in Ruleville, Mississippi, 120 miles north of Jackson, Mississippi. This health clinic in the heart of the Mississippi Delta is a key rural partner in UMMC’s Diabetes Telehealth Network, designed to address the growing diabetes crisis that affects more than 370,000 adults in the state of Mississippi and 29.1 million people nationwide. The centerpiece of that partnership is a population health care approach that leverages telehealth technology delivered over state-of-the-art broadband connections, with the goal of improving the health of uncontrolled diabetics while reducing the overall cost of care.

It was personally inspiring for me to meet Ms. Collins and Ms. Ford, two Mississippians who are participating in the Diabetes Telehealth Network. Ms. Collins and Ms. Ford were enthusiastic and engaged in improving their health, reporting no diabetic crises or hospitalizations since beginning the program. They praised their tablets for giving them control over their disease, explaining how they get to share their physical, emotional, and psychological state through remote daily health sessions with their care team 100 miles away. In addition, the tablets automatically capture their health data, such as weight, blood pressure, and glucose levels, and transmit that information to clinicians daily. These women are empowered by broadband health technology, and are no longer captive to the more than 3,000:1 access to care ratio in their community.

The benefits of telehealth in Mississippi can be felt far beyond traditional healthcare, including in the areas of wellness, workforce development, research, education, and business development. The state’s inclusive vision of broadband-enabled health care in Mississippi is to provide an access point in every community, whether in a hospital, clinic, corporate setting, school or college. Mississippi is focused on building out broadband infrastructure based on geography, not population, and striving to identify a business case that makes this approach sustainable for rural areas. In many ways, the Mississippi experience is the rural America experience.

Virginia and Mississippi are real success stories that the FCC must continue to study, for what they can teach us and other rural areas.

C. Joint FCC–FDA Workshop on Wireless Medical Device Coexistence

Another aspect of the FCC’s health-related work involves its statutory spectrum management role. For example, the Task Force is coordinating with other Federal agencies, academic and healthcare institutions, and industry to explore potential health risks and operational challenges associated with the increasing numbers of wireless medical devices, particularly in the unlicensed spectrum. Just three weeks ago, the Connect2Health^{FCC} Task Force and the FCC’s Office of Engineering and Technology co-hosted a joint workshop with the Food and Drug Administration on the safe and seamless coexistence of wireless medical technologies. The workshop pulled together expertise from 30 nationally-recognized experts based in 15 different states to do some focused thinking on the issues of medical technology innovation, wireless coexistence, and patient safety. The bottom line is that wireless medical devices must work as intended, and reliably and securely transmitting the data they

collect. They also must play well in the sandbox with each other, and the health, technology and policy sectors must get ahead on this before clinical outcomes are negatively affected. To put this in stark terms, one's Fitbit, smart car, or smart appliance should not interfere with one's insulin pump or pacemaker.

D. Future Task Force Activities

In the coming months, we plan to visit a cross-section of other rural states and communities to learn from their experiences and to shine a spotlight on what's working, and where the FCC, in collaboration with other Federal and state stakeholders, can do more to help break down regulatory barriers. Thus far, we have had a wide variety of stakeholder meetings with a broad-cross section of traditional and non-traditional stakeholders: from academia, industry, advocacy groups, health care facilities, clinicians, and other government partners. The Task Force looks forward to working with, and hearing further from, these and other groups. As to data gathering, over the next several months, the Task Force plans to seek more formal public input and data on a variety of issues related to telehealth and other broadband-enabled health solutions. The Task Force also plans to release a Phase 1 version of its broadband health connectivity map using publicly available data from Virginia, in order to enlist public and community engagement and to refine the map's methodology.

III. Tangible Progress on Rural Telehealth is Within Our Reach

As demonstrated by the Task Force's Beyond the Beltway visits to Mississippi and Virginia, many telehealth advances are already underway. There is tremendous interest within and outside government in the power of telehealth to address seemingly intractable problems. Industry is beginning to innovate and collaborate, recognizing rural consumers as an attractive broadband health market. Technologists, clinicians, and rural communities are coming together. State and local governments are stepping up and often taking the lead. The stars are beginning to align, but some challenges remain.

First, we have to get broadband done right and done right now in rural and underserved areas because there are real risks of exacerbating health and economic disparities experienced by consumers living in these communities, if we fail in that endeavor. For our most rural and remote areas, we may need to focus on particularly unique solutions, including neighborhood access points for telehealth or self-service kiosks.

Second, there is a critical need for outreach and education, given the millions of Americans who remain digitally disconnected or who have limited computer and IT familiarity. I believe that rural consumers can drive the demand curve for telehealth and other broadband-enabled services if they—like Ms. Collins and Ms. Ford in Ruleville, Mississippi—better understand the value proposition of broadband in health. The Connect2Health^{FCC} Task Force's efforts in this area include a series of consumer tip sheets, blogposts, speeches, and tweets; an infographic that unpacks the broadband health imperative in an easily digestible way; and its Beyond the Beltway visits.

Third, we need better tools to measure where we are now, so that we can gauge progress over time and identify the rural telehealth solutions that are providing the best return on investment. In addition to the Phase 1 maps mentioned above, the Task Force is considering the feasibility of a broadband health connectivity index to permit comparisons over time and across rural communities.

Fourth, every rural community is different and every state has unique needs and challenges. A one-size-fits-all approach to enhancing broadband deployment and uptake, will not work. We need a suite of telehealth solutions that can be tailored as appropriate.

Finally, the FCC cannot address all these challenges alone. Telehealth progress requires broad stakeholder input and collaboration. In particular, the Task Force hopes to work with stakeholders to catalyze more public-private partnerships like the one in Mississippi, with the goal of not only understanding and characterizing the problems, but also catalyzing innovations to enable rural communities to reach critical health goals.

IV. Conclusion

In my view, the greatest challenge and the largest threat to the widespread advancement of rural telehealth lies in thinking too small. If we allow ourselves to believe that the value of telehealth is only to connect patients, doctors, and hospitals—a critical need to be sure, but not the end in itself—we will certainly reap tangible benefits, but we could miss the transformational possibilities that broadband health connectivity can offer our Nation. I commend the Committee, and Chairman Wicker in particular, for tackling these critical issues and for recognizing

that the future depends on what we do today. The Connect2Health^{FCC} Task Force is committed to doing its part.

Senator WICKER. Thank you very much for your testimony. I must say that both of our witnesses so far have been right on the money with the 5 minutes. It's amazing.

Mr. Linkous—have I said that correctly? Is it Linkous?

Mr. LINKOUS. Yes. Yes, you have, sir. That's correct, and I will try to meet the expectations that have been given from the previous two people who were testifying.

Senator WICKER. We're glad to have you.

STATEMENT OF JONATHAN D. LINKOUS, CHIEF EXECUTIVE OFFICER, AMERICAN TELEMEDICINE ASSOCIATION

Mr. LINKOUS. Thank you, Mr. Chairman and Ranking Member Schatz. I appreciate the opportunity to be here.

I am the CEO of the American Telemedicine Association. Our members include about 9,000 physicians and health care providers and administrators from around this country, actually around the world, and about 300 health systems and technology and telecommunications companies as well.

We were formed in 1993, so over 22 years I've witnessed a lot of changes in telemedicine. First of all, having a hearing about telemedicine or telehealth is an amazing change in and of itself. So I thank you for the opportunity. And I also must tell you, I'm amazed when I hear your opening comments from both of you gentlemen. The things that I hear, it's a breath of fresh air. After 22 years, to hear this type of interest, I really applaud it and I thank you for that.

One of the surprising facts about telemedicine is how much it's currently in use. For example, this year about 125,000 patients who have had a stroke will be seen by a neurologist in an emergency room using telemedicine within that golden hour that makes a tremendous difference in their lives. And yet there are so many other thousands of stroke patients who have not received that and will not receive that because they don't get the access to telemedicine.

Tele-ICU is used in about 11 percent of all intensive care beds around the country, where an ICU patient will be seen at some point by an intensivist or someone who is a specialist from a distance. That equals about 500,000 critically ill patients this year.

About 1 million patients with either an implantable pacemaker or a cardiac arrhythmia will be monitored by a cardiologist or a remote monitoring center all this year, and yet millions and millions of patients who have a chronic disease cannot get monitored.

So on the one hand, it's a great thing that's moving forward. On the other hand, we still have many problems to solve.

Funding is the same picture. Private payers in about 25 states now mandate that private payers reimburse for telemedicine. Employers are increasingly embracing the field. About 45 states and their Medicaid programs reimburse for telemedicine. The one hold-out, the one laggard, the one late adopter of technology is Medicare, and you very well summarized it earlier today in your comments and the problems. We have fully to benefit from this potential because of such problems.

The wonder of advanced technology to deliver telecare is useless if you don't have access to broadband. Access to broadband is no use if you don't have remote health services that are made available by providers. And providers aren't going to provide those services if Medicare and other payers don't pay for it, and if state and Federal regulators don't pave the way in easing the regulatory burden.

Thus, the heart of the problem is regulations and government programs. We don't need more programs. We don't need more regulations. The Federal Government just needs to fix the programs and the regulations that we have today.

What's frustrating is that telemedicine is not further in use, and it's not rocket science. Actually, I've been working in telemedicine and related areas for longer than the growth of the American Telemedicine Association. For 10 years I worked in the Appalachian Commission pushing the same type of technology many years ago, from the Southern Tier of New York down to Tupelo, Mississippi. And today, there has certainly been progress in that, but it's amazing how many problems we still see that I saw back 20, 30 years ago.

And it's not rocket science. That's the really amazing thing. Similar problems have been facing other industries who have long ago resolved it. For example, in banking, without changes in the financial laws and the regulations, consumers would still have to wait in line to withdraw their money from a bank by taking a check to a teller, and who would do that today? We don't need to. Instead, we have ATM machines that are available around the world and Internet access to our financial services. Consumers can manage their money and investments over the Internet regardless of where they're located.

The fact is that the 21st century solution is often hampered by 20th century public policies, and that's what we really, really want to have changed. Reform and progress is desperately needed in many areas, and in the written comments I have we offer several comments that are very specific actions that this committee can take, both with the Federal Communications Commission as well as some of the other programs.

The one thing I will have to mention before I conclude is Chairman Wicker's Telehealth Enhancement Act, which includes a range of incremental, budget-sensitive improvements for Medicare and Medicaid. We think the CBO would find savings from several of these provisions, and some at no or low budget cost. So I would end my comments with our support and endorsement of this legislation, and we certainly make our offer to work with members of this committee and staff in any way you deem potentially available. Thank you very much, sir.

[The prepared statement of Mr. Linkous follows:]

PREPARED STATEMENT OF JONATHAN D. LINKOUS, CHIEF EXECUTIVE OFFICER,
AMERICAN TELEMEDICINE ASSOCIATION

Mr. Chairman:

Thank you for the opportunity to speak to this Committee about the importance of advancing healthcare through connectivity. I am the Chief Executive Officer of American Telemedicine Association (ATA). ATA promotes telemedicine, sometimes

called telehealth, telecare, mobile health or connected care and resolves barriers to its deployment. Founded in 1993, members of ATA include almost 9,000 physicians, administrators and other health providers as well as over 300 health systems and vendors of telecommunications and advanced technology.

Telemedicine involves the use of telecommunications technology to provide healthcare. It is a broad term that encompasses a variety of health and medical services to patients located both inside and outside of medical facilities. Although forms of telemedicine have been in existence for forty years, its use has recently skyrocketed. For example, this year over 125,000 patients who suffer stroke symptoms will be diagnosed by a neurologist in an emergency room using a tele-stroke network. Tele-ICU is being used for 11 percent of the Nation's intensive care beds to help oversee almost 500,000 critically ill patients this year. About one-million patients with an implantable pacemaker or suffering from an arrhythmia will be remotely monitored. New technology and innovative applications to deliver healthcare using mobile devices are announced every day, promising even greater access to patients, regardless of their location.

Driving this expansion are a number of factors including:

- Expansion of coverage and payment by private payers, employers and Medicaid programs in the states
- The prevalence of outcomes research showing improved quality, reduced cost and expanded access resulting from the use of telemedicine
- Increased consumer demand for more convenient services
- Evolution of the healthcare industry including:
 - movement of payment mechanisms from fee-for-service to value-based payments which remove previous barriers in justifying the use of telemedicine and
 - consolidation of individual hospitals and clinics into regional and national health systems spawning the use of telecommunications networks to increase efficiencies and expand referral patterns

The immediate benefit of telemedicine for the patient includes access to care where it is not otherwise available.

Unfortunately, despite its growth, we have yet to see its full benefits and its promise to transform healthcare delivery. Accessing healthcare continues to be a pervasive problem across America. Unmet demands for health services, coupled with lagging availability of advanced technologies continue to be a problem for a number of interrelated reasons. The wonder of advanced technology in the delivery of healthcare is useless if one does not have access to broadband technologies. Access to broadband is of no use without remote health services made available by providers. Providers can't provide such services if it is not allowed by payers and regulators.

Solutions to this problem do not require rocket science. In fact similar problems facing other industries have long ago been resolved. Without changes in financial laws and regulations consumers would still have to wait in line to withdraw their money from a bank by writing a check and presenting it to a teller. Instead ATM machines are available across the world and consumers can manage their money and investments over the Internet regardless of when or where they are located. The fact is telemedicine is a 21st century solution hampered by 20th century public policies.

Reform and progress is desperately needed in several areas. I would like to focus on some very specific actions you can take as a Subcommittee as well as in your broader roles as members of other Committees.

Most germane to this Subcommittee are opportunities to improve the Federal Communications Commission (FCC) programs for health provider broadband connection rates and infrastructure.

Infrastructure to physically enable telehealth services

Shortly after the Nation passed the 1996 Telecommunications Reform Act the Federal Communications Commission began to develop regulations to implement provisions expanding broadband access for rural healthcare facilities. The estimate at that time was that the program would provide upward of \$400 million annually to support broadband connectivity for rural healthcare. Almost twenty years later, and after numerous "fixes," the Commission still fails to provide even half that amount. Rural health facilities, crushed under increasing demands and shortages of funding, have yet to take full advantage of the opportunities afforded by telemedicine to overcome these problems. Suffering the most are the patients and their families that have yet to fully benefit from the promise that Congress held out in 1996.

The latest iteration of the FCC's solution to this issue is the Healthcare Connect program, which, although designed with high hopes, is still falling short of obligating its relatively small allocation of universal service funds. Congress needs to step in and help the Commission finally turn their program into a shining example from the embarrassment it is today.

We urge approval of two small, but important legislative Telecommunications Act changes included in the Telehealth Enhancement Act (S. 2662 in the last Congress) from Chairman Wicker and his senior Senator.

For the rural health care provider discounted broadband rates, the bill would update the almost 20 year old list of eligible providers under section 254(h)(7) to also include—

- ambulance providers and other emergency medical transport providers
- health clinics of elementary, secondary and post-secondary schools
- other sites where telehealth services are provided for Medicare or Medicaid patients

The other improvement would specify that health care provider access to advanced telecommunications and information services under 254(h)(2)(A) be considered based on need rather than geographic location—similar to schools and libraries.

Second, we urge you to work with the FCC to suspend some of the program requirements, at least until the annual allocation is reached. We highlight two requirements that seem the most significant barriers:

- A 400 bed limit on hospitals, and
- No funding for administrative costs, even a modest percentage directly attributable to the costs of recordkeeping, data reporting and other administrative requirements of the FCC program.

Benefit coverage to financially enable telehealth networks

Many state governments have been very active assuring health benefit coverage for telehealth-provided services, at least on par with in-person services, for privately insured, Medicaid recipients, and state employees. Several state legislatures have made or on the verge of major progress for telehealth coverage in recent months. Beyond the obvious value for such people, since much of telehealth provision functions as network, the larger number of participants makes the networks better, stronger, and cheaper.

While the Departments of Defense and Veterans Affairs are among the leaders in taking advantage of the benefits of telehealth and advancing telehealth applications and quality, other Federal health benefit programs, such as Medicare, FEHBP, and TRICARE, are laggards.

We greatly appreciate the leadership of Chairman Thune for enactment as part of the new Medicare physician payment reforms to not have the major restrictions on Medicare telehealth coverage apply to a new program for “alternative payment methods” program to begin in the fall of 2016.

Chairman Wicker's Telehealth Enhancement Act includes a range of incremental, budget-sensitive improvements for Medicare and Medicaid. We think the Congressional Budget Office would find scorable savings from several of the provisions and some others at no or low budget cost. I will highlight two specific provisions:

- Create a Medicaid option for high-risk pregnancies using a telehealth network. Independent CBO-style analysis estimated savings of \$186 million over 10 years. This provision is largely based on a very successful statewide program in Arkansas.
- Cover remote diagnosis of ischemic strokes so that clot busting therapies greatly reduce the need and cost of stroke rehabilitation.

Other Federal health benefit programs, such as the Federal Employees Health Benefits Program, should not deny claims for covered services when an interactive video or other telehealth means is used.

Federal collaboration to nurture telehealth networks

I will close by highlighting the need and opportunity for Congress to direct or facilitate the development of new telehealth networks, in addition to continued support for the relatively small Federal grant program for telehealth networks.

Just as there are numerous federally-funded networks for medical research by centers of excellence, there should be networks for medical treatment. Two specific recommendations are the following:

- Autism CARES Act (section 399BB of the Public Health Service Act) activities should be amended to include promoting the creation of a network of autism care centers to improve care quality and accessibility.
- Medicare should be amended to allow community health center professionals to be the telehealth providers for Medicare services, not just a site where the patient needs to be served by non-CHC professionals, thus fostering CHC telehealth networks of diverse and scarce services.

Thank you for the opportunity to present these comments. I and the members of ATA stand ready to help you and the other members of the Committee to make advances and reform the health and technology policies in order to help the residents of your states take advantage of the promise of telemedicine.

Senator WICKER. Thank you, Mr. Linkous, for that testimony and for that kind offer.

Mr. Rytting, what do you have to add to this discussion?

STATEMENT OF TODD RYTTING, CHIEF TECHNOLOGY OFFICER, PANASONIC CORPORATION OF NORTH AMERICA

Mr. RYTTING. Well, hopefully it's less than 5 minutes.
[Laughter.]

Mr. RYTTING. Good morning, Chairman Wicker and Ranking Member Schatz and the other members of the Subcommittee. My name is Todd Rytting. I am Chief Technology Officer from Panasonic North America, and I am deeply grateful to have the chance to tell you about some of the things that Panasonic is doing.

Before telling you about the telehealth part, I need to probably educate a little bit about what Panasonic is in the United States. Most of the time we think it's cameras and TVs and the occasional microwave. But in the United States, most of our revenue, 85 percent, comes from the business-to-business sales we have. We deal with the transportation industry, where we sell batteries and control systems for electric and hybrid vehicles, and we are a major supplier of multimedia systems in cars. We're the number-one global provider of in-flight entertainment and communications for aviation. And then we have other professional businesses that sell audio/visual equipment, computing equipment and communications.

But the reason I'm here is to talk about our interest in telehealth. Our vision from our CEO, Joe Taylor, is that we need to take the technology that Panasonic has and apply it to our senior population because they are a group of people that we believe are underserved by technology.

So with that interest, we are doing several things in the health care industry specifically pointed at the senior citizen population. One of the projects called SmartCare was started a couple of years ago. It is targeted at people who have just come out of the hospital; chronic heart failure patients that are healing. The challenge is to help the maintenance providers to be able to help them stay out of the hospital for health reasons.

We used the television as the primary interface because these people know how to use the television. It's familiar technology, and it's accessible. On the screen once a day pops up a reminder from a recorded nurse that reminds them to take their measurements. They stand on the scale, which is wirelessly transmitted to the system. They also take their blood pressure and other measurements, all of which are gathered and sent to a health care professional.

They are also interviewed. On the screen they have several text-based questions that they respond yes or no to, with a simplified remote control, like this. And the questions are: Are you feeling better than you did yesterday? Are your feet swelling? Did you take your medication? And other things that, once they get to the health care professionals, they're analyzed, they're flagged, and if there might be a concern, then a nurse is alerted, and it's their responsibility to contact the person and find out what's going on.

The results were extremely pleasing. We experienced a reduction in hospital visits, re-hospitalization, and visits to the emergency room by more than two-thirds.

The second thing we noticed is that they stayed on their medication longer, which is obviously something that's important to health.

And the third thing that we were surprised about is the very high level of patient acceptance and participation in the study. We attribute that to the use of the television, which is very familiar to them.

So after the study we looked at the results and, no surprise to the people in this room and this committee, the biggest problem we faced was the lack of broadband to some of our citizens. Chairman Wicker, you mentioned 8 percent. We found some of them in downtown New York City. That difficulty with being able to contact them is why we're here.

We have enough encouragement that we're going ahead with more studies. One of them will be in Newark, New Jersey, serving the urban members of that population. But what we'd like to do is recommend and urge you to action with the industry in three areas.

The first is to encourage ubiquitous, robust, and reliable broadband service to everybody. As you know, this is a very dynamic and rapid-moving industry, and if we couple good national policies with the efforts of industry, we hope that we can expand that reach. We appreciate the strong focus in this area from your committee and also from the FCC.

Second, we urge the government to be careful not to over-regulate this emerging service. It needs national, not state-by-state rules, in order to flourish, and we need to, of course, pay attention to security, and pay attention to privacy.

Third and finally, we urge this committee to continue to ensure that Federal agencies work together. We do know, as we've heard from the witnesses, that there are positive outcomes from this technology, even while lowering the costs, as Dr. Henderson testified.

I appreciate being here, and we appreciate the opportunity to speak to you.

[The prepared statement of Mr. Rytting follows:]

PREPARED STATEMENT OF TODD RYTTING, CHIEF TECHNOLOGY OFFICER,
PANASONIC CORPORATION OF NORTH AMERICA

Summary

Panasonic Corporation of North America ("Panasonic") has conducted remote patient monitoring pilot studies, and plans to invest in larger, longer-duration ones, in the belief that telehealth technologies that are reliable and accessible to those needing chronic care can help advance American healthcare delivery, improve care outcomes, engage patients in self-care, and contain care costs.

Panasonic will share its experience in this field to date, including the challenges and opportunities of delivering successful telehealth care, and provide some recommendations for Federal policy and practice to encourage private sector investment in this field.

Good morning, Chairman Wicker, Ranking Member Schatz, and Members of the Subcommittee. My name is Todd Rytting, and I serve as the Chief Technology Officer of Panasonic Corporation of North America. I am honored to have been invited to participate in today's hearing to examine the progress that has been made by the private sector and government entities in bringing the benefits of telehealth to all parts of the U.S.—including rural and remote areas. And I would like to explore with you some of the challenges facing the advancement of telehealth, so our country can meet the objective of ensuring healthcare providers and patients have access to the connectivity required to take advantage of innovative telehealth solutions.

Panasonic strongly supports the effort to transform America's healthcare system through the power of information technology—supported by robust broadband connectivity—and I will describe how our company is actively investing in innovation to help realize this goal. By way of background, Panasonic Corporation of North America ("Panasonic"), based in Newark, NJ, is the principal North American subsidiary of Osaka, Japan-based Panasonic Corporation and the hub of its branding, marketing, sales, service, product development and R&D operations in the U.S. and Canada. Panasonic operations in North America include R&D centers, manufacturing bases, the award-winning Panasonic Customer Call Center in Chesapeake, VA, business-to-business and industrial solutions companies, and consumer products with sales and service networks throughout the U.S., Canada and Mexico. Panasonic Corporation of North America and its subsidiaries and affiliates employ some 12,000 people in the region.

Panasonic believes that a fully-connected and interoperable health information and communications technology ("ICT") ecosystem will provide the foundation to improve the coordination and quality of care, better health outcomes, and reduced overall costs. We believe such an ecosystem can be designed and operate safely and securely to capture and share patient-generated health data ("PGHD") and electronic health records ("EHRs"), support informed clinical decision-making, and facilitate personal health self-management. Such a secure, interoperable healthcare infrastructure can help improve all aspects of care delivery along the continuum of care—from enabling healthcare providers to make improved diagnostic and treatment decisions, to empowering patients to make healthy lifestyle choices.

One key component of this connected and interoperable system—perhaps the leading edge and one of the biggest opportunities for innovation in healthcare delivery—is the adoption and utilization of telehealth and remote patient monitoring services.¹ Recent advances in technology and modes of healthcare delivery allow patients and providers to connect whenever and wherever care is needed, and enable patients increasingly to engage in management of their own care. Many examples exist to illustrate how remote monitoring is utilized in the medical home setting for the most chronically ill, for example, by monitoring intravenous infusions, measuring blood glucose levels, tracking blood pressure, heart rate, and fluid volume in dialysis patients, and even medical-grade weight scale readings from the non-hospital setting to health-care workers, among many other applications. These and other critical information datasets can be sent automatically to medical professionals who can analyze trends and alert physicians or care providers, in order to identify the onset of problems quickly. Today's technologies can also determine the location of ambulances and deploy them efficiently to reduce the time it takes to respond.² I should also note that the FCC, who I am pleased to be here with today, has recognized

¹ For example, remote patient monitoring—just one aspect of telehealth services—is expected to save \$36 billion globally by 2018. See Juniper Research, *Mobile Health & Fitness: Monitoring, App-enabled Devices & Cost Savings 2013–2018* (rel. Jul. 17, 2013), available at http://www.juniperresearch.com/reports/mobile_health_fitness.

² For example, George Washington University's Heart and Vascular Institute, The Wireless Foundation, D.C.-area Hospitals and D.C. Fire & EMS have partnered to reduce time from onset of chest pain to treatment by equipping D.C.-area ambulances with technology that enables rapid, wireless transmissions of EKGs to both the on-call physician's wireless device and tertiary care hospitals. See <http://www.newswise.com/articles/view/596059/>.

the benefits of remote monitoring for rural and underserved communities in a number of different contexts,³ most recently through its Connect2Health Task Force.⁴

When enabled by reliable connectivity, telehealth and remote patient monitoring solutions hold great promise. Clinical evidence has demonstrated that interoperable remote monitoring, enabled by connectivity, improves care, reducing the frequency of potentially-preventable visits to medical institutions, in-patient care and re-admissions (thus averting Medicare penalties for hospitals, for example), and helping to avoid complications while improving patient satisfaction, particularly for the chronically ill.⁵ Therefore, attention to PGHD through remote monitoring solutions can enhance patient care and raise accountability by healthcare providers while containing costs through preventing the deterioration of chronic health conditions, such as congestive heart failure and diabetes,⁶ as well as engage patients in their own care, leading to improved lifestyle choices and improve overall health.⁷ There are extensive clinical studies that demonstrate the benefits of utilizing advanced ICT, enabled by connectivity, in such areas as chronic condition management, heart failure, diabetes management, and medication adherence.⁸

Therefore, Panasonic would urge that national policy should reflect the dynamic and transformative nature of advanced ICT solutions, and not inhibit the innovation that holds the promise to continually improve the care delivery system even as it can contain costs. A flexible, supportive approach to such innovation is particularly important within rural—as well as many urban—healthcare settings which face unique population health challenges based on economic, demographic, and other factors that directly affect access to care and the quality of outcomes. For example, telemedicine consultations with specialists, such as pediatric critical-care physicians, have been shown to significantly improve the quality of care for seriously ill and injured children treated in rural emergency rooms.⁹

These positions are not just rhetoric for Panasonic, but reflect our own experiences. In partnership with Jewish Home Lifecare (“JHL”), a New York City subacute eldercare network serving the greater New York City area, and HealthFirst, a major NY-based Medicare and Medicaid provider, Panasonic recently conducted a formal telehealth pilot study we called “Pathways to Health.” The objective of this pilot was to test the efficacy of Panasonic’s “SmartCare” Remote Patient Monitoring technology in the chronic care management of elderly patients at high-risk for congestive heart failure re-hospitalization.

Our study—whose results are reported in the *attached* Panasonic ‘white paper’—showed impressive results in the reduction of hospital readmissions (69 percent reduction for CMS Dual-Eligibles) and Emergency Department visits (74 percent for CMS Dual-Eligibles). Equally exciting were extremely positive outcomes around medication adherence, and, frankly, glowing patient satisfaction reports. Our Pathways to Health pilot, however, revealed significant challenges as well. The most significant technical challenge, by far, was the lack of reliable Internet connectivity within the patient’s home.

While it is easy to state the goal, *i.e.* a connected healthcare continuum of care that fully utilizes innovative telehealth and remote patient monitoring products and services, it may not be easy to successfully navigate the path towards that goal. At Panasonic we are striving to navigate this path, in the realms of technology, busi-

³*Technology Transitions, et al.*, GN Docket No. 13–5 *et al.*, Order, Report and Order and Further Notice of Proposed Rulemaking, Report and Order, Order and Further Notice of Proposed Rulemaking, Proposal for Ongoing Data Initiative, 29 FCC Rcd 1433, 1504, ¶225 (2014).

⁴Just Around the Broadband Bend, Posting of P. Michele Ellison, Chair, Connect2HealthFCC Task Force, Official FCC Blog, <http://www.fcc.gov/blog/just-around-broadband-bend> (Feb. 23, 2015).

⁵See, e.g., U.S. Agency for Healthcare Research and Quality (“AHRQ”) Service Delivery Innovation Profile, Care Coordinators Remotely Monitor Chronically Ill Veterans via Messaging Device, Leading to Lower Inpatient Utilization and Costs (last updated Feb. 6, 2013), available at <http://www.innovations.ahrq.gov/content.aspx?id=3006>.

⁶See, e.g., National eHealth Collaborative (NeHC), *Patient Generated Health Data Introduction and Current Practices: Report to the HIT Policy Committee Consumer Empowerment Workgroup by the Technical Expert Panel Convened by National eHealth Collaborative on behalf of the Office of the National Coordinator for Health Information Technology* (Jul. 18, 2013), available at <http://www.nationalehealth.org/blog/patient-generated-health-data-technical-expert-panel-presents-initial-findings>. Note that the NeHC has since merged with HIMSS.

⁷See, e.g., Sanjena Sathian, “The New 21st Century House Call,” Boston Globe (July 29, 2013), available at <http://www.bostonglobe.com/lifestyle/health-wellness/2013/07/28/century-house-call/tdupWvOQI6b3dKdKcEgdGM/story.html>.

⁸Please see a list of these studies appended to this testimony.

⁹See, e.g., Dharmar, et al. Impact of Critical Care Telemedicine Consultations on Children in Rural Emergency Departments, *Journal of Critical Care Medicine* (Aug. 7, 2013), doi: 10.1097/CCM.0b013e31828e98.

ness, and public policy, through strategic partnerships and with the aid of numerous industry associations and multi-stakeholder coalitions that serve as key fora for collaboration.

Based on Panasonic's experience, we would like to offer a number of recommendations: some cross-cutting, and others perhaps more agency-specific.

Cross-Cutting Recommendations

Congress and Federal agencies should ensure that their approaches in this space utilize a technology-neutral approach, so as not to "lock in" a limited set of solutions that, while deemed adequate for today, may fall preclude or impede innovations that are not yet predicted. For certain no industry better illustrates the need for flexibility and technology neutrality than the incredibly dynamic ICT industry. For this reason, the FCC should maintain a technology-neutral approach in its work, particularly in the critical context of healthcare connectivity.

Furthermore, Panasonic believes that the Federal Government should recognize that over-regulation can act as a disincentive to investment in new technology, particularly in the healthcare space where well-intentioned regulations can inadvertently inhibit innovation, even potentially short-change or harm the American patient. We would urge that through analysis, oversight and periodic review of rules and guidelines, duplicative or conflicting and unnecessary elements can be removed, and that the government act to evolve continually with the industry, of course, appropriately balancing potential the risk of patient harm with the broad and far-reaching benefits of investment and innovation. Existing program mechanisms that incent innovation should be maintained, while at the same time the means to improve and modify existing frameworks should be explored. The importance of this concept is highlighted in the accelerating convergence of sectors and industries, now giving rise to the forthcoming "Internet of Things."

Finally, we believe there is a need for continued, cross-agency coordinated inquiries into opportunities for wireless broadband allocations that can be utilized by healthcare applications. A great recent example I might note is the FCC's hosting of a March 31, 2015, workshop with the Food and Drug Administration ("FDA") on wireless health test beds, which featured experts from industry, medicine, academia, and government focusing on the role of wireless medical test beds and their influence on the development of converged medical technology for clinical and non-clinical settings.¹⁰

Federal Communications Commission

Clearly the FCC has and will continue to play a central role in the connectivity needed to provide advanced eCare. And as I noted earlier, Panasonic fully supports advancing a national communications infrastructure that supports health, safety, and care delivery, and we are committed to working with a wide range of policy-makers to promote this concept.

In the Universal Service context, we believe that the FCC's policies should constantly be re-examined for ways to foster innovation in order to "enhance...access to advanced telecommunications and information services" for eligible health care providers.¹¹ The FCC has been consistent in examining ways to evolve its support of rural healthcare (such as the Healthcare Connect Fund, capped at \$400m, created to expand health care provider access, or "telehealth," to broadband, especially in rural areas, and encourage the creation of state and regional broadband health care networks); but, its existing relevant programs only permit funding to service providers to offer discounted wire-line telecommunication services to eligible healthcare providers. This funding does not, but we believe should, extend to services, such as remote patient monitoring, that are provided to patients in their homes.

Some intriguing proposals which contemplate the intent of Congress in the creation of Universal Service have been submitted by key stakeholders that merit careful consideration, such as Christus Health, who has urged the FCC to consider subsidizing under the RHC program the wireless broadband contracts between the healthcare providers and wireless carriers' healthcare providers use for remote monitoring.¹² We stand ready to work with the FCC in efforts to improve how it supports rural—and even urban—healthcare moving forward.

Further, the FCC's Rural Health Care (RHC) program, now some 15 years old, remains undersubscribed. Panasonic believes there is a need for heightened efforts

¹⁰FCC and FDA Joint Workshop, Promoting Medical Technology Innovation—The Role of Wireless Test Beds (Mar. 31, 2015). Video and materials from this workshop are publicly accessible at <http://www.fcc.gov/events/fcc-and-fda-joint-workshop-promoting-medical-technology-innovation-role-wireless-test-beds>.

¹¹47 U.S.C. § 254(h)(2)(A).

¹²See Ex Parte of CHRISTUS Health, CC Docket No. 02–60 (filed Mar. 30, 2015), *attached*.

to increase awareness of the RHC through a public-private partnership model, such as the approach reflected in the FCC's Connect2Health Initiative. We look forward to exploring ways to ensure that Universal Service funds dedicated to rural healthcare are maximized.

Since 1985, the Lifeline program has provided basic phone service connectivity at a discount to qualified low-income consumers. Recently, the Commission has taken significant steps to modernize Universal Service across its programs, while improving accountability. We believe that the FCC should also give appropriate consideration to the opportunities to integrate broadband telecommunications costs with the delivery of public services, such as eHealth, to low-income consumers. Building on the ongoing work of the Commission within the Universal Service context, we believe there is a significant opportunity to utilize the Lifeline fund to support these services for low-income consumers by adding support for broadband connections—both wired and wireless—that are specifically used for providing eHealth and remote patient monitoring.

Finally, in order to advance a national communications infrastructure, close and constant coordination will be needed between the FCC and other Federal agencies as it continues to make frequency management decisions that directly impact opportunities for mobile broadband allocations that can be utilized by healthcare applications. The solutions needed for a fully connected healthcare system must be able to utilize both licensed as well as unlicensed spectrum, as be permitted to operate with appropriate sharing arrangements.

Mr. Chairman and Members of the Subcommittee, thank you again for inviting me to participate today; and I would be pleased to answer any questions you may have about Panasonic's healthcare activities and issues which can affect the implementation of a robust and affordable connected telehealth system.

TELECOMMUNICATIONS INDUSTRY ASSOCIATION
Arlington, VA, April 2015

EXISTING CLINICAL STUDIES DEMONSTRATING THE BENEFITS OF REMOTE ACCESS TECHNOLOGIES

Chronic Condition Management

Veterans Administration: Study Size: Over 17,000 patients.

"Routine analysis of data obtained for quality and performance purposes from a cohort of 17,025 CCHT patients shows the benefits of a 25 percent reduction in numbers of bed days of care, 19 percent reduction in numbers of hospital admissions, and mean satisfaction score rating of 86 percent after enrolment into the program. The cost of CCHT is \$1,600 per patient per annum, substantially less than other NIC programs and nursing home care. VHA's experience is that an enterprise-wide home telehealth implementation is an appropriate and cost-effective way of managing chronic care patients in both urban and rural settings." "Care Coordination/Home Telehealth: the systematic implementation of health informatics, home telehealth, and disease management to support the care of veteran patients with chronic condition" [Darkins A, Ryan P, Kobb R, Foster L, Edmonson E, Wakefield B, Lancaster AEs, Telemed J E Health. 2008 Dec; 14(10):1118–26. doi: 10.1089/tmj.2008.0021.] <http://online.liebertpub.com/doi/pdf/10.1089/tmj.2008.0021>

Primary Care E-Visit v. Physician Office Visit: Study Size 8,000 Office and E-Visits

From The Washington Post, 1/21/2013: "A new study suggests that "e-visits" to health-care providers for sinus infections and urinary tract infections (UTIs) may be cheaper than in-person office visits and similarly effective." [Ateev Mehrotra, MD; Suzanne Paone, DHA; G. Daniel Martich, MD; Steven M. Albert, PhD; Grant J. Shevchik, MD, JAMA Intern Med. 2013; 173(1):72–74. doi: 10.1001/2013.jamainternmed.305] <http://archinte.jamanetwork.com/article.aspx?articleid=1392490>

Randomized Control Trial of Telehealth and Telecare: Study Size 6,191 patients, 238 GP practices

"The early indications show that if used correctly telehealth can deliver a 15 percent reduction in A&E visits, a 20 percent reduction in emergency admissions, a 14 percent reduction in elective admissions, a 14 percent reduction in bed days and an 8 percent reduction in tariff costs. More strikingly they also demonstrate a 45 percent reduction in mortality rates." [Source: "Whole System Demonstrator Programme, Headline Findings—December 2011", Department of Health, United

Kingdom] http://www.telecare.org.uk/sites/default/files/file-directory/secure_annual_reports/Publications/Effect%20of%20Telehealth%20on%20use%20of%20secondary%20care%20and%20mortality%20findings%20from%20the%20WSD%20cluster%20randomised%20trial.pdf

Heart Failure Management

Remote Patient Monitoring of Heart Failure Patients, Meta analysis: Study Size 4,264 patients

“Remote monitoring programmes reduced rates of admission to hospital for chronic heart failure by 21 percent (95 percent confidence interval 11 percent to 31 percent) and all cause mortality by 20 percent (8 percent to 31 percent); of the six trials evaluating health related quality of life three reported significant benefits with remote monitoring.” [Telemonitoring or structured telephone support programmes for patients with chronic heart failure: systematic review and meta-analysis, Robyn Clark, Sally Inglis, Finlay McAlister, John Cleland, Simon Stewart, MJ (British Medical Journal), doi:10.1136/bmj.39156.536968.55 (published 10 April 2007)] <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1865411/>

Remote Patient Monitoring of Heart Failure Patients, Meta analysis: Study Size 6,258/2,354 Patients

“RPM convers a significant protective clinical effect in patients with chronic HF compared with usual care.” [J Am Coll Cardio: 2009;54:1683–94] <http://content.onlinejacc.org/article.aspx?articleid=1140154>

Telehome Monitoring Program: 1,000 Patients Enrolled

“Research at the Heart Institute has shown telehome monitoring at the Heart Institute has cut hospital readmission for heart failure by 54 percent with savings up to \$20,000 for each patient safely diverted from an emergency department visit, readmission and hospital stay.” [University of Ottawa Heart Institute, February 24, 2011, Press Release] [http://www.heartandlung.org/article/S0147-9563\(07\)00084-2/fulltext](http://www.heartandlung.org/article/S0147-9563(07)00084-2/fulltext)

Remote Patient Monitoring at St. Vincent's Hospital

“Impact: In less than two years, preliminary results show that the care management program implemented by St. Vincent Health and facilitated by the Guide platform reduced hospital readmissions to 5 percent for patients participating in the program—a 75 percent reduction compared to the control group (20 percent), and to the national average (20 percent).” [St. Vincent's Hospital Reduces Readmissions by 75 percent with a Remote Patient Monitoring-Enabled Program, Case Study by Care Innovations, an Intel GE Company] http://www.careinnovations.com/data/sites/1/downloads/Guide_product/guide_stvincent_profile.pdf

Diabetes Management

Mobile Phone Personalized Behavior Coaching for Diabetes: Study Size 163 patients over 26 Practices

“Conclusions—The combination of behavioral mobile coaching with blood glucose data, lifestyle behaviors, and patient self-management individually analyzed and presented with evidence-based guidelines to providers substantially reduced glycated hemoglobin level over 1 year.” [Cluster-Randomized Trial of a Mobile Phone Personalized Behavioral Intervention for Blood Glucose Control, Charlene Quinn, Michelle Shardell, Michael Terrin, Eric Barr, Soshana Ballew, Ann Gruber-Baldini, Diabetes Care. Published Online July 25, 2011] <http://care.diabetesjournals.org/content/34/9/1934.long>

Mobile Phone Diabetes Management: Study Size 30 patients from 3 group practices

“Conclusions: Adults with type 2 diabetes using WellDoc's software achieved statistically significant improvements in A1c. HCP and patient satisfaction with the system was clinically and statistically significant.” [WellDoc™ Mobile Diabetes Management Randomized Controlled Trial: Change in Clinical and Behavioral Outcomes and Patient and Physician Satisfaction, Charlene Quinn, Suzanne Sysko Clough, James Minor, Dan Lender, Maria Okafor, Ann Gruber-Baldini, Diabetes Technology & Therapeutics, Vol 10, Number 3, 2008, pps 160–168] <http://online.liebertpub.com/doi/pdf/10.1089/dia.2008.0283>

Medication Adherence for Chronic Conditions: 50 patients

“There was a trend toward increased prescription refill rates with the use of the Pill Phone application and a decrease after the application was discontinued” [Case study titled: “Medication Adherence and mHealth: The George Washington

University and Wireless Reach Pill Phone Study”, Study designed, conducted and analyzed by George Washington University Medical Center; Qualcomm Wireless Reach Initiative was the primary funder of this study] <http://www.qualcomm.com/media/documents/files/wireless-reach-case-study-united-states-pill-phone-english-.pdf>

LUCAS, NACE, GUTIERREZ & SACHS, LLP
McLean, VA, March 27, 2015

VIA ECFs

MARLENE H. DORTCH, Secretary
Federal Communications Commission
Washington, DC.

Attn: Radhika Karmarkar
Regina Brown
Wireline Competition Bureau

Re: CHRISTUS Health
CC Docket No. 02–60

Madam Secretary:

We write regarding the increasing importance of remote home health monitoring to the delivery of health care, particularly in rural settings. The experience of CHRISTUS Health aligns with the Commission’s recognition that remote monitoring improves the quality of care while reducing costs to patients and providers. We urge the Commission to consider supporting the deployment of remote monitoring by providing limited universal service support to eligible health care providers through the Rural Health Care (“RHC”) program. A streamlined RHC application mechanism that supports remote monitoring—if only on a limited pilot basis—will help rural hospitals who are facing a crisis that is undermining healthcare delivery in rural America.

CHRISTUS Health is an international Catholic, faith-based, not-for-profit health system comprised of almost 350 services and facilities, including more than 60 hospitals and long-term care facilities, 175 clinics and outpatient centers, and dozens of other health ministries and ventures.¹ Jointly sponsored by the two religious congregations of the Sisters of Charity of the Incarnate Word in Houston and San Antonio, the mission of CHRISTUS Health is to extend the healing ministry of Jesus Christ. To support its health care ministry, CHRISTUS Health employs approximately 30,000 associates and has more than 9,000 physicians.

CHRISTUS Health has facilities in Texas, Louisiana, Arkansas, Georgia, Iowa, and New Mexico (as well as facilities in Mexico and Chile). Many sites in the CHRISTUS Health system are either designated “rural” for purposes of the RHC program, or serve patients who live in areas that are rural, remote, and medically underserved.

Growing Importance of Remote Patient Monitoring

Remote monitoring helps doctors manage post-operative care and patients with chronic conditions such as heart disease and diabetes.² Devices attached to patients use wireless broadband to transmit measurements back to the hospital where they can be monitored and medications or other treatments adjusted. Detecting problems early improves the quality of patient care, avoids unnecessary visits to a doctor or emergency room, and reduces costs to patients, hospitals, and insurers. As a result of Medicare penalties based on patient readmission rates, it also improves the bottom-line for hospitals. This opportunity to improve care and lower costs makes remote monitoring an increasingly important sector of our health care system.

CHRISTUS Health has long been an innovator and, in 2012, implemented its own remote monitoring pilot in partnership with a carrier (AT&T) and remote moni-

¹See <http://www.christushealth.org/workfiles/2015SystemProfile.pdf> (last visited Mar. 11, 2015). CHRISTUS Health is the lead entity and member of the Texas Health Information Network Collaborative (“TxHINC”), a RHC pilot program awardee. However, with this letter, CHRISTUS Health and Mr. Conklin, who is the Chief Information Officer for CHRISTUS Health and Project Manager of TxHINC, are representing CHRISTUS Health and not TxHINC.

²See generally, e.g., Jonathan D. Rockoff, *Remote Patient Monitoring Lets Doctors Spot Trouble Early*, WALL ST. J., Feb. 16, 2015.

toring vendor (Vivify Health), both based in Texas.³ Working with a care transition team focused on post-hospitalization treatment of patients with chronic heart conditions and diabetes, the CHRISTUS Health remote monitoring project sought to increase quality of care, while reducing the burdens on the certified care transition nurses responsible for monitoring remote patients. The project successfully reduced readmission rates, all with very high patient satisfaction.⁴

Crisis Facing Small Rural Healthcare Providers

Many small rural hospitals in America are in crisis, facing a “perfect storm” of demographic, regulatory, and economic challenges that threaten their continued viability.⁵ Since 2010, there has been a dramatic increase in the number of rural hospital closures.⁶ Rural hospitals serve “some of the sickest and poorest” patient populations in the Nation and these closings are reducing the availability of emergency and other care to these populations, resulting in avoidable deaths and medical complications.⁷ Managing care for these “sickest and poorest” is a particular challenge for rural hospitals, and readmission penalties associated with their care are one factor in the perfect storm these hospitals are facing.⁸

The FCC has an opportunity to help these hospitals, all of which are intended beneficiaries of the RHC program—a program, which fifteen years after being established, remains undersubscribed.⁹ Indeed, this crisis among rural hospitals demonstrates that undersubscription of the RHC program is not due to a lack of need for RHC support among targeted beneficiaries.

How the FCC Could Help

Allowing rural hospitals to obtain a discount on wireless broadband costs associated with providing remote monitoring to patients is one way the Commission could help. The remote monitoring kits employed by health care providers (“HCPs”) consist of different kinds of remote monitoring equipment such as blood pressure cuffs and fingertip blood-oxygen meters that are integrated with a wireless broadband service provided by a wireless carrier. These can also include tablet computers, however the equipment supplied by the HCP is locked down and can only be used for healthcare related purposes. (No streaming movies on an HCP-provided tablet computer, for example.) The kits are sent home with patients on a temporary basis, maintained by the hospital, and reusable (after being sterilized).

Patients in rural areas may have difficulty obtaining reliable broadband for remote monitoring. At a minimum, such patients often do not have multiple wireless

³See Rajiv Leventhal, *Innovator Semifinalist Team: Improving Home Health at CHRISTUS Health With RPMS*, HEALTHCARE INFORMATICS, Feb 18, 2014, available at <http://www.healthcare-informatics.com/article/innovator-semifinalist-team-improving-home-health-christus-health-rpms>.

⁴*Id.* at 2.

⁵See Jayne O'Donnell and Laura Ungar, *Rural Hospitals in Critical Condition*, USA TODAY, Nov. 12, 2014, available at <http://www.usatoday.com/story/news/nation/2014/11/12/rural-hospital-closings-federal-reimbursement-medicare-aca/18532471/>; see also Guy Gugliotta, *Rural hospitals, beset by financial problems, struggle to survive*, WASH. POST, Mar. 15, 2015, available at <http://wapo.st/1BHy5re> (“[R]ural hospitals. . . suffer from multiple endemic disadvantages that drive down profit margins and make it virtually impossible to achieve economies of scale. These include declining populations; disproportionate numbers of elderly and uninsured patients; the frequent need to pay doctors better than top dollar to get them to work in the hinterlands; the cost of expensive equipment that is necessary but frequently underused; the inability to provide lucrative specialty services and treatments; and an emphasis on emergency and urgent care, chronic money-losers.”).

⁶See O'Donnell and Unger, *supra* note 5, at 1 (“Since the beginning of 2010, 43 rural hospitals—with a total of more than 1,500 beds—have closed, according to data from the North Carolina Rural Health Research Program. The pace of closures has quickened: from 3 in 2010 to 13 in 2013, and 12 already this year. Georgia alone has lost five rural hospitals since 2012, and at least six more are teetering on the brink of collapse”); see also Coshandra Dillard, *Dying rural hospitals affect most vulnerable*, TYLER MORNING HERALD, Feb. 14, 2015, available at <http://www.tylerpaper.com/TP-News+Local/213794/dying-rural-hospitals-affect-most-vulnerable> (profiling closing of East Texas Medical Center in Gilmer, TX); Alex Smith, *Facing Layoffs And Closures, Rural Hospitals Push For Medicaid Expansion*, KCUR Kansas City Public Radio, Feb 11, 2015, available at <http://hereandnow.wbur.org/2015/02/24/rural-hospitals-medicare> (profiling closing of Sac-Osage Hospital in Osceola, Missouri).

⁷See O'Donnell and Unger, *supra* note 5, at 1.

⁸See Dillard, *supra* note 6 (“The Affordable Care Act was designed to provide more access to health care, helping rural hospitals stay afloat. However, new penalties for performance-based measures, such as re-admission rates, stifled already strapped hospitals.”).

⁹The RHC has not shown dramatic growth since the Healthcare Connect Fund (“HCF”) was launched in January 2013. See USAC Rural Health Care Funding Information, <http://usac.org/rhc/healthcare-connect/funding-information/default.aspx> (showing less than \$200 million in total funding requests for funding year 2013) (last visited Mar. 25, 2015).

broadband providers to choose from. However, the area served by an HCP may span a wide region with no single carrier able to serve all of the patients served by the HCP. As a result, HCPs may need different remote monitoring kits that work with different wireless broadband providers.¹⁰ The kits and associated wireless broadband contract costs are paid for by the HCP, not the patient.

The Commission should consider subsidizing under the RHC program *the wireless broadband contracts* between the HCP and wireless carriers HCPs use for remote monitoring. This could be done in some cases under the existing \$10,000 competitive bidding exemption¹¹ or perhaps by establishing a new exemption (on a pilot basis) for rural HCPs purchasing services at publicly-available commercial mobile broadband rates. A simple reimbursement mechanism that is administratively easy to implement and easy to apply for could directly and immediately benefit rural hospitals. Enhancing access to advanced services in this way would encourage the deployment of technologies that benefit rural health care providers and the patients they serve.

The legal basis for funding mobile broadband connectivity between eligible HCPs and patients under the RHC program is addressed below.

The Rural Health Care Program Should Continue to Foster Innovation

The Commission has in the past used the Rural Health Care Program to explore innovative ways to “enhance . . . access to advanced telecommunications and information services” for eligible health care providers.¹² For example, in 2007 the RHC pilot program allocated \$417 million spread over several years to fund network projects across the country “designed to bring the benefits of innovative telehealth and telemedicine services to areas of the country where the need for those benefits is most acute.”¹³ While individual pilot projects saw varying degrees of success, the overall effort proved hugely beneficial and provided Commission policy-makers with the practical basis for establishing the Healthcare Connect Fund in 2012 (as a component of the overall RHC program).

More recently, the Commission has twice considered RHC program initiatives that would have continued to explore and support innovation in healthcare delivery. In 2012, the Commission announced a \$50 million pilot program to consider the benefits of funding connections from eligible health care providers to skilled nursing facilities (“SNFs”).¹⁴ The Commission recognized the important goal of using advanced services to improve patient outcomes and saw SNFs as a critical part of the care continuum for patients.¹⁵

While the Commission ultimately did not implement the SNF pilot, in 2014, it sought comment on a proposal to use the \$50 million in unused SNF funding for a series rural healthcare broadband experiments that would be “consumer oriented” and could “improve patient access to health care.”¹⁶ The *Technology Transitions Order* specifically highlighted the benefits of remote monitoring, explaining:

[T]echnological advances hold great promise to enable the elderly to age in place, in their home, with remote monitoring of key health statistics through a broadband-enabled device. Likewise, the Department of Veteran Affairs has implemented a telehealth initiative which has reduced the number of days spent in the hospital by 59 percent, and hospital admissions by 35 percent for veterans across the country, saving over \$2000 per year per patient, including even when factoring in the costs of the program. These programs are critical to achieving savings in healthcare costs, and reducing the amount of time patients are away from home, but a critical gap remains in ensuring that patients,

¹⁰This is similar to a consumer selecting a smartphone from a carrier that has the best coverage where they live or work. Note, if particular patients are unable to obtain wireless broadband service capable of supporting remote monitoring from any provider, HCPs are in a position to report this information to the Commission for use in other universal service proceedings.

¹¹47 C.F.R. § 642(h)(1). This exemption could be sufficient for many rural hospitals. Assuming a monthly mobile broadband data rate of \$50 per month per active connection, this would equal \$600 per year per connection. In this example, sixteen connections active for every month of the year would equal \$9600 per year—potentially eligible for \$6240 in HCF subsidy.

¹²47 U.S.C. § 254(h)(2)(A).

¹³See *Rural Health Care Support Mechanism*, WC Docket No. 02-60, Report and Order, 27 FCC Rcd 16678, 16684–85, ¶ 13 (2012) (*HCF Order*) (describing RHC pilot program).

¹⁴See generally *HCF Order*, 27 FCC Rcd at 16815–18, ¶¶ 345–350.

¹⁵See *id.* at 16816, ¶ 346.

¹⁶*Technology Transitions, et al.*, GN Docket No. 13–5 *et al.*, Order, Report and Order and Further Notice of Proposed Rulemaking, Report and Order, Order and Further Notice of Proposed Rulemaking, Proposal for Ongoing Data Initiative, 29 FCC Rcd 1433, 1504, ¶ 224 (2014) (*Technology Transitions Order*).

such as the elderly and veterans, have access to sufficient connectivity at home to transmit the necessary data for telemedicine applications such as remote health care monitoring, to enable patients to access the health care provider's patient portal, and for other broadband-enabled health care applications.¹⁷

The FCC's Connect2Health Task Force has also recognized the clear benefits of remote monitoring for rural and underserved communities. The Task Force described first-hand encounters with these benefits while on a recent visit to Ruleville, Mississippi (pop. 3,007):

While at North Sunflower [County Medical Center], two diabetes patients, "Ms. Annie" and "Ms. Jackie," shared moving firsthand accounts of how wireless broadband and remote monitoring have helped them control their diabetes and avoid the debilitating consequences of the disease experienced by other family members.

We also learned that, as a direct result of the broadband-enabled remote monitoring effort in Ruleville, hospital admissions for diabetes-related illness are plummeting.¹⁸

The *Technology Transitions Order* also asked whether Section 254 provides the legal authority to fund broadband experiments focusing on "providing advanced telecommunications and information services to consumers in rural areas, with a particular focus deploying broadband that is sufficient to meet consumers' healthcare needs" and sought comments "on experiments that would provide support to health care providers."¹⁹ (The existing RHC programs provide funding to service providers, who then provide discounted services to eligible health care providers.)

Can Universal Service Support Broadband Connectivity Underlying Remote Monitoring?

The broadband connectivity that makes remote monitoring possible easily fits within the definition of "advanced services" eligible for universal service support in the Healthcare Connect Fund.²⁰ The current rule, Section 54.634(a) provides:

Eligible health care providers may request support from the Healthcare Connect Fund for any advanced telecommunications or information service that enables health care providers to post their own data, interact with stored data, generate new data, or communicate, by providing connectivity over private dedicated networks or the public Internet for the provision of health information technology.

What is new would be allowing HCPs to obtain support for the cost of connectivity to individual patients rather than to other HCPs. Review of the statutory language authorizing the RHC programs, however, show the challenge is more practical than legal.

Although RHC has traditionally supported connectivity between entities, there is nothing in the statute limiting support to entity-to-entity connections. Section 254(h)(1)(A) provides support to rural HCPs for "telecommunications services which are necessary for the provision of health care services"; while Section 254(h)(2)(A) authorizes the FCC to create rules that enhance HCP access to "advanced telecommunications and information services for all public and non-profit . . . health care providers. . . ." ²¹ These two statutory provisions are intended to assist both patients and HCPs in obtaining basic health care services that now include remote monitoring.

From a funding standpoint, the practical obstacle involves how these services are procured. It is at best impractical for a small rural hospital to conduct a competitive bidding process for the commodity mobile broadband service that underpins remote monitoring kits. In selecting service providers, hospitals will consider foremost the availability of adequate mobile broadband service at the location (or locations) where the patient will be monitored (typically but not necessarily their private residence). In cases where more than one service provider could be selected, other factors such as price can be expected to come into play.

Even in cases where multiple broadband providers could provide the needed service, a competitive bidding exemption makes sense. First, services are needed for a

¹⁷ See *id.* at 1504, ¶ 225 (footnotes omitted).

¹⁸ Just Around the Broadband Bend, Posting of P. Michele Ellison, Chair, Connect2HealthFCC Task Force, Official FCC Blog, <http://www.fcc.gov/blog/just-around-broadband-bend> (Feb. 23, 2015).

¹⁹ See *id.* at 1506, ¶ 230.

²⁰ See *HCF Order*, 27 FCC Rcd at 16720–30, ¶¶ 110–111; see also *id.* at 16732–34, ¶¶ 116–119 (declining to impose minimum bandwidth requirements on HCF support).

²¹ See 47 U.S.C. § 254(h).

limited period of time that will vary and be uncertain in duration: it could be weeks, months, or years, depending on the patient and the medical conditions being monitored. Conducting a traditional RHC competitive bidding process annually for each situation would make no sense. Even if services were procured in bulk for a range of patients in a particular region for a set period of time (one year for example), because mobile broadband pricing is a commodity in most cases, program savings would be minimal and the complexity of the RHC procurement process and requirements would discourage participation by the small rural hospitals that urgently need this support.

Instead, the Commission should consider a competitive bidding exemption that allows rural hospitals to request funding for the costs of mobile broadband supporting remote monitoring purchased at publicly available commercial rates, and to submit invoices for reimbursement at the 65 percent HCF flat discount rate. Because the number of rural hospitals is limited²² and the amount of these costs will be relatively low, there is little risk this would be a dramatic drain on limited RHC funding. Moreover, proceeding on a limited time pilot basis—three years, for example—would allow the Commission to assess the demand, impact, and benefits of such an approach.

We appreciate any attention you can give to this important matter and look forward to discussing this issue further.

Respectfully submitted,

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Its Counsel

cc Connect2HealthFCC Task Force

Senator WICKER. Well, thank you. Thank you to all of you.

Mr. Rytting, in addition to your testimony, you've submitted a white paper, I believe.

Mr. RYTTING. That's correct.

Senator WICKER. Without objection, that will be included in the record also.

[The information referred to follows:]

The Panasonic Home Gateway—10/31/2014

PATHWAYS TO HEALTH WITH JEWISH HOME LIFECARE

Alexis Silver, MBA

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²²In 2012, the Commission estimated there were 1,674 rural hospitals eligible for RHC support. See *HCF Order*, 27 FCC Red at 16723–24, ¶98, n.266.

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Executive Summary

In the last ten years, much has been written about the utilization, evolution and future of home telehealth or what is often referred to as remote patient monitoring. Many studies and research projects—some large, some small—have been conducted in the hope of validating the efficacy of the technology in the home as a valuable component of case management. With a few exceptions, it can be said that the studies confirm what is intuitive—home telehealth saves clinicians time, saves money through reduced utilization of health services and improves the quality of patient life through education, self-empowerment and improved self-management of disease.

This paper reviews the current health ecosystem, its dramatically changing landscape and illustrates how case management programs utilizing home telehealth technology, and specifically, the Panasonic Home Gateway, can impact the cost of health care in multiple stakeholder-settings by reducing costs associated with health services utilization while supporting high levels of quality outcomes, medication adherence and patient satisfaction.

Panasonic partnered with Jewish Home Lifecare, a New York City-based health care system with many years' experience in using multiple modalities of home telehealth products, to pilot their innovative introduction in the home telehealth arena. The joint venture—Pathways to Health—resulted in significantly lower rates of hospitalizations and emergency room visits while supporting high levels of medication adherence, patient satisfaction and system utilization. Pilot outcomes included:

- Hospitalizations
 - JHL cohort (dually eligible)—69 percent less than the dually eligible average
 - Medicare Advantage cohort—44 percent less compared to previous claims data
- Emergency room visits
 - JHL cohort (dually eligible)—74 percent less than dually eligible average
 - Medicare Advantage—43 percent less compared to previous claims data
- Medication adherence
 - 96–99 percent range
- Satisfaction
 - 95 percent satisfied or better
 - 100 percent would recommend to family or friends
 - 100 percent felt safer at home
- Utilization
 - 90.3 percent patients used the tablet at least three times per week.

McKnight's Excellence in Technology Awards competition named Jewish Home Lifecare the 2014 Innovator of the Year for the Pathways to Health program use of the Panasonic Home Gateway (McKnight's, 2014).

These remarkable program results confirm and improve on those found in many other studies; however, from a fiscal perspective, there is a persistent concern with how home telehealth should be financed. This paper reviews some of the major stakeholders that could benefit from the use of home telehealth and addresses the financial implications of implementing home telehealth programs to each stakeholder—Medicare, Medicaid, hospitals, Managed Care, ACO's and home health agencies. Each has a unique opportunity to benefit from incorporating home telehealth as part of their program operational design.

Introduction

The American health ecosystem is struggling to improve access to timely, quality care in the face of the growing demands of an aging population, an increasing number of people with chronic illnesses, fewer clinicians, and a healthcare system primarily focused on treating acute conditions. These pressures combined with consumer preference for “aging in place” are providing the stimulus for the adoption of new community based care models that will allow a patient to stay in their home and still receive quality care.

These pressures come at a time when the Affordable Care Act (ACA) reforms are changing the financial face of healthcare through payment reform and rebasing. These reforms are expected to increase consolidation among hospitals and downstream providers as they strive to provide higher quality, more efficient care.

The use of home telehealth or remote patient monitoring is proving to be a valuable tool in reducing the cost of providing care to a high need population while improving outcomes and sustaining or improving patient satisfaction with the experience of care.

Home telehealth, sometimes called remote patient monitoring, will play an increasingly critical role with the current evolution in health care delivery and reimbursement models. And while telehealth is widely known for its impact on improving quality and access to care, there is ongoing dispute over its value in economic terms. Who pays for it? There is no simple answer as the payer (or cost saver) in each health care setting may be different. As our health care settings and payers align, there will be shared savings; capitated payments will lead to economies of service; readmissions penalties and losses will incentivize methods to prevent readmissions. *All these roads lead to home telehealth as a valuable patient management technology.*

This paper will explore the current healthcare marketplace and its major stakeholders: Medicare and Medicaid; hospitals; managed care and home care agencies. In addition, it will discuss the savings telehealth, and in specific, the Panasonic Home Gateway, can bring to those different care settings.



*Jewish Home Lifecare's
use of the Panasonic
Home Gateway won the
top award in the 2014
Innovator of the Year
Category in the
McKnight's Excellence in
Technology Awards
competition.*

PART I

Home Telehealth/Remote Patient Monitoring

The benefits of the many forms of telemedicine¹, and in particular home telehealth or remote patient monitoring (RPM), are well known. As part of a comprehensive, evidence-based care management process, early interventions based on changes in reported via a telehealth unit placed in an individual's home result in a reduction in hospitalizations and emergency room visits.

Home telehealth is expected to continue to transform and improve current practices in chronic disease care management. Daily reporting of vital signs reveals trends in patient biometrics. Prompts, reminders, and queries can assist patients in medication adherence. Educational features help patients learn to self-manage their disease through increased awareness of healthy diet and exercise. Improvement in self-management, knowledge and skills reduces health system utilization, keeping costs down. According to the Centers for Disease Control and Prevention (CDC, 2013), improved self-management of chronic disease results in an approximate cost-to-savings ratio of 1:10.

To capture data, monitoring technologies use a variety of wired or wireless peripheral measurement devices such as blood pressure cuffs, scales, and pulse oximetry. Some also permit video interaction/chat between the patient and health care professional. Some systems can prompt users to enter answers to targeted questions, and then use this information for data interpretation, provision of educational materials, as well as instructions such as scheduling an office visit or going to the nearest emergency room. Similarly, telehealth software systems can transmit user-entered data; store the data in secure records systems accessible to clinicians; flag abnormal readings or responses; and alert clinicians to abnormalities via web dashboard, e-mail or text messages. In response to these alerts, clinicians can review data, follow up with patients, or take other appropriate actions. Although applications of the monitoring technologies are most often used in the home setting, a variation called

¹This paper will discuss home telehealth, as opposed to telemedicine, which is a broader term usually used in the context of physician's offices, clinics and hospitals.

a kiosk (multiple users) is used in congregate settings such as community-based senior centers, adult day care centers and nursing homes.

Making the Case for Home Telehealth

The estimated savings Litan (2008) projects from the use of home telehealth are encompassing and aggressive. He reports that up to \$10.1 billion could be saved for all payers annually through the use of home telehealth with heart failure alone (Table A). Countless telehealth papers have attested to the savings their specific programs have incurred. The question at point; however, is to whom do these savings accrue? Who, beyond the Federal payers, have an interest and a potential role in achieving some of these savings? The second section of this paper will explore those questions.

Table A—Estimated Annual Savings from the Use of Home Telehealth
(Litan, 2008)

	Heart Failure	Diabetes	COPD
<i>Emergency Care (avoidance) Expense</i>	\$50 million	\$0.1 billion	\$2 billion
<i>Hospitalization (avoidance) Expense</i>	\$7.4 billion	\$3.5 billion	\$2.9 billion
<i>Nursing Home (avoidance) Expenses</i>	\$2.7 billion	\$2.5 billion	\$1.8 billion
<i>Total</i>	\$10.1 billion	\$6.1 billion	\$4.9 billion

THE PANASONIC HOME GATEWAY

Program Rationale

According to the International Journal of Behavioral Nutrition and Physical Activity (2014), cross-sectional comparisons across age groups suggest that as people get older, they tend to watch more television and become less active. Nielson (2014) reported that people over the age of 65 spend nearly 48 hours a week, about 7 hours a day watching television. This makes the television an ideal medium to reach an elderly population. The television is a critical part of most older person's lives, and thus makes an ideal medium to reach that population.

There are many models of home telehealth that offer different features and capabilities. Beyond the basic functions of vital sign monitoring and self-assessment queries, the Panasonic Home Gateway system was designed to address many of the issues inherent to the geriatric population: medication adherence, health literacy, self-engagement in health, poor eyesight and hearing, television use and sedentary lifestyle. Panasonic's television-based technical capabilities were embedded with the clinical evidence-based best practices of the Jewish Home Lifecare Telehealth Program.

Could a television-based product, coupled with a proven telehealth care management program, reduce hospitalizations while maintaining high levels of customer satisfaction, medication adherence and system utilization? The answer, as shown in the following pages, is a resounding "yes."

The Technology

The Panasonic Home Gateway is a small box, similar to a DVD player, which connects to and utilizes patients' televisions as a medium to provide biometric monitoring, health self-assessment surveys and educational videos to support disease self-management. The Gateway is accompanied by a specially designed remote control (Appendix C) that allows users to choose specific answers and options, such as health videos that can be displayed on the television. Data received is transmitted to a remote website via the internet, where it can be reviewed by a nurse. Data that is outside normal parameters is flagged to alert the nurse. The gateway software is customizable to allow for specific reports such as patient health and satisfaction surveys and aggregate as well as individual and aggregate responses.

Program Details—Operational Design

Each morning at an individualized, preset time, participants receive a friendly video prompt on their television in (English or Spanish), reminding them to take their vital signs. Weight and blood pressure readings are then transmitted via Bluetooth to the television, and then to the Panasonic software portal via the internet. Heart failure patients with an additional diagnosis of diabetes are prompted to take their blood sugar readings using their own glucometer, and then asked to manually put the readings into the system. Patients may be reminded up to three

times to take their vital signs if they don't respond to the first prompt, thus improving patient utilization of the technology.

In acknowledgement of the lower levels of health literacy as will be discussed in Part II, health videos were made available on demand. Patients can be encouraged to watch videos appropriate to their disease at least once as can their families.

Following the taking of the daily vital signs, patients were asked to answer a number of self-assessment questions related to their health status and symptoms. They were asked if they remembered to take their medication, and if not, why they didn't. They were regularly queried about their satisfaction with the program, or asked questions related to their diet or lifestyle, such as smoking habits or doctor's appointments.

The Pathways to Health Program

Panasonic's partnership with Jewish Home Lifecare (JHL) enabled them to benefit from JHL's many years' experience with home telehealth. As part of their "Nursing Homes without Walls" program for dually eligible beneficiaries, JHL has long used a number of home telehealth product lines as successful interventions to keep fragile patients in their homes with the belief that home technologies not only prolong, but dramatically improve the quality of life through disease management, improved patient safety and confidence, reduced numbers of hospitalizations and emergency room visits. JHL was a key part of the Pathways to Health pilot development process, overseeing the pairing of the Panasonic technology with their proven telehealth processes.

The Target Population

The Pathways to Health Beta project targeted two population cohorts:

1. Dually eligible patients that were current enrollees in JHL's Lombardi, or Long Term Home Health Care Program (LTHHCP), also known as the "Nursing Homes without Walls" program; and
2. Medicare patients referred to JHL from Healthfirst, a major Medicare Advantage provider in the Metropolitan New York City area.

During the program, the LTHHCP patients, who were dually eligible, were transferred to the oversight of Managed Long Term Care Programs per New York State mandate (MRT 90, 2014).

Patients were all diagnosed with Stage III or Stage IV Heart Failure. Many patients had additional diagnoses, with diabetes being the most common. Several patients within the program also had a diagnosis of end stage renal disease, which made them extremely high risk for hospitalization.

The average age of the pilot participants was 75 years old with the JHL patients being, on average five years older. In addition, the JHL patients were predominantly female (80 percent), Hispanic or African American (80 percent) and Spanish speaking (65 percent). The Healthfirst population was approximately 65 percent female and 75 percent Caucasian, with almost all speaking English, with one patient speaking Creole. The participants from both cohorts were heavily concentrated in Bronx and Manhattan, with a few residing in Brooklyn.

These demographics are consistent with the differences between the dually eligible population and Medicare-only.

Program Details—Implementation

To be eligible, patients needed to be diagnosed with Stage III or IV Heart Failure and at high risk for hospitalization. Both English and Spanish speaking patients were accepted.

Once a patient was screened as eligible and agreed to participate, Panasonic installers visited their home, installed the equipment and provided instruction on how to use the technology. Each patient then was visited once by a JHL nurse to assess the clinical appropriateness of the patient for the program, sign consents, reinforce the training and outline the patient responsibilities during the monitoring period.

Patients were subdivided into four cohorts:

- Heart Failure, English Speaking
- Heart Failure, Spanish Speaking
- Heart Failure with Diabetes, English Speaking
- Heart Failure with Diabetes, Spanish Speaking

Each cohort received daily prompting on the television to take their vital signs, followed by self-assessment health queries in their preferred language. Participants responded using the Panasonic remote control to choose selected answers. Questions were asked in large bold text shown on the television, easy for elderly eyes to see.

The system's branching logic identified additional critical information related to pain status, medication adherence and supply and exacerbation of symptoms.

JHL nurses monitored and educated patients appropriate to their individual diagnosis and further reinforced education throughout the monitoring period. In addition, JHL nurses communicated with patients' case managers, keeping them apprised of the patient status. As it was a pilot with new technology, careful track was kept of patients' use, satisfaction and problems incurred with the equipment.

Program Challenges

As with any pilot program, there were challenges that provided a learning experience for both organizations. The Panasonic-JHL implementation team met regularly to discuss and collectively solve clinical, technical, and any program operational issues as they appeared.

As many of the patients selected were dually eligible participants, introducing the program and maintaining the Gateway technology presented a number of challenges related to their age, tech "savviness" and in many cases, their socioeconomic status. The targeted population was generally a very febrile group—uptake during recruitment was slow at first and often required multiple phone calls to explain the project, speak with family members and arrange for installation. Once scripts were provided for staff, uptake improved.

As the project matured and showed clinical successes, case managers directly referred a number of suitable candidates to JHL's telehealth department and in some cases asked for special consideration for high risk patients to be admitted as soon as possible.

The most significant technical challenge, once patients were recruited was the lack of Internet connectivity. Some patients that did have Internet did not know their password. As an intervention, mifi's or hotspots were installed to provide connectivity where needed, but a system-wide upgrade from one major provider resulted in a system wide failure of mifi's—all had to be replaced. In order to provide the best service and connectivity possible, the operations team began to use different service providers determined by patient location. Although the mifi's were overall a very successful intervention, some participants lived in "dead zones" or in high rises that did not receive adequate service and could not be admitted into the program.

Patients and their families sometimes interfered with the Gateway once installed, unplugging it to use outlets or television ports for games, VCRs or DVD. Mifi's were unplugged, television inputs were changed. Some patients with behavioral health issues were nervous about the LED lights embedded in the box; others were concerned about the cost of additional electricity usage.

Some fixes were easy. Power strips were provided. Aides and family members were trained to troubleshoot the simple problems, such as changing the television input. Lights were taped over; the cost of electricity was explained, mifi's were hidden behind the television, out of sight.

There was some attrition during the course of the study as a few participants proved to be unreliable, disinterested or in some cases, cognitively unable to participate. One participant advised she was going on vacation for a few weeks, but did not return until the study was nearly over.

Although there were multiple service calls for connectivity issues—most of which were caused by the participants or their families—no Gateways malfunctioned or had to be replaced during the course of the study.

The pilot results—gathered throughout the program as well as from formal exit interviews—provided valuable feedback that enabled Panasonic and JHL to institute technical and program refinements that overcame the majority of those challenges that surfaced during the program.

PROGRAM RESULTS

Thirty four patients met completion requirements for the program—being enrolled a minimum of 90 days within a six month period beginning January, 2014 and ending in July, 2014.

Throughout the program time frame, hospitalization and emergency room visits were analyzed on a monthly basis, as were medication adherence, and satisfaction related to technology ease of use, program in general and quality of life. Additional aggregate and individual trends were available for reporting as well and were used for clinical care management by the telehealth team.

Claims data was available for twelve Medicare Advantage (MA) patients from a managed care company and those patients were compared against their previous year with no adjustments made for exacerbation of disease over the course of one

year. The remaining 22 patients were compared against the standard for dually eligible patients as determined by data published by the Kaiser Family Foundation (2012).

According to a brief on Medicare Policy from the Kaiser Family Foundation (Jacobson, *et al.*, 2012), the dually eligible had higher hospitalization rates than Medicare (26 percent vs. 18 percent) and were more likely to have two or more hospitalizations (11 percent vs. 6 percent). They were also more likely to use the emergency room—17 percent versus 12 percent for Medicare patients.

Both cohorts showed remarkable reductions in hospitalizations as shown in Figure B. The Medicare Advantage group had *44 percent* fewer hospitalizations than they had the year before,² despite the normal progression of disease over the course of a year. JHL's dually eligible population had an average hospitalization rate of 8 percent—*69 percent less than the average rate of 26 percent for dual eligible beneficiaries.*

Percent Reduction (Hospitalizations) Achieved with Panasonic Home Gateway	
<i>Medicare Advantage</i>	<i>44.4%</i>
<i>Dually Eligible</i>	<i>69.2%</i>

Table B—Hospitalization Rates—Comparison

<i>Cohort</i>	Medicare Advantage Before Gateway— 2013	Medicare Advantage With Gateway— 2014	Dually Eligible Average 2012 ³	Dually eligible JHL Patients with Gateway 2014
<i>Six month Hospitalization Rate</i>	<i>18%</i>	<i>10%</i>	<i>26%</i>	<i>8%</i>
<i>% Reduction / difference</i>		<i>44%</i>		<i>69%</i>

See Appendix A, Chart 1 “Six Month Hospitalization Rate”

²As this was a six month study, data was compared seasonally—the data from the first six months of 2013 was compared to the first six months of 2014 for Medicare Advantage patients.

Emergency Room Visits

Emergency room visit rates were reduced in a manner similar to hospitalizations, as shown in Table C. Medicare Advantage rates were 43 percent lower; JHL patients 74 percent lower. Also see Appendix A, Chart 3.

Table C—Emergency Room Visits—Comparison

<i>Cohort</i>	Medicare Advantage Pre Gateway—2013	Medicare Advantage With Gateway—2014	Dually Eligible Average (2012) ⁴	JHL patients with Gateway 2014
Six Month ER visit rate	9.70%	5.50%	17%	4.50%
Percent Reduction		43%		74%

Medication Adherence

Participants were reminded each day to take their medication and also were asked if they had taken their medications as prescribed. In contrast to studies related to overall medication adherence, participants generally indicated a high rate of adherence with their medication regimes, ranging from 96 percent at the beginning of the study to 99 percent in June 2014. However; each month, a significant percentage of those who responded “no” to the medication query additionally responded that the reason they did not was because they were out of their medication. This information was passed on to their care manager for a follow up intervention that ensured their prescriptions were refilled or renewed. During the course of the study, the percent of those that indicated they were out of their medications dropped, and at the same time, a slight, but noticeable trend upward was evidenced in medication adherence as shown in Table D. See also Appendix A, Chart 5.

The World Health Organization (2012) reports a general medication non adherence rate of 50% for those with chronic illness.

Study participants reported a 96%-99% rate of adherence to their medications. As medication is the primary treatment for heart failure, adherence is critically important to this population.

³Data reported in Jacobson, (2012)

⁴Data reported in Jacobson, (2012)

Table D—Medication Adherence

Report Month	January	February	March	April	May	June
<i>Adherent</i>	97%	96%	97%	95%	98%	99%
<i>Non Adherent</i>	3%	4%	3%	5%	2%	1%

Results: Satisfaction

A monthly satisfaction survey was administered to all patients on the system using the dialogue feature of the Gateway. In addition, as the program reached the first phase of its completion, in-person exit interviews were conducted during equipment removal. The exit interviews were used to validate the electronically gathered data and to solicit additional feedback.

Overall, patients reported high rates of satisfaction with the program. During the program operation, 94 percent were either very satisfied or satisfied; exit interviews confirmed this level of satisfaction with a 95 percent satisfied or better report. One hundred percent of participants responded they would recommend the Panasonic Home Gateway to family or friends. One hundred percent said using the Gateway generally helped them manage their disease and feel safer at home. This was validated by the exit interviews.

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One hundred percent said using the Gateway generally helped them manage their disease and feel safer at home.

85% of those who had used other telehealth systems said the Gateway was easier to use.

Slightly more than half the participants had used other home telehealth systems; 85 percent said the Gateway was easier to use than others. Participants especially liked the service embedded in the television as it was easy for them to see and read. All but one participant liked the reminders. There were a few negative comments related to connectivity issues, many of which were caused by those participants themselves. A small sample did not like the repetitive nature of the health self-assessment questions, which is a common complaint amongst users of home telehealth.

Those who watched the embedded videos said they were helpful (83 percent) or somewhat helpful (13 percent). Those that did not watch the videos reported that they didn't know about them (25 percent), didn't think they needed them (18 percent), they were in the wrong language (18 percent) or "other" (42 percent). Only

English videos were available for this pilot, which was a disadvantage as a significant proportion of the target population was Spanish speaking.

Beyond the Data – Improved Case Management

Home telehealth programs have great value beyond the data received. Telehealth nurses, techs and installers add an increased layer of touch points with each person receiving monitoring.

Those touch points provide critical background information that can make the difference between a patient being at home or needing nursing home placement. For example, one patient needed a service call because her Gateway wasn't powered on. The technician visited her home and found a newly installed air conditioner was overloading her living room electrical circuit and causing the breaker to blow. Also plugged into the same circuit was the individual's oxygen equipment. The patient reported it happened frequently and she often went days without air conditioning and oxygen before the building super powered the breaker back on.

To support the safety of the individual, cases such as these are reviewed by the program oversight team and referred to the appropriate case manager or responsible party for resolution as are cases where the telehealth nurse notes a repetition of concerns, such as falls or other adverse events. This additional layer of daily interactive monitoring allows for rapid interventions to avoid or reduce further patient adverse events.

The exit interview confirmed what is commonly believed about home telehealth technology—the interaction with the telehealth nurse made the participants feel more connected to their health care providers, not less (86 percent said they always felt more connected, 10 percent responded frequently). 100 percent of the responses indicated the nurse was always or frequently helpful in teaching them about their disease (See Appendix A, Chart 4).

PART II IMPLICATIONS OF THE RESULTS

The Panasonic Home Gateway concept of utilizing interactive television capability to monitor biometrics and patient symptoms has, in its Beta form, shown remarkable promise in its stated goal of minimizing hospitalizations while maintaining high rates of patient engagement and satisfaction. Coupled with the clinical oversight and friendly guidance and support provided by JHL Telehealth nurses, it extends the eyes, ears and touch of healthcare.

The Panasonic Home Gateway Beta Project showed significant reductions in hospitalizations and emergency room visits. The ultimate question; however, in today's healthcare environment is: is home telehealth financially sustainable? In the next sections, this paper will lay out the burden different payers bear related to the ever increasing health issues related to chronic illness.

Medicare and Medicaid, as Federal and State payers have a huge stake in corraling the spiraling cost of health care, and while there are many cost containment strategies—some incorporating technology, some not, it is evident that home telehealth/remote patient monitoring is a strategy to be taken seriously as a tool to be incorporated into the evolving practices of health care. The Panasonic Home Gateway, with its demonstrated reduction in hospitalizations and emergency room visits, coupled with patient engagement and satisfaction scores, has shown to be a serious contender in the battle to combat many of the concerns circling the provision of telehealth-based case management.

Managed care companies, especially Medicare Advantage or the soon to be developed FIDA plans have comparable stakes in the reduction of health system utilization. These fully capitated plans are responsible for providing the full panel of services to elderly patients, including hospitalizations and will be developing strategies to subsequently minimize their risk. Home telehealth will fit well into these strategies.

Hospitals, with newly implemented readmissions penalties, must continue to develop strategies to reduce readmissions while partnering with community service providers to manage care across settings. These collaborative efforts are a prime opportunity for home telehealth technologies to bridge the potential gaps in care that occur during the discharge processes.

Medicare home care agencies have been a bed of growth and development for home telehealth and remote patient monitoring since the 1990s. First used in early video visit form to substitute for in person-nurse visits, home telehealth's monitoring of vital signs has shown to be an invaluable care support, allowing nurses to make clinically-driven visits and provide care interventions before they reach a crises point. These technologies will continue to evolve and target their audiences in a more sophisticated and diverse manner. The Panasonic Home Gateway was tested in this environment, receiving excellent outcomes and high satisfaction rates.

The second section of this paper discusses prominent stakeholders in the health care environment, including Medicare, Medicaid, hospitals, managed care and Medicare home health agencies, and how effective home telehealth systems, such as the Panasonic Home Gateway, can accrue savings for each of those stakeholders.

STAKEHOLDERS

Stakeholder: Medicare

Health care is expensive. In 2013, Medicare was responsible for 14 percent of the Federal Budget (\$492 Billion). These payments were allocated per Figure E (See Appendix B, Chart 1).

Health care is expensive.

In 2010, about one in five Medicare beneficiaries were admitted to a hospital, resulting in costs over 100 billion dollars. Among the 14 % of beneficiaries with 6 or more chronic conditions, over 60% were hospitalized, which accounted for 55% of total Medicare spending on hospitalizations.

Additional, post-acute care costs for the 14% of those who received them totaled \$54.7 billion dollars (Rau, November 26, 2012).

Medicare beneficiaries with multiple chronic conditions (non-communicable illnesses that are prolonged in duration, do not resolve spontaneously, and are rarely cured completely) are the heaviest users of health care services. As the number of chronic conditions increases, so do utilization of health care services and health care costs (CDC, 2009).

Table E—Medicare Benefit Payments—\$492 Billion

Home Health	Other Services	Medicare Advantage	Hospital Inpatient	Physician Payments	Outpatient Rx Drugs	Hospital Outpatient	Skilled Nursing
3%	14%	25%	24%	12%	11%	6%	5%

Among all Americans, the most likely to have chronic conditions are Medicare beneficiaries age 65 and older as about four out of five are affected by a chronic condition, such as heart disease and cancer, hypertension, stroke and diabetes (CDC, Health Aging, 2011). Research indicates that in 2008, two-thirds of all Medicare beneficiaries had at least two or more chronic conditions (CMS, 2011). Because the risk for multiple chronic diseases rises with age, the prevalence of multiple chronic conditions is expected to grow even more as the Medicare population ages. Additional, post-acute care costs for the 14 percent of those who received them totaled \$54.7 billion dollars (Rau, November 26, 2012).

The 30 day all cause readmission rate for all FFS beneficiaries was 19 percent compared to a rate of 25 percent for beneficiaries with 6 or more chronic conditions.

Medicare beneficiaries with multiple chronic conditions are the heaviest users of health care services. As the number of chronic conditions increases, in addition to the hospitalizations, there is a corresponding increase in overall health system utilization such as post-acute services and home health care. Likewise, as the number of chronic conditions increases, so do readmission rates. Compared to beneficiaries with 0 or 1 chronic condition, Medicare spending overall was 3 times greater for

beneficiaries with 2 or 3 chronic conditions and 15 times greater for those with 6 or more chronic conditions (CMS—Chronic Conditions, 2011).

Emergency room visits follow the same trend, with a strong correlation between the number of chronic conditions and number of visits to the emergency room, with 70 percent of beneficiaries with 6 or more chronic conditions having at least one ER visit and over 25 percent having three or more visits.

An estimated 17 percent of Medicare beneficiaries have heart failure, accounting for 800,000 admissions annually (Advisory.com, April 4, 2014). Nearly one in four patients hospitalized with HF is re-hospitalized within 30 days of discharge. The American Heart Association (AHA) lists the major causes of hospital readmission as:

- 24 percent Diet non-compliance
- 24 percent Prescribed medication non-compliance
- 16 percent Inappropriate medication
- 19 percent Failure to seek care
- 17 percent other

According to Brown (2014) data shows that readmissions more than double the cost of providing care to a patient. On average, Medicare pays \$15,000 in overall health system costs for an episode with no readmission and \$33,000 for an episode with one readmit. The use of home telehealth to educate patients with low health literacy, support medication adherence and provide an additional layer of case management can result in exponential savings as seen in the inset text box.

Rough analysis: If 800,000 patients are admitted for heart failure at a cost of \$15,000 each admission; and subsequently 25 % (200,000 patients) are readmitted at the Medicare cost of \$33,000, the total cost of these events, based on Brown's figures is **\$18,600,000,000 per year.**

If home telehealth is used as an intervention, reducing both admissions and readmissions by a conservative 20% each time, the total Medicare cost is reduced to \$13,824,000,000, notwithstanding the cost of the intervention. A 40% hospitalization/40% re-admission reduction brings the patient re-admittance to 72,000, for a much lower total Medicare cost of \$2,376,000,000 per year.

Conclusion: Medicare

There is general consensus that many hospitalizations and subsequent re-hospitalizations can be avoided for the Medicare population. The Panasonic Home Gateway resulted in dramatic reductions in admissions and readmissions, similar to those in the rough analysis. To avoid the continual and potentially catastrophic increase in the cost of Medicare, effective strategies such as home telehealth, that promote disease self-management and reduction in utilization must be implemented.

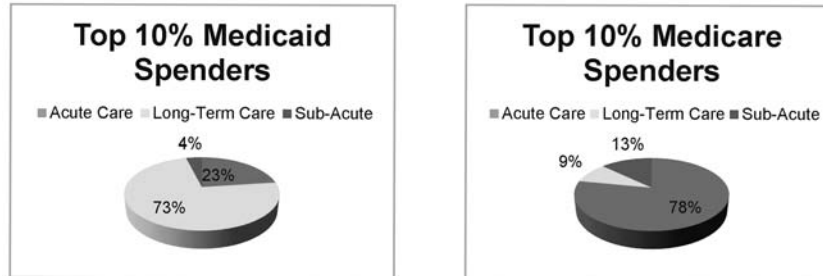
Stakeholder: Medicaid—the Dually-Eligible Population

Many of the highest cost, chronically ill patients are eligible for both Medicare and Medicaid and are called dually eligible beneficiaries, or what commonly called “dual eligibles” or sometimes simply as “duals.” Policymakers are interested in find-

ing ways to improve the delivery of care and reduce spending for beneficiaries because they are among the frailest and highest cost segments of the Medicare and Medicaid programs.

The dually eligible are low-income seniors and individuals with disabilities who rely on Medicare for coverage of acute care medical services and on Medicaid for financial assistance with Medicare's premiums and cost sharing. Most also rely on Medicaid to provide coverage for services not included in Medicare, particularly long-term care. They are among the poorest and sickest beneficiaries covered by either program and consequently account for a disproportionate share of spending in both programs. More than half have incomes less than \$10,000, compared to only 8.3 percent of Medicare beneficiaries. They are less likely to be married and to be non-White. The dually eligible are much more likely to be living in an institution: one of six compared to only one out of 50 other Medicare beneficiaries reside in an institution (Kaiser Commission, 2012). This high rate of institutionalization has a critical impact on health care spending. In 2009, the Federal and state governments spent a total of more than \$250 billion on health care benefits for the nine million dually eligible population (CBO, 2013). The difference in health system utilization and associated costs is shown in the following charts.

Charts A & B (Kaiser, 2012)



The dually eligible beneficiaries comprise 21 percent of the Medicare population, but 31 percent of total Medicare costs, and 15 percent of the Medicaid population, accounting for 39 percent of total Medicaid costs (Jacobson *et al.*, 2012; Young *et al.*, 2012). As a group, they are similar in the sense that they tend to have low incomes and modest assets, but otherwise, they are quite heterogeneous, with a wide range of health problems and needs, requiring care from multiple types of providers in a wide range of settings.

According to Jiang *et al.*, in a report for the Healthcare Cost and Utilization Project (2008), the dually eligible are more likely to be hospitalized than Medicare patients—7.2 percent for heart failure, 101.2 percent for Diabetes, with heart failure being the leading cause of hospitalization among the chronically ill. The dually eligible are also in poorer health as seen in Table F.

Table F—Health Status of Duals vs Other Medicare⁵

	Heart Disease	Diabetes	COPD	Mental Illness	Alzheimer's	Mental Retardation
<i>Duals</i>	29.3%	5.2%	25.1%	34%	5.7%	6.3%
<i>Other Medicare</i>	25.6%	0.5%	16.3%	16.8%	25%	0.6%

(See also Appendix B, Chart 2). As a result of their lower health status, the dually eligible have a higher level of health system utilization than other Medicare beneficiaries as shown in Table G.

Table G—Comparative Service Use⁵

	Institutional Long Term Care	Skilled Nursing Facility	Inpatient Hospital	Outpatient Hospital	Physician Visit
<i>Duals</i>	16%	9.2%	26.1%	66.9%	65.8%
<i>Other Medicare</i>	0%	3.5%	15.1%	51.2%	62.8%

(See also Appendix B, Chart 2).

According to Wilding (2014), about 25 percent and Segal (2011); 26 percent of hospitalizations for dually eligible beneficiaries are preventable. Heart failure was the leading condition associated with a potentially avoidable hospitalization.

Conclusion: Medicaid

In addition to the cost to federally funded Medicare, dually eligible patients add an additional burden to states that are responsible for those health expenses not paid for by Medicare. They have poorer health, lower socioeconomic status and higher rates of health system utilization, including high rates of expensive institutionalization. They are more likely to be hospitalized, and thus re-hospitalized. Home telehealth coupled with effective case management can delay nursing home placement, allowing individuals to stay safely in their homes. Dually eligible participants who participated in the Panasonic Gateway project, for example, had 69 percent less hospitalizations than the normal rate (as reported by Kaiser, 2010) of 26 percent.

Stakeholders: Medicaid State Policy and FIDA

State Medicaid agencies must pay Medicare cost-sharing for most “dual eligibles.” Further, most of the dually eligible are excused, by law, from paying Medicare cost-sharing, and providers are prohibited from charging them (Center for Medicare Advocacy, 2008), but the particulars are complex in traditional Medicare and become even more complex when a dually eligible beneficiary is enrolled in a Medicare Advantage (MA) plan.

Many states are looking to FIDA, or Fully Integrated Dual Advantage plans, a new type of managed care plan for certain dual eligible beneficiaries to reduce the growing cost burden to the state, of the dually eligible population, 73 percent of which is incurred in the long term care setting as shown in Chart A.

New York is a good example. The dually eligible are among New York State’s costliest and most complex Medicaid beneficiaries. On average, each dual eligible costs the State \$30,384 per year—the highest rate in the Nation and twice as much as the national average of \$15,459 (New York State Health Foundation, 2013). According to a presentation by Emblem Health (2013), New York State spends about \$35 billion on an estimated 820,000 dually eligible beneficiaries. Because of New York’s comprehensive Medicaid long-term care benefit, the majority of Medicaid spending on the dually eligible in New York is for long-term care, and the majority of Medicaid’s long-term care spending is for that specific population (Samis, 2012).

Under ACA, the Federal Government has funded 15 states, including New York, to develop FIDA demonstration programs. FIDA plans will care for dually enrolled beneficiaries through a full-capitation model in which a single managed care plan delivers all Medicare and Medicaid services. Meeting participant needs, including the ability to self-direct care, be involved in one’s care, and live independently in the community, are central goals of this initiative (CMS 2013).

This shift in reimbursement model is important in that the FIDA plan will assume full responsibility for *all* healthcare costs incurred by the member. In other words, a FIDA member will essentially trade in all of their insurance cards—Medicare (Original or Medicare Advantage), Medicaid, MLTC, Medigap, and Medicare Part D—and only have one health plan—their FIDA plan. When fully implemented, the FIDA demonstration program could affect approximately 150,000 New Yorkers in the metropolitan New York City and surrounding areas (United Fund, 2012).

According to NY Health Access (2014), the New York State demonstration area includes dually eligible patients in New York City, Long Island, and Westchester County who:

- Receive or need managed long term care services—those adults age 21+ who receive or need community-based long term care services; and
- The dually eligible living in nursing homes or who come to be permanently placed in nursing homes.

The FIDA plan model is significantly different from the current partially capitated managed long term care plan (MLTC) currently serving the dually eligible population in New York in *that is responsible for all the patient’s incurred healthcare costs*. MLTC’s are currently not responsible for the cost of hospitalizations, doctors’ visits, medications (See Appendix B, Table 1) and therefore, have less incentive to provide clinically indicated preventive/avoidance services—Medicare picks up many of those costs. As the MLTC plans in the affected area migrate into FIDA plans, they will have increased incentives to implement telehealth as a cost savings case

⁵Data from Urban Institute analysis of MSIS-MCBS 2007 as quoted in the Kaiser Commission Report on Medicaid and the Uninsured

management tool, especially for those patients in the over 75, whose costs are more than twice as high for those 65–74 (Samis, 2012).

Conclusion: FIDA Plans

Fully capitated FIDA plans will strongly benefit from home telehealth's proven record of chronic disease management success in reducing hospitalizations and emergency room visits.

Stakeholders: Hospitals

Hospitals, like hotels and other brick and mortar facilities, need to be fully occupied to economically self-sustain; however, new policies created under ACA result in hospitals having a significant stake in reducing readmissions.

As health care costs continue to rise and the population ages, policymakers are increasingly concerned about the growing burden of hospital-based medical care expenses on payers—the government, insurers, patients, and employers. Inpatient hospital services account for a small share of health care utilization (7 percent) but constitute the largest share of total health care spending in the United States (29 percent in 2009) (Kashihara and Carper 2009).

According to Brown (2014), data shows that readmissions more than double the cost of providing care to a patient. On average, Medicare pays \$15,000 for an episode with no readmission and \$33,000 for an episode with one readmit. Hospitals themselves have a significant stake in preventing readmissions. A simulation run by Reinforced Care (August, 2013), using CMS data, found that, for each of three diagnostic-related groups (acute myocardial infarction, heart failure and pneumonia) on which penalties depend, the prevention of a single readmission for heart failure saved the average hospital \$8,200 (per each prevented admission) for FY 2013 and FY 2014. The loss included the CMS penalty and the net cost of care.

Cost of Readmissions

A simulation run by Reinforced Care (August, 2013) using CMS data, found that, for each of three diagnostic-related groups (acute myocardial infarction, heart failure and pneumonia) on which penalties depend, the prevention of a single readmission for heart failure saved the average hospital \$8,200 (per each prevented admission).

The loss included the CMS penalty and the net cost of care.

THE HHRP. Section 3025 of the Affordable Care Act (ACA) added section 1886(q) to the Social Security Act establishing the Hospital Readmissions Reduction Program (HRRP), which requires the Centers for Medicare and Medicaid (CMS) to reduce payments to hospitals with excess readmissions, effective for discharges beginning on October 1, 2012. Initially, the program targeted Medicare patients who were hospitalized for heart attack, heart failure, or pneumonia. In the Federal Fiscal Year 2015, CMS will expand the list of conditions to include elective total hip arthroplasty, total knee arthroplasty, and acute exacerbation of chronic obstructive pulmonary disease.

In December of 2013, CMS announced that hospital readmission rates were slowly declining (from a steady 19 percent between 2007 and 2011 to 18.5 percent in 2012) and attributed that decline to the HRRP. Preliminary claims data shows the Medicare readmission rate averaged less than 18 percent over the first eight months of 2013 (CMS, 2013). This reduction; however, means that the pressure will continue to reduce readmissions as each hospital is measured against a collective benchmark.

Based on the perceived success of the HRPP, it is not unreasonable to expect that it is only a matter of time before the similar payment reduction/financial incentive programs already under consideration related to other modalities of care such as nursing homes (Mullaney, 2014) and home care (Blockberger-Miller, 2014) are implemented. This broad focus on reducing readmissions plus a payer focus on reducing hospitalizations in general will enhance the value of disease management models that show documented reductions in health system utilization.

Conclusion: Hospitals

The pressure on hospitals to reduce their readmissions rates will continue, most likely past 60 days and on to 90. As the penalty benchmarks inch downward, the pressure will accelerate, making chronic disease programs incorporating home telehealth invaluable—especially for those frequently readmitted patients.

Stakeholders: ACOs—Economies of Scale

As a result of the financial and quality outcome pressures created by ACA, consolidation has intensified across healthcare, encouraging mergers and acquisitions between hospitals, health systems, health plans, medical groups and post-acute providers. Some industry experts say the consolidations allow for greater coordination to reduce unnecessary services and improve outcomes, as well as creating sufficient scale to manage the financial risks of new payment models, such as accountable care organizations (ACOs).

ACOs are legally formed collectives of doctors, hospitals, and other health care providers who work together to provide care to their Medicare patients. While there are several basic reimbursement models or payment arrangements, most center on shared savings (Punke, 2013), *i.e.*, when an ACO succeeds both in both delivering high-quality care and spending health care dollars efficiently (by reducing unnecessary services and cost), it will share in the savings it achieves for the Medicare program. In Medicare's traditional fee-for-service payment (FFS) system, doctors and hospitals generally are reimbursed for each test and procedure. ACOs do not eliminate FFS, but do create an incentive to be more efficient by offering bonuses when providers keep costs down while achieving better health outcomes—thus encouraging a balance between high quality care and cost control. Bonuses are based on meeting specific quality benchmarks, focusing on prevention and carefully managing patients with chronic disease (Kaiser 2014).

Conclusion: ACOs

While the structures of ACO's vary—both legally and financially, home telehealth is an ideal tool to be used within the ACO framework as a central telehealth office oversight is invaluable during those transitions between collaborating partners, reducing costly and punitive readmissions.

Stakeholders: The Growing Footprint of Managed Care in Medicare

Managed care has become a major player in the health reimbursement “payer” market for the elderly with Medicare Advantage now managing care for 15.7 million (Kaiser, 2014) or 30 percent of the Medicare-eligible market, with Medicaid managed care providing benefits to over 74 percent of Medicaid recipients (Kaiser, 2011) or 50 million people (Medicaid.gov, 2014).

Managed care, which had its roots in the early 20th Century, played only a modest role in the financing and delivery of health care until the 1970s, when the Health Maintenance Act of 1973 was enacted as a way to curb medical inflation through the encouragement of managed care plans (Fox and Kongstvedt, 2007). The Medicare Modernization Act (MMA) of 2003 created Medicare Advantage plans, which include an entitlement benefit for prescription drugs known as Medicare Part D. This coverage became effective on January 1, 2006 (CMS, February 2009). It should be noted that currently (and thus underlying the importance of medication adherence), prescription drugs account for 11 percent of the Medicare budget (Kaiser 2014).

Medicare Payment Policy Reversals Have Impact Medicare pays Medicare Advantage plans a capitated amount per enrollee accounting for between 25 percent and 30 percent of total Medicare spending (Appendix B, Chart 1). As Medicare Advantage plans matured, Medicare payment policy shifted gradually from one that produced savings to one that focused more on expanding access to private plans and

providing extra benefits to Medicare private plan enrollees. These policy changes resulted in Medicare paying private plans more per enrollee than the cost of care for beneficiaries in traditional Medicare (MedPAC, 2010).

Subsequently, ACA *reversed* the payment policy by reducing Federal payments to Medicare Advantage plans over time, bringing them closer to the average costs of care under the traditional Medicare program. It also provided for new bonus payments to plans based on quality, or 5-Star ratings (Weiss and Pescatello, 2014) beginning in 2012, and required plans beginning in 2014 to maintain a medical loss ratio of at least 85 percent, restricting the share of premiums that Medicare Advantage plans can use for administrative expenses and profits (Kaiser Foundation, May 1, 2014). There is currently concern that the 5-Star rating system unfairly penalizes those Medicare Advantage plans serving primarily low-income and dually eligible individuals (who require more services), thus increasing the pressure on those plans to seek ways to provide less expensive oversight without sacrificing quality.

ROUGH ANALYSIS

Currently, Medicare pays for approximately one million hospitalizations for heart failure each year. The average cost of a hospitalization for the heart failure (Pfundner et al. HCUP #146, January 2013) in 2010 was \$10,500. Assuming 30% of those admissions fall within the realm of Medicare Advantage, which would account for 300,000 admissions for heart failure at \$10,500¹.

Telehealth can substantially reduce those costs by lowering the rate of hospital admissions 20% to over 40% (Panasonic Gateway) as shown in Table H. These figures do not take into account the additional costs incurred by readmissions or the cost of the telehealth program.

Table H

Total cost of Medicare Advantage Heart Failure Admissions	\$3,150,000,000.00
Savings with 19.7 percent reduction (VA—Darkins, 2008)	\$620,550,000.00
Savings with 39.7 percent reduction (Chen et al, 2011)	\$1,250,550,000.00
Savings with 44 percent reduction (Panasonic Gateway)	\$1,386,000,000.00

Conclusion: Medicare Advantage

Although projections for the growth of Medicare Advantage plans vary (Kaiser, 2013), enrollment has grown by 30 percent since 2010, and there is no doubt that it will play a significant role in the health care arena for the foreseeable future. As payment reductions, quality outcome bonuses and star ratings continue to pressure Medicare Advantage plans to provide more services while controlling costs, home telehealth coupled with effective case management will be a lucrative option.

Stakeholders: Medicare Home Health Agencies

Home health agencies provide nursing services, home health aides and services such as physical therapy, occupational therapy and social services. Medicare pays for home health services when they are medically reasonable and necessary and when an individual is confined to his or her home (homebound) and needs skilled nursing care on a part-time or intermittent basis, or physical or speech therapy, and in certain circumstances, occupational therapy. Roughly 9.6 percent of Medicare fee-for-service (FFS) beneficiaries (or 3.4 million individuals) used home health services in 2010. According to an article in Caring (2008), home care nurses, aides and therapists drive more than 5 billion miles per year—many of those miles could be eliminated through the use of home telehealth/remote patient monitoring.

Medicare pays home health agencies under the Medicare Home Health Prospective Payment System (HH PPS) based on a standard sixty-day episode rate, adjusted for patient acuity and local labor costs.

Currently, reforms stemming from provisions of ACA will result in rebasing of reimbursement rates, which will most likely lead to cuts in payments to home care providers. The MedPAC Commission recommends further cuts, despite concerns over the fiscal health of home care providers, especially those rural and public agen-

cies which show high losses. These fiscal pressures will heighten the need for agencies to find ways to provide higher quality services while reducing costs.

The major source of loss for providers is for the care of “outliers,” or high cost cases (NAHC, 2011). Recent changes under ACA have reduced the rate for outlier payments and instituted a per agency cap for outlier payments. This negatively impacts those agencies that routinely serve high need patients, creating an additional strain on the financial health of home care agencies.

Home telehealth offers the opportunity to save home care agencies precious dollars by reducing staff utilization and improving quality of care. Typically, home visits are made on a formal, calendar-driven schedule. By incorporating telehealth monitoring into patient care, nurses are driven by clinical need rather than by calendar, generally saving needless visits.

According to CMS’s Health Care financing Review (2012) Medicare Home Health agencies were paid an average of \$3618 per episode for a patient with heart failure. According to the Medicare Cost report (2010, page 19), skilled nursing is responsible for 55 percent of the costs incurred by home health agencies during an episode. Centura (2008) reported a dramatic reduction in nurse visits resulting from the installation of telehealth—from 2–3 visits per week to 3 visits per 60 day episode. For the purpose of this paper, we will estimate a 50 percent reduction in Centura’s nursing visits as an example of cost savings.

ROUGH ANALYSIS: TWO COST SAVINGS EXAMPLES⁶

(1) VNA of Western Pennsylvania documented a reduction—14 visits for Heart Failure patients without telehealth and 11 for patients with telehealth within approximately the same episode length (Alston, 2009). This is a 21.4 percent reduction in nursing visit cost—or: $\$3618 \text{ Medicare payment} \times 55 \text{ percent} = \$1990 \text{ cost of skilled nursing}$. Minus a 21.4 percent reduction in visit cost = $\$1564.01 \text{ cost of nursing}$ or a \$426 savings per patient per episode, minus the cost of technology.

(2) If Centura had a 50 percent reduction in nursing visits, their savings would be equal to \$995 per patient per episode, minus technology cost.

With the understanding that not every patient is appropriate for home telehealth technology, in light of the current and more severe projected shortage in nurses and the pressure on agencies to reduce re-hospitalizations (including proposed readmissions penalties) while maintaining efficiencies and quality outcomes this savings is a compelling argument for home telehealth on its own merit. Based on these assumptions, reducing the number of visits per episode by even three would have critical impact on home care profitability.

Conclusion: Home Care

Additional financial pressures created by Medicare cuts to home care combined with labor shortages, potential readmissions penalties, competition for managed care contracts and increased focus on quality outcomes (such as home care compare star ratings proposed for 2016) create additional incentives for Medicare Certified Agencies to begin or expand the incorporation of home telehealth as a best practice.

CONTRIBUTING FACTORS: HEALTH CARE COSTS

Beyond the socioeconomic issues detailed previously in the differences between Medicare and dually eligible beneficiaries, there are additional contributing factors to the current cost of health care. These factors are universal across all healthcare settings and include the interface of human capital, human factors, regulatory and economic factors. The most important of these are medication adherence, health literacy, patient engagement/satisfaction and labor force.

Cost Factor: Medication Adherence

Drugs are the primary treatment for heart failure but have limited effectiveness if patients are non-adherent to their medication regime (Hope et. al, 2004). According to the World Health Organization’s (WHO) World Health Report 2003, quoted in (Wood 2012) the degree of medication non-adherence is so great and the consequences are of such concern that more people worldwide would benefit from efforts to improve medication adherence than from the development of new medical treat-

⁶Agencies will of course, have varying reimbursements and costs associated with this rough analysis, but it demonstrates the value of considering home telehealth as a viable care management tool within each patient’s “budget” or estimated payment.

ments. WHO also reports, according to Chisholm-Burns (2012), that the average non-adherence rate is 50 percent among those with chronic illnesses. The AHA (2010) reports that collectively, non-adherence to medication and inappropriate medications are responsible for 40 percent of hospital readmissions. Consequences of non-adherence include worsening condition, increased comorbid diseases, increased health care system utilization and potentially, death.

Chan, Nicklasan and Vial (2001) write that low medication adherence is increasingly being recognized as a dominant feature in elderly patients. In older adults, medication non-adherence accounts for between 25 percent (CHAMP, undated) and 40 percent (McKesson, 2012, ESRD Network, undated) of nursing home admissions. Medication non-adherence results in an estimated 125,000 deaths annually, and costs between \$100 billion (CHAMP, undated) and \$289 billion (CDC, 2013) a year, depending on source, including approximately \$47 billion for drug-related hospitalizations (CHAMP, undated).

In a study of elderly patients greater than 75 years of age Chan, Nicklasan and Vial (2001), found that non-adherence, omission and cessation of drug therapy collectively accounted for 26 percent of hospital admissions. The most common causative drugs were cardiovascular drugs (48.4 percent) and the most common manifestations were falls, heart failure and delirium.

After adjusting for age, sex, race/ethnicity, education, alcohol use, cognitive measures, functional status, depression, and number of medications, (Berry et al, 2010) found that low medication adherence was associated with a 50 percent increased rate of falls compared with high medication adherence. According to HCUP (2010) data, among persons aged 65 and over, falls were the most common cause of injuries, accounting for 13 percent of all emergency department visits in 2008–2010 (U.S. Department of Health and Human Services, 2013). Average cost for ED expenditures, not including admissions to hospital, was \$1062 for patients over the age of 65.

In an article in the American Journal of Health System Pharmacy, Hope *et al.*, (2004) reported that medication non-adherence may be caused by patient's lack of health literacy and diminished skills and abilities. The article concluded that greater medication knowledge, skills, and adherence were associated with fewer ED visits in a study among patients 50 years of age or older with congestive heart failure in an urban, teaching medical center.

Reminder prompts and adherence queries, with optional dispensers embedded in home telehealth programs have shown to dramatically improve medication adherence. As noted earlier, the Panasonic Home Gateway system had a patient-reported medication adherence rate of between 96–99 percent.

Cost Factor: Health Literacy

Inadequate literacy is especially prevalent among the elderly, the population with the largest burden of chronic disease and the greatest health-related reading demands. According to the National Adult Literacy Survey (2003) 38 percent of adults over 65 had intermediate health literacy, with 30 percent having basic and 29 percent having below basic health literacy. Only 3 percent had proficient levels of health literacy. This lower reading ability among older adults is most likely the result of age-related declines in information processing, and it is not explained by their having less education, a higher prevalence of chronic diseases, worse physical or mental health, or dementia.

A study of 3260 Medicare managed care enrollees that correlated the rates of hospitalizations with levels of literacy (Baker *et al.*, 2002) found that the risk of hospitalizations was higher for individuals with inadequate literacy.

Cost Factor: Satisfaction with the Care Experience

Simply put: health care is about the patient. Patient-driven care facilitates patient engagement, patient—provider communication and is instrumental to engaging the patient in their own health. Engaged patients have better outcomes; engagement is measured through patient satisfaction scores. According to an article in Health Affairs (February 13, 2014), a growing body of evidence demonstrates that patients who are more actively involved in their health care experience better health outcomes and incur lower costs. As a result, many public and private health care organizations are employing strategies to better engage patients, such as educating them about their conditions and involving them more fully in making decisions about their care. Patient engagement is one strategy to achieve the “triple aim” of improved health outcomes, better patient care, and lower costs.

The Institute for Healthcare Improvement (IHI) has developed a framework that describes an approach to optimizing health system performance (IHI, 2013), defining

three global dimensions of care as overall areas for needed improvements in healthcare settings. This framework for improvement includes:

- The patient experience of care (including quality and satisfaction);
- Overall population health; and
- Per capita cost of health care.

Although much of the focus on telehealth has been dedicated to cost savings achievable through the use of home telehealth, its use has been widely documented as a tool that supports and enhances both quality of, and satisfaction with care.

A paper written by Fazzi Associates (2008) on the future of technology and home telehealth concluded that using technology to connect the patient to the healthcare system in a tangible, visible manner generally accomplishes the following:

- Improved access to care;
- Satisfaction with the technology;
- Satisfaction with the related communication which may occur as a result of the telehealth monitoring; and
- Increased patient/caregiver involvement in managing their disease.

The VA provided various forms of telehealth and telemedicine care to 608,900 patients in 2013, according to a Department of Veterans Affairs report (Darkins, 2013). Overall, outcomes for patients receiving home telehealth services were positive with the average patient satisfaction being 84 percent. Similarly, a poll of 200 Centura Health at Home patients indicated that approximately 86 percent (4.3/5) “completely agreed” that they would recommend telehealth. The Home Gateway system had extremely high rates of participant satisfaction as reported in Section 1.

Cost Factor: Labor Shortages and the Increasing Demand for Care

The shortage of health care personnel as a global concern, especially in rural areas, is well documented (Bushy, 2006, Nebraska, 2009) and is expected to exacerbate due to the growth of chronic illnesses coupled with an aging population.

The U.S. Census Bureau projects the overall general population to increase by 13 percent between now and 2025. In 1900, the elderly (defined as persons 65 years or older) constituted just 4 percent of the U.S. population, according to the Federal Interagency Forum on Aging-Related Statistics (2012). By 2010, they represented 13 percent, growing in number from a population of 3 million to 40 million. Currently, there are close to 11 million elders who need assistance with at least one aspect of independent living (FORUM, 2012). A significant impact of this trend is that those 65 or older use twice as many physician resources as those less than 65 (Dill and Salsberg, 2008).

According to the Bureau of Labor Statistics’ Employment Projections 2012–2022 released in December 2013, Registered Nursing is listed among the top occupations in terms of job growth through 2022. The RN workforce is expected to grow from 2.71 million in 2012 to 3.24 million in 2022, an increase of 526,800 or 19 percent. The Bureau also projects the need for 525,000 replacements nurses in the workforce bringing the total number of job openings for nurses due to growth and replacements to 1.05 million by 2022 (BLS, 2013).

- According to the Paraprofessional Healthcare Institute (PHI), by 2020, the Nation will need 1.1 million additional direct-care workers.
- The Association of Schools of Public Health (ASPH) projects a shortage of 250,000 public health workers by 2020.
- The American Geriatrics Society reports that the geriatrician supply in the United States is declining (down one-quarter to 7,000 since 2000), and predicts that demand will skyrocket as the population ages to 36,000 by 2030 (Zywiak, no date).

These collective shortages will undoubtedly impact the quality of patient care in the next ten years, while increasing competition for a shrinking labor pool. Health care organizations will subsequently have to increase wages and benefits to be competitive employers, thus increasing overall labor cost.

Conclusion: Cost factors

The causes of the rise in health care system utilization and the resulting costs are many and complex. Each factor has, in turn, its own complexities which further complicate both understanding the problem at large and the solution or solutions. The previously discussed cost factors are four of the most prominent contributing factors that affect the future of health care costs. All could be mitigated, to some extent, with the use of home telehealth devices.

CONCLUSION

Home telehealth is coming of age. Within the current health care arena, a number of political, social and economic forces are aligning that will require changes in the way our health care is provided—changes that save nurse and physician time, improve quality of care, maintain high rates of patient satisfaction and save money.

Against this broader landscape of stakeholders and contributing cost factors, the Panasonic Home Gateway System was designed and tested as a technology that could, when coupled with evidence based best practices embedded in case management, provide cost savings through reduced hospitalizations and emergency room visits while maintaining high rates of patient satisfaction.

The joint project between Panasonic and Jewish Home Lifecare—Pathways to Health—produced excellent outcomes. A summary of outcomes includes (unless noted, data is for all patients):

- Hospitalizations
 - JHL cohort(dually eligible)—69 percent less than the dually eligible average
 - Medicare Advantage—44 percent reduction compared to previous claims data
- Emergency room visits
 - JHL cohort (dually eligible)— 74 percent less than dually eligible average
 - Medicare Advantage—43 percent less compared to previous claims data
- Medication adherence
 - 96–99 percent range, all participants
- Satisfaction
 - 95 percent satisfied or better
 - 100 percent would recommend to family or friends
 - 100 percent felt safer at home
- Utilization
 - 90.3 percent patients used the tablet at least three times per week.

These outcomes, when viewed through the lens of the current health care economic environment, clearly substantiate the overall value of using home telehealth as a critical tool in the care management process. Coupled with the many advantages a television-based product brings to an elderly health care cohort, the outcomes validate the Panasonic Home Gateway as a viable and effective product in the American home telehealth marketplace.

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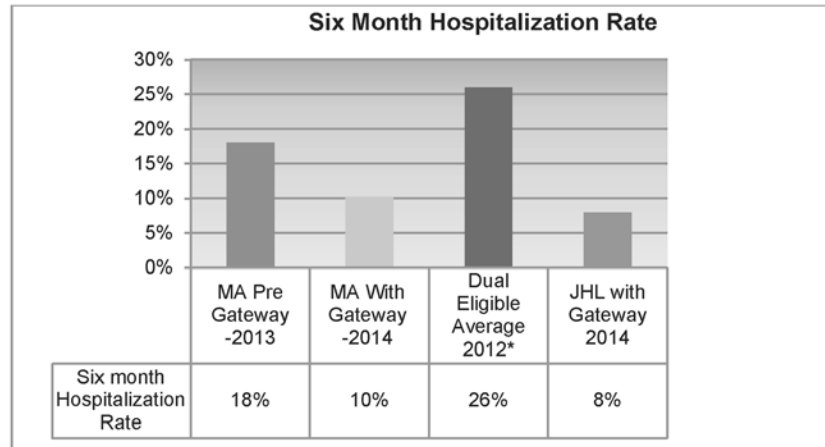
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Table 1—MLTC Covered Services vs. Medicare Covered Services

Chart 1—Six Month Hospitalization Rate**Chart 2—Gateway Reductions**

Reduction in Hospitalizations Achieved with Panasonic Home Gateway	
Medicare Advantage Cohort	44.4%
JHL Dually Eligible Cohort	69.2%

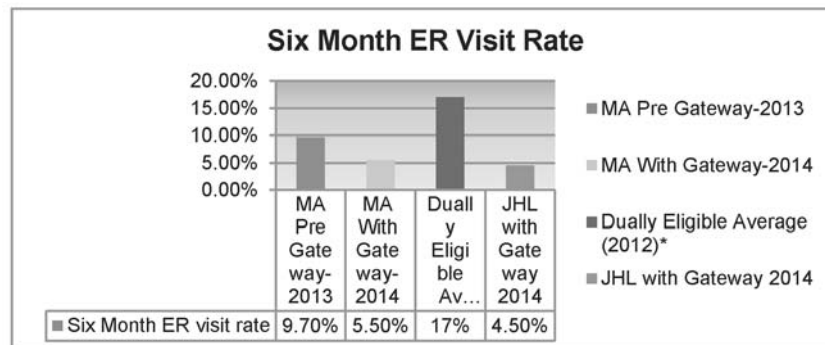
Chart 3—Six Month ER Visit Rate

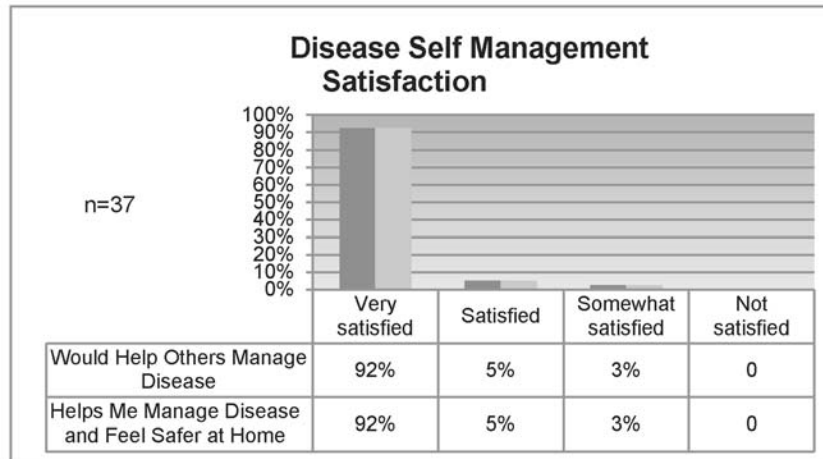
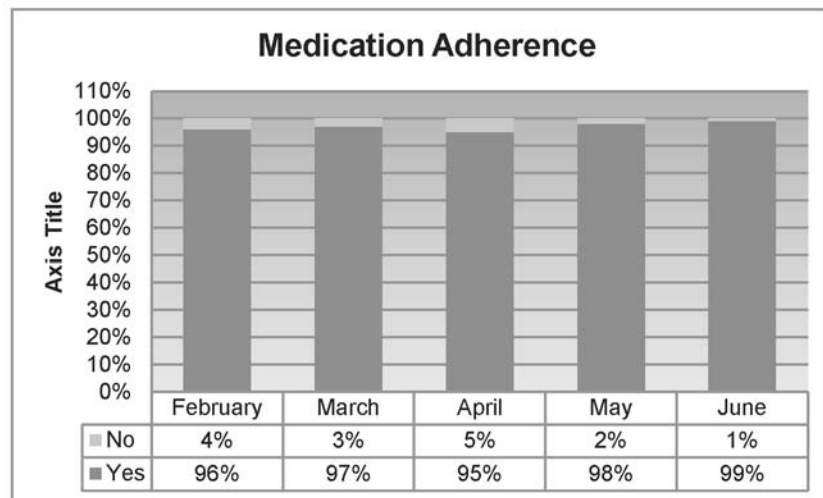
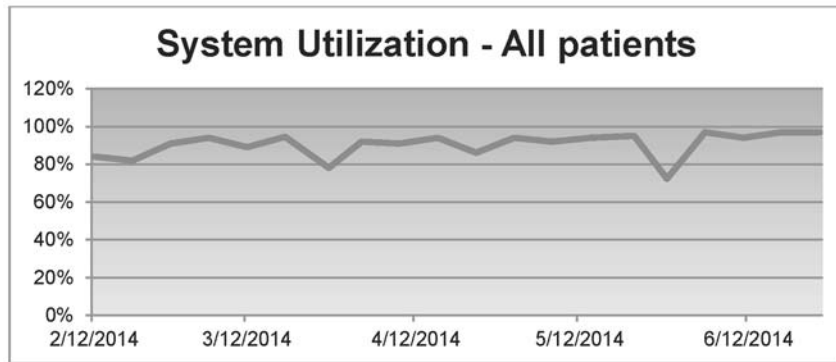
Chart 4—Gateway Satisfaction**Chart 5—Adherence Trend in Medication**

Chart 6—System Utilization

APPENDIX B—STAKEHOLDERS

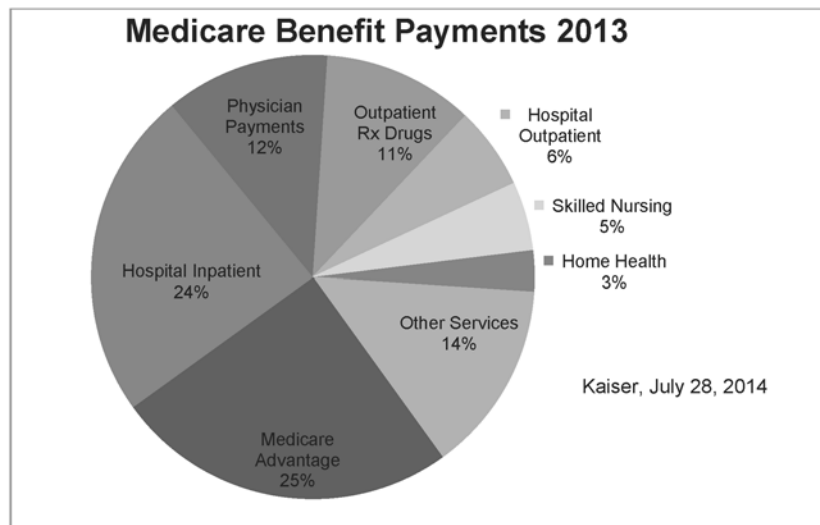
Chart 1—Medicare Benefits Payments

Chart 2—Health Status of Duals—Comparison

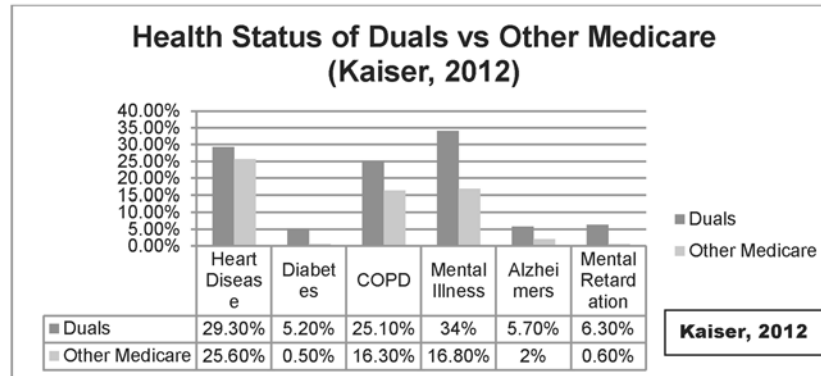


Chart 3—Comparative Service Use

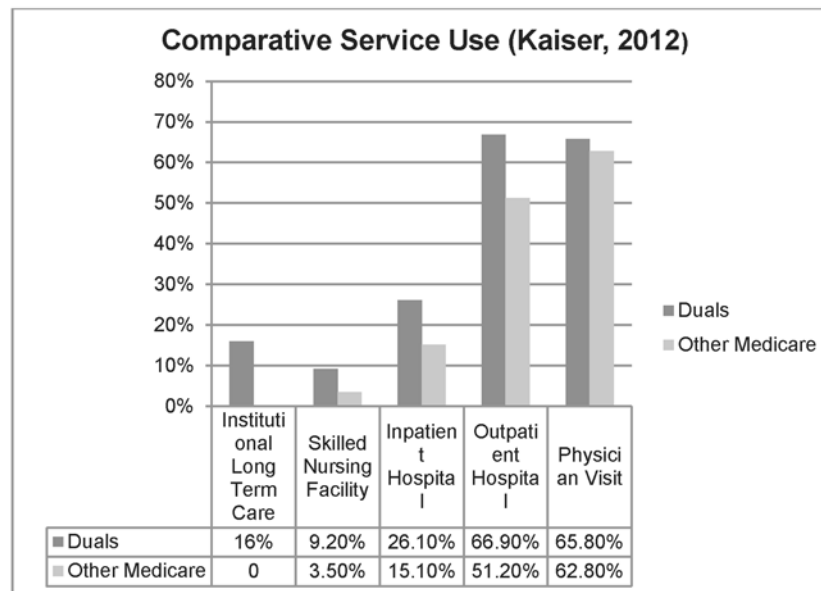
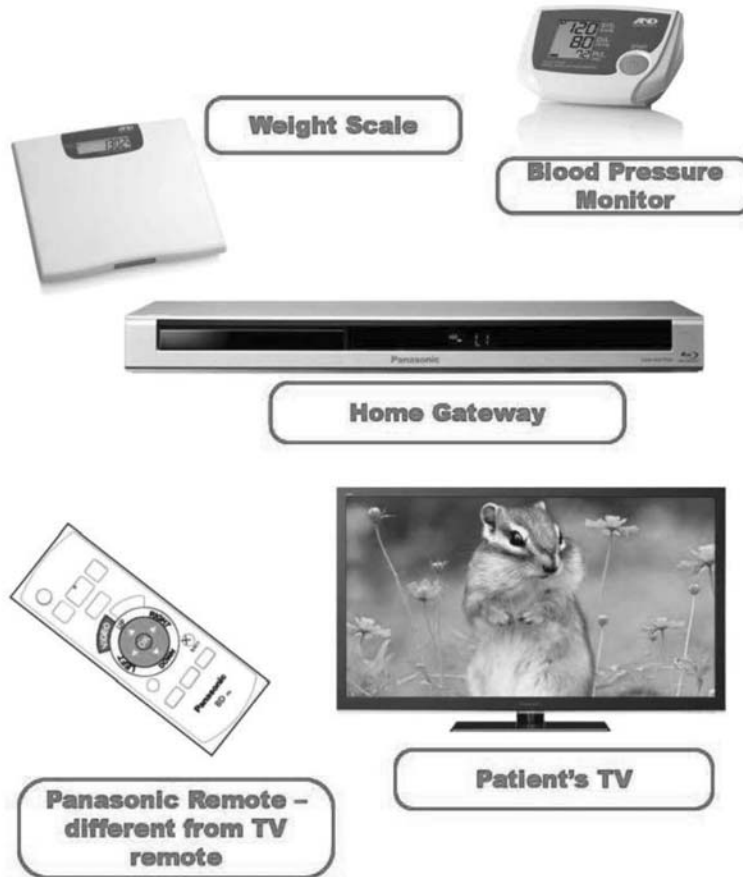


Table 1—MLTC Covered Services vs. Medicare Covered Services

Services Provided by Most Managed Long Term Care Plans	Medicare Services
<ul style="list-style-type: none"> • Care Management • Health Services in the home <ul style="list-style-type: none"> ○ Nurses ○ Home Health Aides ○ Physical Therapists ○ Personal Care ○ Help with bathing, dressing, and grocery shopping ○ Nutrition • Adult Day Health Care • Social Day Care • Nursing Home Care • Specialty Health <ul style="list-style-type: none"> ○ Audiology ○ Dental ○ Optometry ○ Podiatry ○ Physical Therapy • Other Services <ul style="list-style-type: none"> ○ Home-delivered meals ○ Personal emergency response ○ Transportation to medical appointments (non-emergency) ○ Medical equipment ○ Prostheses and Orthotics ○ Medical Social Services 	<ul style="list-style-type: none"> • Doctor office visits • Specialty care • Outpatient Hospital/Clinic visits • Inpatient Hospital stays • Mental Health services • X-ray and other Radiology services • Chiropractic care • Medicare Part D drug benefits • Ambulance services • Chronic Renal Dialysis

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The Home Gateway System



Senator WICKER. Let's begin.

Mr. Rytting, in your testimony and white paper, you discuss several successful clinical trials focused on the management of chronic conditions. I think it was Mr. Linkous who said all this is useless without broadband.

So how does high bandwidth connectivity enable telehealth organizations to deploy these innovation solutions?

Mr. RYTTING. In our experience with the pilots, these people, most of them did not have broadband connectivity. We used other methods to get the connection into the home, like a Wi-Fi hot spot or something like that. We even had problems with that because sometimes the Wi-Fi signals don't go above the 10th to 15th floor in high-rise buildings, and these buildings were not necessarily flourishing with Wi-Fi repeaters.

So we were stuck in several of the instances where we couldn't get broadband, either cellular or Wi-Fi, up to the patient to successfully serve them. So that's one indication of how having broadband, farther range, more repeaters, more access points to wired connections, would have really helped us.

Senator WICKER. Thank you.

Let me then shift to Dr. Henderson and again thank you for my tutorial that you have conducted in Jackson and other places in Mississippi.

In your testimony, Dr. Henderson, you expressed concern regarding future availability of universal service support. So what would happen to programs like the one in Sunflower County which Mr. Gibbons has visited if competitive wireless coverage is reduced in that community, and are you able to do what you're doing today without robust wireless coverage there?

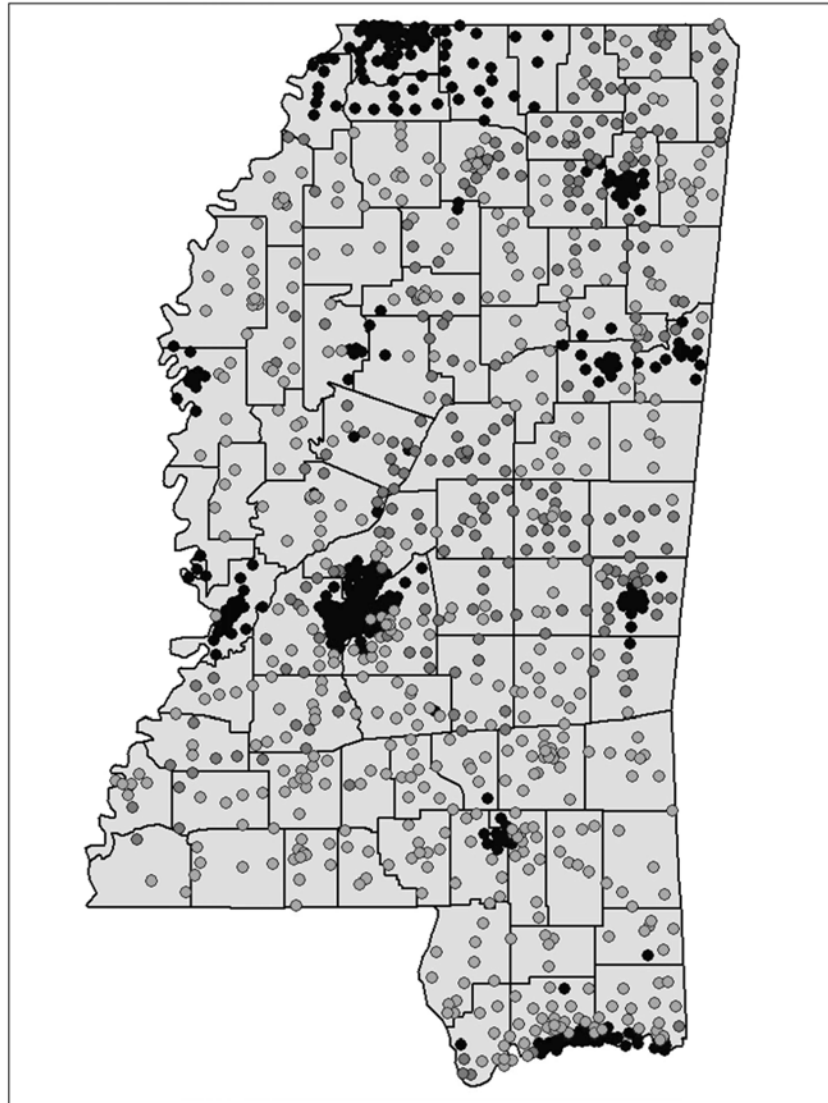
Dr. HENDERSON. So, simply put, we wouldn't be able to do it, bottom line. That program depends on a robust telecommunications network and is dependent upon the wireless connectivity. As we advance that and scale it up across our state, we've got to have that infrastructure or it simply will not happen. We won't be able to reach people where they are. They'll have to drive to go get health care.

So, just a quick visual. Every green and red dot on this map is taking advantage of USF funding in Mississippi. Without it, we would not have a robust telehealth program.

Senator WICKER. OK. So, we'll put that in the record.

Dr. HENDERSON. Perfect.

[The information referred to follows:]



○=Green dot (Green dots are the light gray)
 ●=Red dot (Red dots are the darker gray)

Senator WICKER. Dr. Gibbons, would you care to comment on what we've discussed so far with Dr. Henderson and Mr. Rytting?

Dr. GIBBONS. Sure. I think Dr. Henderson articulated it very well. There are many people who, without infrastructure, broadband infrastructure, simply would not be able to take advantage of what health care has to offer, as well as other services that they need in order to improve their health. So these are absolutely critical. I would agree with her.

Senator WICKER. And, Mr. Linkous?

Mr. LINKOUS. Well, when you ask the question of somebody who has been around as long as I have, you've got to be prepared. So I absolutely would agree with the previous two comments about how important it is. It is critically important for rural areas to have access, and this program has been really helpful.

However, having been around in the Senate and working in these offices and these hallways, when Senators Snowe and Rockefeller first worked on the Telecommunications Reform Act and implemented the program for rural health care, and working with the Commission staff for all these 20 years since then, I am constantly disappointed that the Federal Communications Commission has not done more on this program.

I certainly think there is great good that has been done. When it was first started, the estimate was that it would spend \$400 million to support rural hospitals getting access to broadband. Over the years there have been many, many fixes, many changes, new names for the programs, new chairmen, new members of the Commission and new staff, and yet we still have the same problems of it not being used enough. The program is too engineered and needs a lot of fixes.

Frankly, I would encourage this committee to really talk to the Commission about how it can improve this program. Schools and libraries are hugely successful in the way they've been able to get access to the program. The health care program has been successful where it is available, but the problem is all the potential it could do that it just hasn't met yet.

Senator WICKER. So, in your testimony and your answer, we need action from the Commission. And also there are serious problems with Medicare and what you've described as being a laggard in this field.

Mr. LINKOUS. I believe you summed it up. That's probably a full agenda right there.

Senator WICKER. Thank you very much.

Senator Schatz?

Senator SCHATZ. Thank you.

Mr. Linkous, what is VA and DOD doing right that Medicare needs to learn from?

Mr. LINKOUS. They're supporting telehealth, to put it very bluntly. The Veterans Administration is a closed health care system. So some would criticize that they're not like everyone else because they can go ahead and implement these programs, but they've done it because it makes sense. They've done it because veterans benefit. They've done it because they have actually documented cost savings.

Millions of veterans are getting this help. The last count that I saw, it was around 80,000 veterans are getting remote chronic care monitoring in the home, and I know that's expanding every year, and I know that the VA is planning on expanding that in the years to come.

They've had a dedicated effort to integrate telemedicine, telehealth services into the practice of care. It isn't a sidelong demonstration. It isn't just funded by the project. They've taken it seriously and they've integrated it into the health care services.

Senator SCHATZ. How much of this is a matter of will and execution, and how much is a matter of the statutory constraints that Medicare may be operating under?

Mr. LINKOUS. To be fair, it's a little bit of both. There are certainly areas that Congress can take that will open up some additional resources that will allow Medicare beneficiaries access to services that they can't have today. However, there are a number of things that Medicare can do today. For example, the Secretary of HHS can waive some provisions of Section 1834 so that some of the accountable care organizations and some of the others that are in the program right now can use telemedicine where they cannot otherwise. That authority has been there since the program began. We have asked on numerous occasions to have those restrictions waived, and yet they have not done it.

Senator SCHATZ. Thank you for that. We'll follow up on that.

Mr. LINKOUS. Thank you.

Senator SCHATZ. I have another question. It seems to me that on the broadband side and on the health care policy side, we'll be moving forward on sort of parallel tracks. What worries me a little bit is that if we make policy changes that are based on the facilities-based VTC model of telehealth, which I'm sure you're intimately familiar with based on your leadership on this issue since the 1990s, that we're now evolving into probably an app-based kind of individual home-based model, and obviously if they're going to be in the NICU or wherever else, you've got to be facilities-based for sure.

But in the prevention space and diabetes and mental health, I can think of opportunities where you can really get health care services, prevention services, some oversight from an app on your phone and dealing with all the encryption and HIPAA issues.

How do we make sure that as we move forward in the policy space that we're not solving last decade's problem and ending up basically having to catch up again 15 years from now?

Mr. LINKOUS. Well, you really put it well. I thank you for that. You're absolutely right. The Commission, the FCC—and I don't mean to completely wipe away all the tremendous things the FCC has done. But a lot of their broadband policy is focused on bringing broadband to the home. Broadband doesn't belong in the home. It belongs to the person. Everyone around this table probably has a digital phone where you have broadband services where you are, but that's not true for a lot of people in rural areas.

When you mentioned the NICU, which is an interesting example, actually a very important application for pediatric intensivists is the use of an application on their cell phone where they will be able to monitor a child in a NICU no matter where they are and get their vital signs. So even though they are facilities-based individuals, the applications go to wireless broadband there as well.

So, you're absolutely right, we do need to start looking at this issue as broadband to the person, what I like to call it, rather than broadband to the home, and some of the policies need to take that into consideration.

Senator SCHATZ. Thank you very much.

I just want to thank the Chairman for convening this first hearing. I think this is a real opportunity for us to work together on

a bipartisan basis. This is exciting stuff, and this is a space where I think we can make some pretty good progress relatively quickly, and I can't always say that from this side of the dais. Thank you.

Senator WICKER. Thank you, Senator Schatz. I think the participation by senators is a testimony to the interest that we have in this issue. Twelve members have checked in already, and I have on the list Daines, who has stepped out; Manchin, Peters, Johnson, Fischer, Booker, Blumenthal, Blunt, and Udall.

Senator Manchin?

**STATEMENT OF HON. JOE MANCHIN,
U.S. SENATOR FROM WEST VIRGINIA**

Senator MANCHIN. Thank you, Mr. Chairman.

Thank you all, too.

I would like to start off with something about substance abuse treatment to see what you think about this. Two million Americans are addicted to prescription opiates. An estimated 6.5 million Americans currently abuse some sort of prescription drug. In my state of West Virginia, it's the number one killer. It comes out of the medicine cabinet.

No one seems to be talking about it. It almost seems like everybody in this room right now knows someone in their family, immediate family or extended family, that's been affected. It's an epidemic proportion. We're not talking about it. It's almost as if we've accepted it. It is what it is; what are we going to do? I think we have to do something because it's destroying a whole generation and the family structure as we know it.

Do you believe prescription drug abuse is one of the biggest medical threats we face today? And what role do you think telehealth can play in leveraging our limited resources to combat it? Anybody on the panel, if you want to speak up on this.

Dr. Henderson?

Dr. HENDERSON. I'll take that. I think it's interesting. I absolutely agree with you, it's a huge epidemic in our country, and the technology allows us to use the services that we have and scale them up and reach people where they are. That's in home. That's virtual support groups. That's counseling. That's day in and day out support. It's almost AA in a mobile platform.

But there are so many things that we can do, from counseling and support groups, that the technology allows us to do more often and more frequently where the patient wants it and can support people through that transition off of the drugs, not to mention help with oversight to be able to see and monitor who is prescribing what through shared electronic medical records.

Senator MANCHIN. There are two things, I think. I mean, basically, you have to produce the drug first, and the FDA is letting stuff come on the market that shouldn't be on the market. I think we're going to rein that in. Second is how they're prescribing it.

Dr. HENDERSON. Right.

Senator MANCHIN. Doctors are handing it out like candy, and we've changed that from Schedule 3 to Schedule 2 and opiates. There's so much more that needs to be done as far as them, and also following up on them to make sure they have continuing education, what they're doing to people.

Dr. HENDERSON. Absolutely. I think that what's interesting now is before, we didn't know what the other health systems or other providers were prescribing. You took care of a patient right then in that instance. Now, with the shared electronic medical record, we can know more and are able to make smarter decisions.

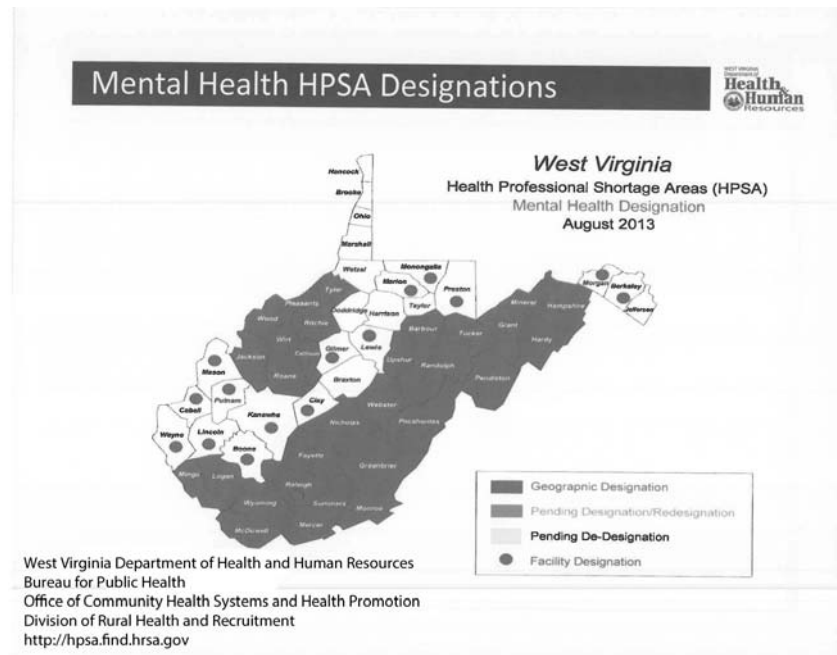
Senator MANCHIN. Let me say this. In 2007, West Virginia, our state, became part of the rural health care pilot program. There were 90 sites throughout the state that have been involved over the past 7 years, and right now sustainability is the key factor for us to continue. In your testimony you mentioned—and this is for you, Mr. Linkous—you mentioned that the mere \$65 million fell short of the \$400 million that was set aside.

Let me show you this in my little state, a rural state. Everything you see in green is an underserved area that qualifies. We're getting no services in those areas. That's what we're saying.

Senator WICKER. Why don't we put that in the record?

Senator MANCHIN. If we could, I would love that, because I'm sure every state has the same concerns we're having.

[The information referred to follows:]



Senator MANCHIN. Everything in that green there shows over half of our state qualifies for underserved, and we're not getting services. Tell us what we can do and how we would be able to change that to get the service to the areas of need.

Mr. LINKOUS. Senator, thank you very much for this. It is right on the mark. I'm very familiar with West Virginia, having worked on the Appalachian Commission, having two parents who are from there.

Senator MANCHIN. Absolutely. Thank you.

Mr. LINKOUS. So, strong in my heart is West Virginia.

The problems that you point out of accessibility are problems that, when I was at the Appalachian Commission, we worked that by building highway systems. We now have the problems of building telecommunication systems that essentially do the same things, that open up the hollows to allow people to get access to the services that they need. Unfortunately, we really failed in some of that, whether that's providing incentives or whether it has been changing the Medicare program to reimburse, which is what we talked about earlier.

We have a dual problem here. We have to work on the infrastructure to allow broadband to get to where people need it, and we talked about so much of the broadband needs to be wireless. You very well know that in many parts of West Virginia you might be able to get wireless access at the top of the mountain but you can't get it down at the bottom. So that's a significant problem.

Certainly at the same time, Medicare, when it does not reimburse for some of the basic services you can get for telemedicine and doesn't provide those incentives, the doctor is not going to get paid for those services, they're just not going to provide it.

Senator MANCHIN. And one final thing, if I may. When I was Governor, I always felt that if we could connect, if we were providing for Medicaid and also Medicare, should be connected, real time. We have people shopping, and especially for the opiates, on Friday nights they start to shop, because that way they have limited staff. They'll say back pain, six pills, back pain, six pills, four or five hospitals a night, and before you know it, the weekend, they've got a pretty good stash. They're ready to go start selling on Monday. We followed it all the way through, but we didn't have any doctors with real time.

Dr. Gibbons, you just were down the road here this morning, but every time I pushed on that, they would say, well, first of all, they can't afford it. There was no mandate from the Federal Government to say if you're going to participate in Medicare and Medicaid, which is the largest part of reimbursement, this is what you have to do. Then they said privacy. Then I had the privacy thing, then I had the cost.

Are we making any ground at all on getting people connected? Anybody want to take that one?

Dr. HENDERSON. I will. We are in Mississippi, and it's working, and we're saving money. We're addressing it. We're reaching the most—

Senator MANCHIN. You're connecting real time.

Dr. HENDERSON. Yes.

Senator MANCHIN. So if I walk in with my card and I'm a Medicaid recipient, you can check and say, hey Joe—

Dr. HENDERSON. In 166 locations we're doing that. Now it's more of a plug and play. It's not UMMC's network. Now it's anybody that is a provider in our state can get on the network and take care of patients.

Senator MANCHIN. Because you do have some say in Medicaid. You don't have any say in Medicare, but in Medicaid you're doing this.

Dr. HENDERSON. That's correct, and third-party payers. That's right.

Senator MANCHIN. OK. I like to check on them. Thank you.

Mr. LINKOUS. Just to add, there are some shining examples in West Virginia. The West Virginia University has a doctor program, which I'm sure you're familiar with, and they've made a lot of progress. But certainly I'm sure if they were here today, they would say they need additional assistance and additional support from both the Federal Government and other areas as well.

Senator MANCHIN. Thank you all.

Senator WICKER. Senator Daines?

**STATEMENT OF HON. STEVE DAINES,
U.S. SENATOR FROM MONTANA**

Senator DAINES. Thank you, Mr. Chairman.

I represent the great state of Montana, and we have a very rural character to our state. Thankfully, technology is starting to move geography as a constraint where we now can have both the quality of life of hiking, of hunting, of skiing, of fly fishing, as well as access to the world and competing globally, building companies there.

I'm curious about your thoughts. Perhaps I'll start with Dr. Gibbons. What are the current interstate barriers, and how can we remove them so rural Montanans can have access to the same specialty health care providers as we see in the urban areas?

Dr. GIBBONS. Senator, thank you for your question. Let me just start by clarifying. The Connect2Health Task Force is focused on showing the benefits of the program. We don't focus on those kinds of issues, and I personally have not worked on those kinds of issues at the Task Force during my stay there. But I'm happy to take your question and forward it to the appropriate people at the Commission and supply you with an appropriate answer.

Senator DAINES. OK, thank you.

Mr. Linkous, do you have any thought on that?

Mr. LINKOUS. I'd be more than happy to respond to that. One of the big problems that we have in telemedicine right now is state barriers because every state has their own way of regulating and their own way of licensing physicians.

In Montana, that is very certainly the problem. One of our past presidents, Thelma McClosky Armstrong, runs the Eastern Montana Telemedicine Network in Billings, and I'm sure she would tell you it's very much the same problem they have when they work between areas, for example between Montana and Wyoming. There are a number of programs there, but if you happen to be a physician in Billings and see a patient in Wyoming, you have to be licensed in Wyoming as well as in Montana. If you're over there providing health care in those areas, you have to follow the peculiar laws of the state of Wyoming as well as the laws that might be in the state of Montana as well.

So we have 50 different ways of regulating health care, 50 different ways of licensing health care. What we have talked about for a long time is the need for reciprocity, for states to work together, not to replace it necessarily with a Federal program, but at least to push the states into doing something that makes sense so that patients, no matter where they're located, can get access to health

care services. Certainly there are people in both eastern and western Montana and in southern Montana that are close to the borders of other states who would benefit from that.

Senator DAINES. We don't have an in-state medical school. We have the WWAMI program. The University of Washington is our partner there, so you might have a rancher out in eastern Montana that might need to have a telehealth discussion with a doctor in Seattle, a specialty doc, and I'd appreciate your help as we look at that. How do we break down those barriers and that reciprocity? That would be helpful. Thank you.

Dr. Gibbons, I just met, in fact, last week with the winner of the Principal of the Year in Montana, and we chatted, and I asked what are some of your challenges as a principal? Do you know the first thing she said to me was? Some of the mental health issues that our children face today. We need more mental health services for the kids in our schools.

Even though schools currently have access to broadband services, why do you believe the deployment of telehealth services like mental health counseling in schools have been slow to develop?

Dr. GIBBONS. I'm sorry, I didn't hear the last part of your question.

Senator DAINES. Why do you believe the deployment of telehealth services like mental health counseling in schools have been slow to develop?

Dr. GIBBONS. Senator, thank you for this question. I must be honest with you. I trained as a surgeon in preventive medicine, so that's really beyond my area of expertise, and I'd hesitate to give you an answer that's not as accurate as it could be, but I'd be happy to get with the right people and give you the appropriate help there.

Senator DAINES. All right. Thank you.

I want to shift gears to HIPAA and PII. How can we ensure that patients—

Senator WICKER. Senator Daines, let me give you an extra bit of time. I think there are other members of the panel that might want to jump in and help you answer that question.

Dr. Henderson, were you eager to—

Dr. HENDERSON. On the mental health piece?

Senator WICKER. Yes.

Dr. HENDERSON. Absolutely. The challenge is that that's not a site of service that can be reimbursed, and we can't take advantage of the E-rate connectivity there. So if we can change that so that we can use that same connectivity to deliver health care and that the school becomes a site of service where we can be reimbursed for that care, then you'll see that jump up.

Senator DAINES. OK, thank you. I appreciate that.

Mr. Linkous, any thoughts on that as well?

Mr. LINKOUS. I would absolutely agree with that.

Senator DAINES. OK, that's helpful.

I want to shift to HIPAA and PII. How can we ensure that patients' PII is kept private as required by HIPAA? I'll open it up to anybody who wants to look over here and take that question. Everybody's looking down at their notes.

[Laughter.]

Mr. LINKOUS. Well, I'm always one to jump in. I call HIPAA the Lawyer Full Employment Act.

[Laughter.]

Mr. LINKOUS. I apologize, but I couldn't help it.

Those are problems that are real, but also problems that can be seriously handled. We have encryption that can and should be done, and I'm sure Dr. Henderson uses it throughout her program, and it should be gone through in every program.

The problems with privacy are often not with the telemedicine programs themselves but with what happens at the other end when a doctor is looking at the monitor with the patient and he happens to be doing it in an open area where any patient can walk by and look over his shoulder. There are some very practical issues.

But certainly encryption of the data and managing the data the same as we do with our banking systems, we don't seem to have the same issues on that level with a lot of the other systems that use electronic communications. I'm not saying it's not a problem, but I do say that that is a problem that's smaller than any of the other issues that we've seen in telemedicine.

Senator DAINES. Great, thank you.

Senator WICKER. The Chairman has arrived, and I'll recognize Chairman Thune, and then Mr. Peters following the Chairman.

**STATEMENT OF HON. JOHN THUNE,
U.S. SENATOR FROM SOUTH DAKOTA**

The CHAIRMAN. Thank you, Mr. Chairman. I want to thank you and Senator Schatz for having this hearing. This is an issue of great importance to me and to many members of this panel. There are a lot of folks on this panel who represent large and sparsely populated areas of the country for whom technology has become an increasingly important answer when it comes to health care delivery and health care solutions.

So, Dr. Gibbons, I just want to mention that I've seen firsthand in South Dakota the important role that skilled nursing facilities play in the delivery of care, particularly in rural areas. For example, the Evangelical Lutheran Good Samaritan Society operates hundreds of skilled nursing facilities, mostly in rural locations, many in states that are represented on the Commerce Committee, which connect with Good Samaritan's national headquarters in Sioux Falls, South Dakota.

Good Samaritan has designed and implemented technology that allows rural patients, who might otherwise have to travel up to 100 miles to see a physician, to remotely connect with hospitals and their doctors. In June 2014, I wrote a letter to the FCC urging the agency to resume its skilled nursing facilities pilot. I understand the FCC has since completed its consideration of proposals submitted in response to its related technology transitions order. As such, does the FCC now have a plan to support skilled nursing facilities as part of the rural health care program?

Dr. GIBBONS. Thank you, Senator. In February 2014, the Commission deferred the Skilled Nursing Facility Pilot Program pending its consideration of the health care-related proposals at the agency's Technology Transition and Rural Broadband Experiments proceeding. In that proceeding, the Commission solicited comment

on, among other things, conducting consumer-oriented rural broadband experiments that would improve patient access to health care. The Commission sought comment on using funds from either the Connect America Fund or the Rural Health Care Program for the rural health care broadband experiments, including whether to use part of the \$50 million set aside by the Commission for the SNF pilot program.

Accordingly, until all the awards are decided in the Technology Transitions and Rural Broadband Experiments proceeding, the SNF pilot is still deferred. And although the SNFs currently are ineligible for health care funding support, they may partner with eligible health care provider consortia members in networks to reap the benefits that the others are gaining.

The CHAIRMAN. So the answer to the question is that they have not completed consideration of these proposals that have been submitted? You said it was deferred.

Dr. GIBBONS. The action was deferred in 2014, sir, and it is still deferred at this time.

The CHAIRMAN. OK. We're well into 2015 now. That's a year ago. The letter I wrote was a year ago. I'm just wondering why the FCC won't support these facilities that are so critical to rural America.

Dr. GIBBONS. Well, again, these facilities can get some support from available funds by being part of a consortia. But I'm happy to, again, take your question to the FCC and get any additional response that may be helpful.

The CHAIRMAN. I would appreciate if you can do that. This thing seems to be dragging on, and these deferrals and delays—these are facilities that could benefit enormously from the use of telehealth, telemedicine and the delivery of health care to these areas of the country. It strikes me at least that we ought to be doing everything we can to promote that. If, in fact, there's a process that's been put in place to consider these proposals and ways in which to do this, I would certainly hope that the FCC would move that process along.

Dr. GIBBONS. I'll do that.

The CHAIRMAN. Thank you, appreciate that.

Mr. Chairman, One other question, very quickly. This is for Mr. Rytting, and that has to do with spectrum management and the way in which licensed and unlicensed spectrum can be used.

In light of the ongoing work that's being done by NTIA and the FCC to deal with the country's spectrum resource issues, I was wondering if maybe you could talk a little bit about how the spectrum needs for mobile broadband-based health care applications can be addressed, the things you believe we ought to be doing as policymakers to ensure that M-health, as some are calling it, can continue to develop and thrive.

Mr. RYTTING. At Panasonic we believe, like many of the people in our industry, including the people that we have here from TIA, that being able to have access to more of the spectrum would help us. The limitations that are there right now are fairly old. We would also welcome the opportunity to have prioritized access for certain critical resources. We believe health care would be one of those.

But the spectrum issues and how to get the information from Point A to Point B is something we rely heavily on the telecommunications industry to do for us. We don't operate any of the carriers, but we license and use their bandwidth to get our work done. So we would welcome the participation of that industry with the FCC and with this body to have access to more of the spectrum, be able to get signals farther, be able to get more bandwidth through it. That would greatly help the situation.

The CHAIRMAN. Thank you.

Thanks, Mr. Chairman.

Senator WICKER. Thank you, Senator Thune.

Dr. Gibbons, when do you think you might be able to get an answer back to Chairman Thune from the Commission?

Dr. GIBBONS. Sir, I'll take all concerns to the Commission today and work to get those to you as soon as possible. It's not possible for me to put a date on it right now, but I assure you I'll work as expeditiously as possible.

Senator WICKER. Very much appreciate that.

Senator Peters?

**STATEMENT OF HON. GARY PETERS,
U.S. SENATOR FROM MICHIGAN**

Senator PETERS. Thank you, Mr. Chairman, and thank you to our panelists for today's fascinating discussion and certainly one that we have to continue to work on, for those of us, all of us, who represent rural areas in our states. Even though we have urban areas, we also have vast rural tracks, as I do in Michigan in the northern part of the state, particularly the Upper Peninsula.

Mr. Rytting, I appreciate your comments that telemedicine also helps our urban populations as well, to make sure that folks have access to quality care. I can say that I'm committed to the notion that in this great country of ours, no matter who you are, no matter where you live, you should have access to quality, first-class health care. That's what you do when you live in the greatest country on earth, and telemedicine is going to be a key part of that.

So I appreciate the discussion that we've had today, but I'd like to have the panelists react a little bit to some of the critics that have been pushing back on telemedicine, particularly from a cost perspective. Obviously, access is critically important. We want to have everybody have access to it, but we also have constraints as to the amount of money that we have available to pay for health care across the country.

There are folks at the CBO, as well as other health care analysts, that are concerned that if you have telemedicine, you actually open up the floodgates—this is their words, not mine—open up the floodgates to cost and we'll see a rapid escalation of costs that will be difficult to handle. I think the CBO has always had very high cost estimates. They haven't realized those estimates that they put forward, some might argue because there isn't the reimbursement that is going forward.

But I'd like you to respond to the critics out there who believe that this will open up the floodgates and perhaps address how you see it not doing that and how it actually brings more efficiency to the system, or however you'd like to respond.

Dr. Henderson, if you'd like to start with that, that would be great.

Dr. HENDERSON. Yes, I'd love to. Thank you.

So, no better way to answer that than with the facts in our story in Mississippi. Once we cleared all the barriers to reimbursement and regulations in our state, that was the fear. The floodgates were going to open and, oh my gosh, it's going to cost us more. But, in fact, we've seen quite the opposite.

So now, over 12 years of experience in this, and we're seeing lower costs and improved health outcomes. There's nothing better than to show those facts and find other states that have had the same type of outcomes and be able to provide that forward for examples. So we think that if you advance the legislation at a national level, that we'll see the same benefits and cost savings.

Senator PETERS. Great. Thank you.

Dr. Gibbons?

Dr. GIBBONS. Yes, I would agree. The science and the evidence simply don't support that contention. What can happen sometimes, particularly when you're providing services to people who didn't previously have them, because you're finding new things, you might see a small blip up because you're finding things that would have been ignored. But inevitably, if it's the right thing to do, costs come down in the long run. It's very beneficial. So that's just an uninformed perspective.

Senator PETERS. Great.

Mr. LINKOUS. So I would agree with the previous two comments. Certainly, the evidence is mounting that it's just the opposite. There's the tremendous experience that we mentioned earlier with the Veterans Administration. They have documented substantial cost savings. The National Library of Medicine has something like 15,000 studies now dealing with telemedicine, many of them showing the cost-effectiveness, and a very quick story.

When we worked with the Congressional Budget Office many years ago on the issue of telestroke, we looked at the idea of what happens when you have a patient come in who has suffered a stroke within the first 60 minutes and they can see a neurologist. They issue, for example, directions for a blood clot-busting drug, and many times these people can walk out of the hospital completely cured or completely well again, or certainly significantly better. They don't have to go to a nursing home. They don't have to go through substantial rehab. They can go out.

The Congressional Budget Office says, well, cost savings for nursing homes or rehabilitation, that's not our department. We're just looking at the cost in the hospital. The cost in the hospital, all of a sudden you're administering tPA, which is a very costly drug to take care of that blood clot. So we think there are actually more costs in that.

Those are some of the problems we're looking at. There's long-term savings that are very real and very measureable, and yet we've got to get some of the folks who are involved in this area, the Congressional Budget Office, to understand where these cost savings are.

Senator PETERS. Great. Thank you.

Mr. Rytting?

Mr. RYTTING. I can look at it from a slightly different perspective, as a supplier of possible solutions and hardware and electronics. We engaged in the pilot. One of the reasons was to validate our business model and working with insurance companies and managed care organizations. Based on what we learned from this pilot, that's what encouraged us to move forward with the two or three other pilots and expand the work.

We do have a culture at Panasonic of contributing to society. We have some values that are stamped on the back of our business cards that are 80 years old. But that contribution to society doesn't answer the stockholders. Profits do. And we believe that this is a profitable industry, at the same time giving back benefits to society. So we're all for it.

Senator PETERS. I appreciate your comments, and it's an example where we can expand access while doing it efficiently and reducing overall costs. So, thank you for your response. Appreciate it.

Senator WICKER. Thank you, Senator Peters.

I might just emphasize part of Dr. Henderson's testimony where she says our telemergency program has resulted in a 25 percent reduction in rural emergency room staffing costs, and a 20 percent reduction in unnecessary transfers. So thank you very much for exploring that line of questioning.

Senator Fischer?

**STATEMENT OF HON. DEB FISCHER,
U.S. SENATOR FROM NEBRASKA**

Senator FISCHER. Thank you, Mr. Chairman.

Telehealth is a relatively new industry, but I believe it's one with great potential, as we're hearing today on all the questions and all your answers. So, thank you.

This is new technology, but we already see a number of agencies that have their own programs and their own regulations and their own grants. It's the FCC, the FTA, the USDA, HHS, any alphabet soup there that you can think of.

So I would ask this of any of the witnesses who would like to answer. Is there an argument, do you believe, for one agency to cover these connected health issues that are out there, as opposed to the multiple agencies? And do you have any recommendations on how to streamline the Federal Government's role?

Mr. RYTTING. Let me just give a real brief answer, echoing some of the earlier statements that I made. Being part of the technology industry, this is moving incredibly fast, and trying to keep up with our competition not only in developing products and software and technology and networking, this is basically an Internet of things discussion, because remote telehealth is a "thing" in that paradigm.

If it's difficult for the industry to keep up with each other and to continue to evolve and accelerate, it's probably just as if not more, difficult for the legislative agencies and the governmental agencies to also keep up.

Our recommendation is to, number one, work together with industry to share knowledge and to share experience so that we can make the best decisions possible. At the same time, we would like to deal with fewer, not more, agencies.

Mr. LINKOUS. Senator, thank you for that question. Over 10 years ago, ATA recommended to Congress and to the Administration that there be a high-level coordinating committee that looks at all the different agencies that are providing money, that are regulating, the Federal agencies that are involved in either funding for telemedicine programs, providing reimbursement for programs, doing their own programs, like the Veterans Administration or the Department of Defense, or regulating in some way, like the FTC or FCC.

There are various groups that are together that are more brown-bag lunch groups, but there are no high-level, authoritative groups that can look at unifying regulations. I don't think we can do something where we're consolidating them into one department. But nevertheless, there's a huge amount of opportunity there to have the people at a high level, maybe even managed out of the White House, that says this is a problem that we have in coordinating the regulations, coordinating the funding. We see all the time programs that are funded in a state or in a community, two or three different programs that are funded by different agencies to do the same thing, but entirely different regulatory mechanisms where it really should be coordinated.

So that's one of the things that we would really strongly recommend that either Congress can push the Administration, some form of a high-level coordinating committee that has the ability, the technical and, frankly, the administrative authority to do some coordination among these programs.

Senator FISCHER. It would be nice to have coordination, but not just to establish another committee also at the government level. I think you also have to look at the regulations that are currently out there, one dealing with medical devices. It was there in 1976, and I introduced a bill last year with Senators King and Rubio on it, the Protect Act, with medical devices, how do you define that. And we have the FDA that is using a 1976 definition on health IT apps that are out there that, by the time they get around to looking at them, it's already moved on. So we faced outdated definitions besides just the coordination on it.

So I guess I would ask you, Dr. Gibbons, how do you then try to streamline that? Because my experience here is it's very difficult to do.

Dr. GIBBONS. Senator, thank you for the question. As you know, the FCC manages both wireless and wireline spectrum, and to that extent, as health care becomes more wireless, the FCC footprint will inevitably grow. You know the FCC also has an historic role in that it has a part in certification of all FDA-approved medical devices that have a wireless component. So the FCC's role in health care is not new.

Senator FISCHER. But hopefully you'll streamline those regulations as well, then.

Dr. GIBBONS. That's actually what I was just about to say. To the Chairman's credit, last year when he established this Connect2Health Task Force, one of the things that he charged us with doing is looking at regulations of the FCC and making recommendations regarding barriers as well as incentives.

Senator FISCHER. Thank you.

I've run out of time. Thank you, Mr. Chairman.
 Senator WICKER. Senator Booker.

**STATEMENT OF HON. CORY BOOKER,
 U.S. SENATOR FROM NEW JERSEY**

Senator BOOKER. First of all, I really want to thank Senator Schatz and Senator Wicker for holding this hearing. It's a really important issue and, obviously, as you said, the Chairman, with so many Senators attending, it's obviously something of interest to all of us. But it's something of urgency for the Nation as a whole.

What's impressive to me is that telehealth, if you add that into the sophistication of the devices that are measuring biometrics these days, if you add that on top of the advances we've already made in science where you can actually implant chips in people that can release medicine at certain specific needed times, the advances in the way they build upon each other is really opening up an extraordinary opportunity to achieve what has already been said in this hearing, many of the objectives that we have, from lowering costs to increasing quality of health.

I'm just glad that we have such a great panel here, but I really want to focus in on the guy from Newark. No bias whatsoever there.

[Laughter.]

Senator BOOKER. But I just, first of all, want to welcome you. Panasonic has been a partner of mine for years now, and it's an industry leader, an important player in this space, and their company's North American headquarters I hear is in an extraordinary city.

I just want to jump in because you have now mentioned it a number of times, Mr. Rytting. There's no bias here. If there was bias, I'd be giving Dr. Gibbons a lot more love because of his great haircut.

[Laughter.]

Senator BOOKER. Just real quick, Mr. Rytting, because you've mentioned this a number of times, the issues of spectrum, and it's something that I have a lot of concern about because, in many ways, government has a tremendous amount of authority and control over how we use spectrum. So from new apps, wireless devices, telehealth, all these issues come down to the availability of spectrum, and we have an obligation and responsibility to ensure this scarce resource is being utilized as efficiently and effectively as possible in order to reap these vast benefits that we're talking about.

Senator Rubio and I joined together to introduce the Wi-Fi Innovation Act, which aims to make more spectrum available for unlicensed and Wi-Fi purposes.

So, Mr. Rytting, how important is spectrum in the telehealth equation? Can you just sort of give a little bit more of the urgency that you've already sort of tangentially touched upon?

Mr. RYTTING. I'm going to quote Chairman Wicker, that if you don't have broadband, you don't have telehealth, right? Cellular and Wi-Fi is a crucial part of that because it's part of the equation of getting the information from one point to the other.

Right now what we see, it's very difficult to get access to some of the available spectrum that might be sitting there just waiting to be used, but we can't. So that's a problem.

It's also a problem of trying to figure out how to allow better access to spectrum, but at the same time—and this is a juggling challenge—at the same time preserve some of the protected parts of the spectrum that may have bearing on international agreements or reciprocity with other agencies in other lands.

We deeply endorse the idea of being able to apply for and access commercially more of the spectrum, because it will open up more opportunities for range, for bandwidth, and that is the key to the whole equation, unless we come up with other ways of communicating. There are other ways, but not quite as prevalent or as inexpensive as Cellular and Wi-Fi technology is.

Senator BOOKER. So, in short, would you agree with me that you cannot have an effective and innovative national telehealth care system without equally effective national spectrum policy that supports and serves that system?

Mr. RYTTING. We absolutely agree with both of those initiatives.

Senator BOOKER. And so the urgency for us to reexamine the allocations that are already made to make sure we're using it efficiently, would you say to reexamine it, especially in terms of our emphasis on health and safety, it's something that really Congress should be doing?

Mr. RYTTING. I believe that.

Senator BOOKER. OK. Just shifting in the last seconds that I have, you're doing incredible work in Newark, and I just want to know what are some of the unique needs. We've heard a lot about the rural challenges, but what are some of the unique needs to urban communities as they face accessing the benefits of telehealth?

Mr. RYTTING. What we discovered was not an expected finding in that we can understand rural availability of broadband and why it's not there. What I did not dream of running into at the time was the unavailability of broadband in urban settings. To be a heartbeat away from New York City and not be able to get a signal in a structure that had thousands of tenants in it just boggled my mind.

So I believe they share some of the same concerns.

Senator BOOKER. And we therefore have an urgency for broadband penetration to really focus on rural and urban together.

Mr. RYTTING. Sure.

Senator BOOKER. Thank you very much.

Mr. Chairman, how did I do on time, sir?

Senator WICKER. You did very well, and I appreciate your mentioning parochial matters.

Let me just ask you this, Senator Booker. If someone missed the peak of the cherry blossom season here in Washington, D.C., is there any place within a 3-hour drive where people might be able to see cherry blossoms?

Senator BOOKER. Sir, you have just earned so much love from me.

[Laughter.]

Senator BOOKER. Forget Schatz. I used to have a bromance with him. It's over.

[Laughter.]

Senator BOOKER. The number one city in America, in fact, for cherry blossoms is Newark, New Jersey. And, yes, the peak has just passed this weekend, but you still can catch some beautiful pictures. Or, sir, you can go on my Instagram account and see some of it right now.

[Laughter.]

Senator WICKER. Thank you, and I'm glad that's part of the record for someone 10 years from now to wonder about.

[Laughter.]

Senator WICKER. Senator Blumenthal?

Senator GARDNER. Mr. Chairman, we have some buds in Colorado, too.

[Laughter.]

Senator WICKER. The many layers. A lot of things growing out there in Colorado.

[Laughter.]

Senator WICKER. Mr. Blumenthal, could you bring us back to earth?

[Laughter.]

**STATEMENT OF HON. RICHARD BLUMENTHAL,
U.S. SENATOR FROM CONNECTICUT**

Senator BLUMENTHAL. That will be very difficult, Mr. Chairman.

[Laughter.]

Senator BLUMENTHAL. But I'll try.

Let me bring together a number of important conceptual and practical threads to the testimony that has been offered so far, and I agree with all my colleagues that telemedicine holds great promise for treating patients who may be reluctant or reticent or unable to seek treatment in other ways. That's particularly true, I think, for people who are suffering from mental health issues, because they really want the anonymity and the confidentiality that comes with consulting a mental health professional, and they may find access also difficult to mental health care.

That goes for young people who may be in school and may be in dormitories where going to the college health center for mental health treatment makes them an object of attention, or perhaps even ridicule. It goes for veterans who are effectively now denied effective mental health care in many parts of the country because our VA facilities simply lack sufficient resources. And that's one of the reasons why, as Ranking Member of the Veterans Affairs Committee, I introduced successfully the Clay Hunt Veteran Suicide Prevention bill, to provide more mental health services to our veterans and prevent a fact that is absolutely staggering, 22 veterans every day in the United States of America commit suicide.

So there are emotional barriers, practical barriers to seeking effective mental health care for them and for many other parts of our population. So I wonder if I could ask maybe Dr. Henderson, beginning with you, whether your feeling is that telemedicine can be beneficial in treating mental health issues based on your practical experience, and the ways that Congress can support and expand

access to mental health care generally, and particularly for those groups that I mentioned and others who may not have the access and availability that they really need.

Dr. HENDERSON. Yes, absolutely. Thank you for that question. So let me give you another example that we started this year. In one of our 4-year colleges in Mississippi, we offer now tele-psychiatry services to every single student so they can have that anonymity and go to the regular clinic on campus that they would go for their cough or cold and will connect to one of our psychiatrists at our facility hundreds of miles away, and it's making a huge difference.

It's about access, and it's about access where they want it because, you're right, people don't want to be labeled or have to go into public and have it obvious that they're going to a mental health clinic. So I think we can transform the mental health delivery system and offer it in unique ways.

One of the challenges and ways that we can be supportive is to be able to do this in all levels of schools, going much younger into the elementary schools and start to deliver mental health services and counseling services and bring in the parents, as well as teachers and students. So we can do it in some transformative ways that our traditional model would never be able to financially support and wouldn't be successful at. So that's one way we could enhance that.

Senator BLUMENTHAL. And are people secure in the confidentiality and anonymity of the service that's provided?

Dr. HENDERSON. Yes, absolutely. I think a good way to look at it is this is really no different than in-person care, except that you're stepping into an exam room and getting it through connectivity in that room. So the same challenges of privacy and security in an electronic medical record in my clinic if you physically came there is no different than if we did telemedicine. So they feel comfortable.

Senator BLUMENTHAL. And the more people Skype with relatives, the more comfortable they are with this kind of communication.

Dr. HENDERSON. That's right. All ages have been open arms with this because it's about access, and it's convenient access that they can take advantage of.

Senator BLUMENTHAL. I'd invite any of the other members of the panel to comment.

Dr. GIBBONS. Senator, thank you for your question. I appreciate you broadening out and thinking about other types of technologies and ways to use them. I did one of the first studies looking at is there any evidence that any of these non-traditional telemedicine technologies, broadband-enabled technologies, is there any evidence that they can be effective, and what we found at that time is that, in fact, yes, there were some preliminary effects.

But in the area of mental health, that was where some of the strongest evidence was, particularly providing cognitive and behavioral therapy remotely to patients not only by psychiatrists but by psychologists and sometimes behavioral therapists, behavioral specialists, right directly into the home.

So there are a variety of ways this can be done. There is evidence that it is effective and saving in costs as well.

Senator BLUMENTHAL. Thank you.

Mr. LINKOUS. Senator, if I could just add a couple of moments on that. When ATA was founded in 1993, one of my first conversations with a gentleman outside of Washington, D.C., who was agoraphobic, who was involved at that point with a bulletin board system—it was before the Internet really took off, and they used that as a very obvious way of helping folks who were afraid to get out of their house to connect with each other.

So it's not surprising today that telemental health, as we call it, is one of the most advanced and important parts of telemedicine. Both the American Psychiatric, the American Psychological Association, and the National Association of Social Workers have endorsed this. We estimate somewhere around 400,000 patients this year will have seen a therapist using telemedicine.

Incidentally, in Colorado there's an interesting program that combines both the Indian Health Service and the Veterans Administration reaching out to returning veterans. So there are a number of examples of this. There is tremendous opportunities to expand that program.

Senator BLUMENTHAL. My time has expired, but if you could provide in greater detail, perhaps in written form, to our committee, any of you, specific, concrete examples of how this system can really enable greater access, greater availability of telemental health services, I would appreciate it.

Thank you, Mr. Chairman.

Senator WICKER. Thank you, Senator Blumenthal.
Senator Gardner?

**STATEMENT OF HON. CORY GARDNER,
U.S. SENATOR FROM COLORADO**

Senator GARDNER. Thank you, Mr. Chairman, and thank you to the witnesses for your time and testimony today.

We've heard a lot of impressive statistics and figures when it comes to telemedicine this morning, so I thought that I would add Colorado's numbers to it as well. It was about 9 years ago when I was in the state legislature in Colorado that we passed one of the first telemedicine bills addressing COPD issues, cardiovascular issues.

But one of the things that I think was stunning to learn during that time-frame was a study done on the Western Slope of Colorado—I think it was at the time Centura Health that did the study—showing, similar to the statements made by others, that a test group, a patient test group of I can't remember how many people were in it, but basically the results came back showing that the hospital spent around \$150,000 to set up the telemedicine pilot study. Over the course of this multi-year study, they were able to reduce hospital visits amongst this patient test group between 70 and 90 percent, and they were able to reduce the emergency room visits by 100 percent, and the hospital saved about \$900,000. They spent \$150,000 and saved about \$900,000, and reduced emergency room visits by 100 percent.

So here we are nine years later and we're still talking about how we can get involved in telemedicine, what needs to be done, and we've made some advancements and steps. But I'm really curious

about how we jump-start this into the mainstream instead of just talking about how this could effect on the edges.

A couple of my questions have been asked by various members of the panel, so I want to ask just a few things that may not have been asked.

Do we have a medical licensing issue that we need to address?

Mr. LINKOUS. Oh, yes, we do. It has been an issue since the beginning of ATA 22 years ago, but it was largely ignored because many of the telemedicine programs were within the state. Now health care has gone regional and national. Health care services are national. People in Colorado can now access a doctor if they're at the Mayo Clinic in Rochester, Minnesota. People who are in rural Nevada can access a doctor in Denver, Colorado.

However, they can't do that unless that doctor gets a license in the other state. I don't know how many of the members of this committee have a doctor at home that treats you, but if they treat you for a condition in Washington and they're not licensed in the District of Columbia, they're violating the law.

Senator GARDNER. And are you familiar with legislation by Congressman Devin Nunes and others that has been introduced? Would that solve the problem?

Mr. LINKOUS. I'm not familiar with all the details of that. There have been several pieces of legislation which I think would help. We are looking for reciprocity among the states so that you have a state that has a law that requires a doctor to pass an exam, another state which is using the exact same exam for that doctor should be able to accept the license of that doctor so that a physician in Colorado could practice in other parts of the country as long as they're duly licensed in their own state.

Senator GARDNER. Is this something that you would prefer be done at the state level versus the Federal level?

Mr. LINKOUS. We think the Federal Government can help the states solve this problem on a national level. We have not endorsed national licensure, but we do think you don't need to. I think the states can provide an area of reciprocity, but they will not do it without the Federal Government helping them.

Senator GARDNER. And we've talked a little bit about the HCF a little bit here, talking about how HCF doesn't allocate any money for administrative and operational costs but it's very costly to administer. I guess, Dr. Henderson, maybe this is best for you. How do telehealth providers get funding for operational and administrative support?

Dr. GIBBONS. How do you tell what? I'm sorry, I missed it.

Senator GARDNER. How do telehealth providers get funding for operational and administrative support when they can't use HCF allocations?

Dr. GIBBONS. Senator, thank you for your question. While the Commission has considered supporting administrative costs in the Health Care Fund program, it ultimately decided against doing so for several reasons. First, exclusion of administrative costs from the program support obviates the need for additional complex application requirements which would be necessary to protect the support from waste, fraud, and abuse. Accordingly, both USAC and applicants are spared from such additional requirements.

Second, lack of support for administrative expense has not seemed to hinder the program participation. Thousands of health care providers participate annually in the program.

And finally, the Commission has designed the Health Care Fund program to minimize, to the extent possible, administrative burden on the applicants. And to this end and among other things in the program, these are the reasons they have decided not to support administrative costs.

Senator GARDNER. Dr. Henderson, would you like to add anything to that?

Dr. HENDERSON. I would just add that in our state, we have the challenge of being a consortium leader but having a cap on that. For any large hospital over 400 beds, there's a cap on the funding that you can receive. The challenge with that is we're the anchor institution that everybody wants to lead the consortium. So we have challenges with covering our costs with that. I would love to have a review of that as a consortium leader in a rural state, leading all these rural institutions, that funding being opened up.

Senator WICKER. Senator Markey?

**STATEMENT OF HON. EDWARD MARKEY,
U.S. SENATOR FROM MASSACHUSETTS**

Senator MARKEY. Thank you, Mr. Chairman, very much.

So we're moving from the old era where you went into the doctor's office and the nurse would open up her cabinet and pull out your file and hand it to the doctor, and after the doctor was finished with you the nurse would put it back in the file and lock it. The nurse knew, the doctor knew, and you knew the doctor wasn't going to tell anybody anything. It was a very private world, totally secure for the most part.

Now, because of these new technologies, we are entering an era where these records through telemedicine can just be out there. So concomitant with the efficiency which these new technologies make possible, you also need a discussion about what the privacy rights are, because there was always total privacy. You kind of trusted your home doctor.

They're not under lock and key, and the records can now be up in the cloud. The medical providers can be using the least costly way of storing this information, using pretty much the same connection that we watch YouTube videos on.

Those that would crack into our privacy don't need crowbars anymore, breaking into the doctor's office. They just need a smartphone. It's our privacy, our security, our safety which is at stake. The stakes are as high as they can get because it can wind up in thousands in unpaid charges, loss of insurance coverage, potentially dangerous details in your medical records that become known to others that should not have access to that information. They can sell your medical data. They can disrupt actual life-giving benefits of telemedicine.

So what I'd like is, if we could, Dr. Gibbons and Ms. Henderson, how do we ensure that our laws and regulations are flexible and yet robust enough to ensure that telemedicine and our health information being protected are compatible concepts? So what new laws

would you like to see put on the books in order to ensure the protection of the information as it's being transmitted?

Dr. Henderson?

Dr. HENDERSON. That's an excellent point, and I think that it's a concern that many have, and I think while it's a concern, with the program that's set up right to deliver telehealth and secure and encrypt that pathway and that network, we can ensure that privacy and security.

But one of the challenges is that every program is a little different. And so while I know my program and I know end-to-end what's happening and who is touching it and how it's secured, I'm not sure that everyone is following those same standards.

Senator MARKEY. What is the standard? Do we need a law? Do we need a regulation? What do we need? Because we can't trust everybody to do the right thing, so you need some standard.

Dr. HENDERSON. Yes. I think this goes to that earlier point of do we need a higher Federal entity that determines minimum standards around that. There are some from different organizations, and state by state we all are coming up with our own model. But I think that would be helpful, to have a consistent minimum standard.

Senator MARKEY. Do you agree with that, Dr. Gibbons? Do we need a national standard so that everyone knows whose health information is being transmitted across the country or across the planet, that there are laws on the books to protect that?

Dr. GIBBONS. Thank you again for the question. One of the things that the Task Force is doing is coordinating and partnering with other Federal partners in multiple areas. One area where we've begun to work is working with our counterparts at the National Institutes of Standards and Technology. They have a very significant cybersecurity infrastructure for just this purpose, developing the standards.

So we've just begun to collaborate with them, but that's the reason that we're doing that.

Senator MARKEY. So do you think we're going to need a national law that's binding that guarantees that there is protection of the privacy of individuals? Do we need that?

Dr. GIBBONS. Well, Senator, I'm not a cybersecurity expert myself personally. I can say everybody wants their information to be secure. Whether we need a law or not, I'm not at liberty to say. I mean, I'm not an expert. We need to continue our consultation with the cybersecurity experts to determine that more fully.

Senator MARKEY. Well, my sense is that you need a law. You need something that the bad guys know is going to get them in trouble if they do it. Otherwise, bad guys are going to do it. So that's just the bottom line. You need some standard that good guys are going to meet every time, because they're going to want to protect the privacy. But the bad guys are going to know they're going to pay a price if they crack into the medical records of tens of thousands of people, or somehow they're cracking into a video or a teleconference where somebody is being given medical advice and a stranger is watching this that would have never been possible otherwise. There has to be penalties which are put on the books.

Senator WICKER. Let me just ask, Dr. Henderson, has this been a problem in your experience with the program in Mississippi?

Dr. HENDERSON. We have not had any breach of security with our program.

Senator WICKER. And, Mr. Linkous, in your association, do you see examples of this type of problem that Senator Markey outlined?

Mr. LINKOUS. We have not seen any examples of broad breach of security for electronic medical records. There are, obviously, HIPAA laws and requirements, and there are certain uses of encryption technologies that absolutely must be used. But as far as I know, I'm not aware of any broad leak of medical information.

Senator WICKER. OK. Well, thank you.

And thank you, Senator Markey.

Senator Cantwell?

**STATEMENT OF HON. MARIA CANTWELL,
U.S. SENATOR FROM WASHINGTON**

Senator CANTWELL. Thank you, Mr. Chairman, and thank you for having this important hearing.

The state of Washington is very excited about telemedicine and I would just say health care innovation overall, everything from delivery system reform to advances in technology. So my questions are about what more areas of flexibility do we need and how we cover. I know this is the Commerce Committee and not the Finance Committee, which I also serve on, but the issues of covering reimbursements and costs and technology. I mean, we have so many people working on what they think will be the health care delivery into the home where so many of the vital statistics of a patient can be then transported to their physicians and monitored.

So what do we need to do to make sure that we're getting flexibility in what's being covered in telemedicine?

Dr. HENDERSON. So I think that any restriction based on geographic location is limiting the vision and impact that we could have for telehealth. I think we are still just scratching the surface on the possibilities here. When you think of what the health care team is going to be ultimately made of, right now it's physicians and nurses in a traditional model and a clinic, but when you start thinking about community health advocates and paramedics and all the other people that are part of the team that are working in a different area, now we're going to be able to connect all those.

So I think we've got to think really big and try to be as forward-thinking as possible when we're writing the reimbursement legislation to be able to have the full impact.

Senator CANTWELL. Anybody else?

Dr. GIBBONS. Yes, I would agree. I think it's clear, as Dr. Henderson has said, as we move forward that things are changing precipitously. Patients rely on many things to achieve their health goals, certainly doctors and hospitals, but also pharmacists, caregivers, and health workers of a variety of kinds. And as we go forward, we need to also think about connecting patients to those things. As I tell my medical students, "How effective is the best medication in the world if the patient can't take it?"

So I think it's absolutely imperative that we work on the things that we've talked about today, but not to stop there, to think about,

as Wayne Gretzky, the great hockey player said, the key to succeeding is skating to where the puck is going, not where it is. So thinking about what health care is going to look like tomorrow and producing legislation today that will enable that innovation to flourish.

Senator CANTWELL. And what about broadband deployment, then, and Lifeline, things of that nature that help us get there? Because the central part of my state is a big part of our agricultural economy, and yet it's very spread out. It would take you many hours to drive from one end to the other, just in the central part. So our health care providers there have done, more or less, satellite health care facilities throughout that region, and so they need telemedicine to continue to provide that care, as opposed to building a hospital in every single community.

Dr. GIBBONS. Well, we found already in our outreach efforts that you're absolutely right. In addition, multiple options are available. A one-size-fits-all for providers or for patients is not likely to work for everybody. There are kiosk-based approaches where you can go into a thing, the door closes behind you, you have a telemedicine visit there. Some of them are very advanced. They even give you your medicines right there. So there's no physical person. It could be located, some of them, even outside. They don't even have to be in a building.

So there's a whole variety of tools. But you're absolutely right in the central problem.

Senator CANTWELL. Well, we've had great success with the prescription drug model of having—since we've had pharmacy shortages and pharmacist shortages, so basically having a provider then work with telemedicine to actually prescribe when the dispensary could be more regionally located, and then people can get access to that medicine.

So that's worked very well in the Pacific Northwest, and we want to continue the model. We think there's a lot more to do here. But that basis of the rural delivery system, which is what is needed now, as you were saying, Dr. Gibbons, is a precursor to what you can get done with what we're going to see with Baby Boomer retirees who we don't really want to go on Medicaid. We want them to stay in their homes, and we want to get as much health care delivered that way, and information, so that all of that is reducing cost in the long run. So I think we're going to have to look at the reimbursement model on this.

Thank you, Mr. Chairman.

Senator WICKER. Thank you, Senator Cantwell.

Senator Klobuchar, you are recognized, and because Senator Schatz and I have other appointments that we must attend, I'm going to allow you to close out the hearing.

Senator KLOBUCHAR. OK. You're so kind, Senator Wicker.

Senator WICKER. I want to thank the panelists for a very, very fine discussion.

Senator Klobuchar?

**STATEMENT OF HON. AMY KLOBUCHAR,
U.S. SENATOR FROM MINNESOTA**

Senator KLOBUCHAR [presiding]. Well, thank you so much, and I apologize for being late. I was at the Agriculture Committee on Cuba, and I'm carrying that bill to lift the embargo, so I had to be there, and we had a successful negotiation today on the sex trafficking bill that we were working on. But I really did want to stop by because of the importance of this issue, and I'm going to get right to the work that Senator Thune and I have done together.

We've introduced legislation in the past and incentivized home health agencies to use remote patient monitoring technologies, and I am encouraged that the sustainable growth rate repeal bill that was signed into law last week includes a study on the potential benefits of this kind of remote patient monitoring, and I look forward to continuing to work with Senator Thune on the issue.

Mr. Rytting, Panasonic recently conducted a study on the efficacy of your SmartCare Remote Patient Monitoring technology. You mentioned that the study found an impressive reduction in hospital admissions and in ER visits. What was the reaction of patients and providers to this kind of home monitoring system? I mean, it's kind of something new for people to get used to. Talk to me about that, because we just see a lot of potential with this.

Mr. RYTTING. We think there's tremendous potential with it. We approached this project with the health care providers as partners and as co-participants in this study, and that's the model we want to use as we expand it into other areas that, before you came, we were talking about, starting larger pilots in other cities, including Senator Booker's Newark, which he was happy with.

Senator KLOBUCHAR. He's always happy when you bring up Newark.

Mr. RYTTING. Of course.

Senator KLOBUCHAR. Like you didn't plan that.

[Laughter.]

Mr. RYTTING. Well, our headquarters is there.

Senator KLOBUCHAR. Oh, OK.

Mr. RYTTING. So it worked out.

We worked in conjunction with the care providers. In fact, as I explained, we used the TV as the primary interface to the people because that's what they know and what they're familiar with, and it's an accessible technology. The questions that came on the screen to give an indicator to the remote health care professional on what's happening with this person—are they feeling better, are they taking their medication—that they responded to were composed by the health care professionals, not us. We're engineers and they're the experts on that. We are using some of their intellectual property, which is their experience and know-how and what kinds of questions they would ask if they were sitting there, and they were able to cast that into a remote setting.

It was surprising that the patients didn't really feel much of a disruption because, again, the primary interface was the television. We brought some additional equipment into their homes: a bathroom scale, a blood pressure monitor, showed them how to use them, but they were not responsible for sending information. We did that all automatically.

One of the findings of the study, besides the reduction in ER revisits and hospital readmissions, was a surprising high rate of participation. Usually in studies like this, I was told that you can expect maybe—you can correct me if I'm wrong, but in the 60, 70, 80 percent range. I don't know if that's about the average. But we were in the 95 percent range.

Senator KLOBUCHAR. Wow. OK.

Mr. RYTTING. Again, we credit that toward—I don't think we fully understood how good of a selection we made going into it.

Senator KLOBUCHAR. Exactly.

Mr. RYTTING. But casting the technology behind something that they were familiar with.

The last comment I would make is we have other senior care initiatives as part of our portfolio that we're working on. One of them is this tablet I have in front of me that's for early onset Alzheimer's. Again, we're trying to make things very simple, very easy to use for that population, because they get scared off pretty easily. In this case, it worked out really well.

Senator KLOBUCHAR. Well, thank you. I hope we continue working on that, so thank you very much.

Dr. Henderson, the Minnesota state legislature is currently debating a bill that would require health insurance to pay for remote consultations, the same way they do for in-person visits, and the bill would greatly expand telemedicine and allow for patients in rural and underserved areas to better manage their health. As you can imagine, in Minnesota we have the Mayo system. They do a lot of that, going back into their own system, but this would also allow to have insurance companies pay.

As you mentioned in your testimony, Mississippi already has a law like this, again a rural state. Could you talk about what you see as some of the benefits of a law like this?

Dr. HENDERSON. It will be the catalyst to open up your telehealth program so that you can have the full impact to access and improving health care to lower cost. When we did that, the concern was, of course, there's going to be fraud and abuse and overuse and not going to have any improved health outcomes, but we saw quite the contrary. We saw improvements in health, we didn't see an increase in cost, and access has improved all over our state.

Senator KLOBUCHAR. Very good. Thank you.

The last thing I'd ask is that one of the most exciting areas in health care right now is the field of precision medicine. We have already seen the extraordinary results of precision medicine, health care tailored to a person's genes, environment, lifestyle can have, for example, in a breakthrough drug to treat cystic fibrosis.

Mr. Linkous, how can telemedicine and other health technologies help improve and personalize care?

Mr. LINKOUS. Well, as I said earlier, having a technology available out there in something like precision medicine is a wonderful invention, but it will do no good unless you can get it to the patient. I think the one thing that telemedicine offers is connectivity to where the people are, to where the patient is, because all too often, when you get into something, particularly somebody with multiple morbidities, often transportation is an issue, and often access to a specialist or access to information in this case with per-

sonalized medicine is a real barrier. It's only through telecommunication networks that we can actually use the ideas behind personalized medicine or some of the other innovations with automation, for example, to actually make a difference in people's lives.

To do that, we have to change some of the regulatory structures that we have both at the Federal level and at the state level to enable that technology to move forward.

Senator KLOBUCHAR. OK. Well, thank you.

Thank you all.

Dr. Gibbons, I will ask your question on the record to spare you here, about broadband and speeds and things like that, because I know it's been a long day for all of you, and I've heard you've done a great job, and I want to thank you.

This is really exciting, and as you can see, there's bipartisan support for moving forward in these areas, and that's always a good thing. So, thank you.

The hearing is adjourned and the record is going to stay open for two weeks. I thought I could play a joke on Senator Thune and say two months or something like that, but no.

[Laughter.]

Senator KLOBUCHAR. Even though I'm holding the gavel, I will keep with the rules and say 2 weeks.

Thank you, everyone.

[Whereupon, at 11:48 a.m., the hearing was adjourned.]

A P P E N D I X

STATEMENT OF DR. KRISTI HENDERSON, DNP, NP-BC, FAEN, CHIEF TELEHEALTH
AND INNOVATION OFFICER, UNIVERSITY OF MISSISSIPPI MEDICAL CENTER

Chairman Thune, Chairman Wicker, Ranking Members Nelson and Schatz, thank you for the opportunity to testify at the recent hearing, “Advancing Telehealth Through Connectivity.” It was an honor to speak about our program at the University of Mississippi Medical Center (UMMC) Center for Telehealth and participate in the important dialogue about how telehealth can increase access to care, decrease costs and improve the quality of care.^c

To address several questions raised during the hearing, I am providing the following submission for the record. In this document, I outline the need for the telehealth solution for mental health, share relevant telehealth cost savings and patient satisfaction reports and reinforce that none of our progress and success would be possible without the necessary connectivity.

Mental Health

The Situation

Mental health in America suffers from high demand without the available providers to meet the demand. According to the National Institute of Mental Health, 18.6 percent of all adults in the U.S. have been diagnosed with Any Mental Illness (AMI),¹ and 4.1 percent of U.S. adults suffer from Serious Mental Illness (SMI).² Children also need access to mental health care, as over 46 percent of children in America ages 13-to 18-years-old have a lifetime prevalence of mental illness. Even more concerning is that more than 20 percent of children suffer from a severe mental disorder.³

The situation is the same in Mississippi, as well. According to data from Mental Health America, the Nation’s leading association for mental health advocacy, 20.27 percent of Mississippians suffer from AMI.⁴ Additionally, Mississippi ranks among the five worst states overall for “highest prevalence of mental illness and lowest rates of access to care.”⁵ This statistic holds true when individually assessing adult and youth mental health care in the state—Mississippi ranks 42 in the Nation for high rates of youth mental illness with low access to services and 51 in the country for the same indicator in adult care.⁶

This data reinforces the great need for mental health care to treat these patients. However, according to a September 2014 report from the Health Resources and Services Administration (HRSA), nearly 96.5 million Americans live in areas that are underserved by mental health providers.⁷ Likewise, Mississippians lack access

¹Any Mental Illness (AMI) Among Adults. (2012). *National Institute of Mental Health*. Retrieved May 2, 2015, from <http://www.nimh.nih.gov/health/statistics/prevalence/any-mental-illness-ami-among-adults.shtml>

²Serious Mental Illness (SMI) Among U.S. Adults. (2012). *National Institute of Mental Health*. Retrieved May 2, 2015, from <http://www.nimh.nih.gov/health/statistics/prevalence/serious-mental-illness-smi-among-us-adults.shtml>

³Any Disorder Among Children. (2012). *National Institute of Mental Health*. Retrieved May 2, 2015, from <http://www.nimh.nih.gov/health/statistics/prevalence/any-disorder-among-children.shtml>

⁴Parity or Disparity: The State of Mental Health in America 2015. (2015). *Mental Health America*. Retrieved May 2, 2015, from [http://www.mentalhealthamerica.net/sites/default/files/Parity or Disparity 2015 Report.pdf](http://www.mentalhealthamerica.net/sites/default/files/Parity%20or%20Disparity%202015%20Report.pdf)

⁵*Ibid.*

⁶*Ibid.*

⁷Radnofsky, L. (2015, February 16). Where Are the Mental-Health Providers? *The Wall Street Journal*. Retrieved May 2, 2015, from <http://www.wsj.com/articles/where-are-the-mental-health-providers-1424145646>

to mental health care, as the state ranks 50 nationally for access to mental health care and 46 for mental health workforce availability.⁸

The Telehealth Solution

With this pervasiveness of mental health care need and poor access to care, hospitals, community mental health clinics and others are seeking innovative solutions to meet the demands they have for mental health care services. At the UMMC Center for Telehealth, the request that we receive most frequently across the state is for TelePsychiatry services. To this end, the Center for Telehealth has established strategic partnerships to help cover gaps in care. An example of one of our groundbreaking telehealth partnerships is with one of Mississippi's leading universities.

This university needed a way to connect its students with mental health services outside of the university counseling center. Therefore, we established a TelePsychiatry clinic in the Student Health Center—a location on campus where students receive their primary healthcare services. Therefore, students who need mental health care can obtain it in a location where no one has to know the type of care they are receiving—there is no stigma for these students to have an appointment at the Student Health Center, whereas students might be concerned about the stigma of walking into the university counseling center. A UMMC psychiatrist connects to the university's Student Health Center via a simple technology solution and provides the consults using telehealth.

The initial agreement with the university was for two half-days of coverage per week for TelePsychiatry. However, after the program proved to be valuable in meeting the students' needs and covering gaps in care, the university increased its utilization of the program to three half-days each week. The program has been successful at treating students and providing interventional care when and where students need it most.

Opportunities for the Future

As we continue to grow our telehealth program and are able to reach all corners of Mississippi, access to mental health will be available to all Mississippians locally—in their hometowns—when and where they need it. Students, not only in college, but also in grades K–12 will receive needed primary and mental health services, including ADD and ADHD diagnoses and treatment, at their schools via school-based telehealth. Every hospital and community mental health clinic in the state will have access to a mental health provider using the telehealth solution.

This vision could become reality in the short term, as I have been approached recently about assisting the Mississippi Psychiatric Association with establishing a true statewide solution to the mental health crisis in the state. Through this program, the UMMC Center for Telehealth would partner with the Mississippi Psychiatric Association and use the Association's physicians to create a mental health network statewide. As this mental health network continues to be developed and implemented, it could become a model that is scaled and replicated in states across the country to help meet demands for care.

These opportunities are within our grasp, but this access to care will not be available without the needed connectivity, particularly in rural parts of our state. As you consider the programs under your purview, including the Universal Service Fund (USF) and other funding programs, please know how valuable they are to the work we are doing to cover gaps in healthcare, including much-needed mental health services.

Cost Savings and Patient Satisfaction

Veterans Health Administration

The Veterans Health Administration (VHA) has implemented a comprehensive telehealth program for its patients and has established the Office of Telehealth Services (OTS) to coordinate this care. Within OTS, the VHA has focused on providing treatment for chronic diseases utilizing a home telehealth and remote patient monitoring program; enabled access to 45 medical specialties via video telehealth connections; and provided store-and-forward telehealth services for review of medical imaging. In Fiscal Year 2013, the VHA connected 608,900 of its patients to

⁸Parity or Disparity: The State of Mental Health in America 2015. (2015). *Mental Health America*. Retrieved May 2, 2015, from [http://www.mentalhealthamerica.net/sites/default/files/Parity or Disparity 2015 Report.pdf](http://www.mentalhealthamerica.net/sites/default/files/Parity%20or%20Disparity%202015%20Report.pdf)

healthcare services via telehealth.⁹ Additionally, 45 percent of these patients were located in rural areas¹⁰ and would not have had access to these services or advanced care without the telehealth solution.

The cost savings and improved outcomes achieved by the VHA's telehealth program have been dramatic. In FY 2013, the home telehealth program reduced bed days of care by 59 percent and decreased hospital admissions by 35 percent. The clinical video telehealth program reduced mental health patients' bed days of care by 38 percent.¹¹

Cost savings also were achieved through VHA telehealth by avoiding travel expenses for medical consultations. The clinical video telehealth program saved \$34.45 per consultation, and store and forward telehealth saved \$38.81 per consultation. The VHA's home telehealth program also saved \$1,999 per patient per year.¹²

VHA patients indicated significant levels of satisfaction with the telehealth program. This includes mean satisfaction rates of 84 percent for the home telehealth program, 95 percent for store-and-forward telehealth, and 94 percent for clinical video telehealth.¹³

The UMMC Center for Telehealth

Like the VHA, programs at the UMMC Center for Telehealth have shown improved health outcomes and cost savings in Mississippi. To date, the UMMC TelEmergency program, which connects the emergency department of the academic medical center to 15 emergency departments throughout Mississippi, has increased local hospital admissions by 20 percent, avoiding unnecessary emergency department transfers. Additionally, in a study of the first 9 TelEmergency sites, the program reduced emergency department staffing costs by 25 percent. Patients have expressed high levels of satisfaction with the TelEmergency program, as health outcomes are on par with those of patients who receive in-person care at the academic medical center.

The Center for Telehealth's corporate telehealth program provides access to primary care in the workplace for a company's employees. A UMMC nurse practitioner connects to patients via video in the workplace clinic or designated space. Companies utilizing telehealth for their employees are saving, on average, \$324 per employee per year—this savings encompasses the cost of care, as well as the expenses of employee absenteeism. Within the first seven months of implementation of the corporate telehealth program, results showed \$14,100 in total savings. Additionally, patients have been pleased with the quality of care and the technology solution that enables their treatment in the corporate telehealth program. Recent reports indicate that greater than 86 percent of patients strongly agree that they were satisfied with their telemedicine encounters via corporate telehealth, and approximately 50 percent said they would have missed work that day had it not been for the workplace telehealth program.

As chronic diseases in Mississippi cost the state approximately \$4 billion in 2010, remote patient monitoring of patients with chronic diseases offers a valuable opportunity to improve health outcomes and, thus, reduce healthcare costs. Projections indicate that the state will save approximately \$125 million each year with the use of remote patient monitoring. UMMC currently is ramping up this program to include monitoring for patients across the state. Already in UMMC's remote patient monitoring program of uncontrolled diabetics in the Mississippi Delta, patients have reduced their A1C levels by an average of nearly 2 percent. Additionally, patients are being empowered to improve their health and indicate that they are being educated on how to handle their diabetes unlike ever before.

The Importance of the Connectivity

Without the necessary connectivity, none of this access to care via telemedicine would be possible. Most of the UMMC Center for Telehealth's sites across the state are located in rural areas. USF has been crucial to enabling these communities to have the appropriate connectivity for telehealth, and we appreciate the subcommittee's commitment to supporting rural broadband development for healthcare and other requests.

Once this needed broadband infrastructure is in place, the network can be used to enable even greater coordination of care via the Health Information Exchange

⁹Darkins, A. (2013). Telehealth Services in the United States Department of Veterans Affairs. Retrieved May 2, 2015, from <http://c.ymcdn.com/sites/www.hisa.org.au/resource/resmgr/telehealth2014/Adam-Darkins.pdf>

¹⁰*Ibid.*

¹¹*Ibid.*

¹²*Ibid.*

¹³*Ibid.*

(HIE), Electronic Medical Records (EMR) and other applications. Ultimately, the more we are connected with the needed Internet access, the more we will be able to use the network to improve health outcomes.

I hope that the subcommittee will continue this important dialogue about enabling telehealth through sustained support of the necessary connectivity. I welcome the opportunity to answer any questions about the connectivity, UMMC's telehealth program, and its value in Mississippi.

HEALTHCARE LEADERSHIP COUNCIL
May 5, 2015

Senate Commerce, Science, and Transportation Committee,
Subcommittee on Communications, Technology, Innovation, and the Internet
Washington, DC.

RE: STATEMENT FOR THE RECORD FOR "ADVANCING TELEHEALTH THROUGH
CONNECTIVITY" HEARING

Dear Chairman Wicker and Ranking Member Schatz:

Thank you for your leadership on the advancement of telehealth. We appreciate your recent hearing on the topic as well as the opportunity to submit a statement for the record.

HLC is a not-for-profit membership organization comprised of chief executives of the Nation's leading healthcare companies and organizations. HLC's membership has seen firsthand that telehealth is an important tool to make the workforce as efficient, effective and patient-centric as possible. Telehealth acts as a force-multiplier, extending the ability of the current healthcare workforce to meet patient needs (e.g., in underserved areas); and can elevate quality by reaching individuals more effectively (e.g., improving patient adherence, providing interpretation services for those with language barriers), all at a lower cost than services performed in traditional settings. *HLC strongly supports the timely advancement of policies designed to create a firm foundation for telehealth technology, which includes expanding access to broadband.*

Attached for your reference are HLC's Workforce Principles, which outline our multisector, consensus principles to strengthen the healthcare workforce in order to meet the demands of an innovative healthcare system, dramatically changing patient demographics, and an increased focus on the prevention and management of chronic diseases. These principles identify telehealth as a top priority to equip healthcare providers with the tools needed to ensure they can meet these challenges.

HLC believes that telehealth legislation and regulation should be flexible enough so that new and innovative technologies do not face barriers from outdated frameworks. Additionally, HLC supports reexamining restrictive reimbursement and regulatory provisions that make it challenging to use telehealth across state lines and for qualified nonphysicians to be paid for care provided in a telehealth setting.

We were pleased to hear the Committee express bipartisan support for the need to address reimbursement and licensure to enable telehealth expansion. Our comments below are specific to those areas of focus and concern of members of the Committee and witnesses.

Expanded Reimbursement and Licensure

As you know, changes to the current telehealth payment structures and requirements are urgently needed to increase access to these services. We support waiving current "1834(m) restrictions" on originating site, geography, and type of eligible provider. By opening up telehealth services beyond the current narrowly-drawn boundaries, more patients will be able to access important, quality health services. We also advocate expanding the list of qualifying telehealth services to address patient needs that are unmet because of geography or other access barriers, reduce readmissions or other costly services, substitute for an in-person visit, or allow patients to be moved to a lower level of care (including home care). Further, HLC supports expanding reimbursement to ensure that the appropriate providers can be reimbursed for those services (consistent with state scope of practice laws). Finally, HLC supports setting payment rates based not on the way the service is delivered (i.e., in person or via telehealth technology), but the quality of the service. This echoes the consistent focus of Congress and the Administration to focus increasingly on outcomes rather than on process. Payment should support and allow for constantly changing and improving technologies.

HLC members have seen significant cost savings from telehealth implementation, and these savings are cited in many rigorous studies. The Centers for Medicare and Medicaid Services (CMS) has acknowledged the value and increased usage of telehealth. We fully understand Congress' need to protect the taxpayer dollar, but the evidence shows telehealth can be seen as a cost saver instead of a cost driver.

Finally, HLC members support changing licensure requirements in a way that allow practitioners (including nonphysician providers) to practice across state lines. This change will support the way care is increasingly delivered and will promote better quality and efficiency.

Thank you again for your leadership in convening this hearing and for advocating an increased use of telehealth technology. We look forward to working with you further. If you have any questions, please do not hesitate to contact Debbie Witchey at dwitchey@hlc.org.

Sincerely,

MARY R. GREALY,
President.

Cc:
Senate Commerce, Science, and Transportation Committee Chairman Thune
Senate Commerce, Science, and Transportation Committee Ranking Member Nelson
Enclosure

HLC WORKFORCE PRINCIPLES

Overview

Innovation in healthcare is not limited to medicines or devices; it includes the way in which care is delivered. With the implementation of the Patient Protection and Affordable Care Act (PPACA) and the changing demographics in this country, the way healthcare is delivered and the workforce required to do so will need to change in response. The Healthcare Leadership Council (HLC) views the healthcare workforce from a unique, multisectoral perspective that reinforces HLC member efforts to promote value and quality and highlights the changing healthcare delivery system.

HLC developed these Workforce Principles to guide HLC's activity and strategy in addressing healthcare workforce challenges. These principles may also guide Federal and state policymakers as they draft legislation and regulations that affect the healthcare workforce.

Overarching Goals

HLC members believe that any steps taken to address existing and future healthcare workforce challenges should (1) look to the future needs and structures of the healthcare system; and (2) support a healthcare system based on quality and value.

Build the Future Healthcare System. As the healthcare system changes, so too must the healthcare workforce. *Public and private efforts to develop and strengthen the healthcare workforce must be constructed in a way that encourages the healthcare delivery system to lower costs and improve outcomes.* HLC believes that workforce policies geared toward the goals of the future rather than the current system will produce a shift toward improved quality in healthcare and create a workforce ready to address critical needs.

Promote Quality and Value. The existing workforce must also transform to reflect the changing healthcare landscape. *Efforts to improve and strengthen the healthcare workforce must move the system from volume-based, episodic care to value-driven, team-based, quality care that incorporates prevention and other important health determinants.* HLC believes that we must realign the current workforce to better promote quality and value.

Key Strategies

1. Ensure a Sufficient Healthcare Workforce

- All sectors of American healthcare are or will be affected by a shortage of specialists, physicians, nurses, skilled scientists, pharmacists, and/or allied health workers that provide the expertise and personnel to treat an increasingly diverse, aging, and chronic disease-ridden population. This has an effect throughout the healthcare system, including healthcare coverage and the ability to treat patients, as well as the cost of healthcare.
- In particular, the physician workforce is hampered by policies and payment systems that have resulted in a shortage of physicians in certain disciplines and

geographic areas, and at financially strained academic medical centers serving the sickest and most vulnerable patients. Graduate Medical Education (GME), funded under the Medicare program, has not been updated for more than 15 years, and misaligned payment systems discourage individuals from pursuing careers in key specialties or geographic areas, while an aging population combined with increased access to insurance coverage through healthcare reform has and will continue to strain the system.

- The healthcare workforce pipeline for all sectors of healthcare begins with STEM (science, technology, engineering, and math) education. Increased STEM education is needed at all levels of education to train and retain the workers needed to fill more traditional healthcare jobs, as well as geneticists, engineers, and people who are able to interpret the large amounts of data produced in healthcare. A shortage in graduates with a STEM educational background has made it difficult for some healthcare companies to hire qualified workers for high-paying positions in the U.S. A well-educated, qualified workforce is essential to research, innovation, and patient care.
- *HLC believes* that an emphasis on STEM education should be integrated into Federal policies. The Federal Government has many areas of influence that should be used to promote STEM skills, including immigration policies, policies to drive innovation, Federal and state spending priorities, and education policies affecting elementary, secondary, and postsecondary students.
- *HLC believes* we need dramatic reform of how physicians are trained and paid. Payment policies should be sufficient to cover the full cost of direct and indirect medical education in the clinical setting, be better aligned to meet geographic needs, and be more efficiently allocated to meet evolving patient demand. Payment should be sufficient enough to support education and bring enough workers into the system.

2. Support Nonphysician Providers

- Nonphysician providers such as nurse practitioners, nurse assistants, community-based providers, pharmacists, and trained health educators are an integral part of the healthcare delivery system. Health services provided by nonphysician providers are an important way for the current healthcare system to be more productive and efficient because the services they provide are often lower cost to the patient and supplement the care given in a traditional healthcare setting. Additionally, providers of this type are critical to the development of team-based care.
- *HLC believes* that, in order to meet the needs of a growing and aging population, we need dramatic reform of how the healthcare workforce incorporates nonphysician providers. Nonphysician providers should be allowed to deliver the care that they are trained to provide in collaboration with health teams. Reimbursement and regulatory gaps or barriers should be addressed so this type of care is accessible by more patients.

3. Promote and Enhance Tools That Support a More Efficient Healthcare Workforce

- In order to make the workforce as efficient, effective, and patient-centric as possible, providers from all sectors must utilize tools to reach, treat, and engage patients. Telehealth is an important component of these tools. Telehealth:
 - Acts as a force-multiplier, extending the ability of the current healthcare workforce to meet patient needs (*e.g.*, in underserved areas);
 - Can elevate quality by reaching individuals more effectively (*e.g.*, locating noncompliant patients or providing interpretation services for those with language barriers); and
 - Supports improved workforce training and development (*e.g.*, using telehealth to train or retrain workers and allowing workers to interact with each other via telehealth).
- *HLC believes* that telehealth legislation and regulation should be flexible enough so that new and innovative technologies do not face disincentives from outdated frameworks. Additionally, HLC supports reexamining restrictive reimbursement and regulatory barriers that make it challenging to use telehealth across state lines and for qualified nonphysicians to be paid for care provided in a telehealth setting.

STATEMENT OF THE AMERICAN HOSPITAL ASSOCIATION

On behalf of our nearly 5,000 member hospitals, health systems and other health care organizations, and our 43,000 individual members, the American Hospital Association (AHA) appreciates the opportunity to comment for the record in support of advancing the use of telehealth to improve access to health care services.

Telehealth increasingly is vital to our health care delivery system, enabling health care providers to connect with patients and consulting practitioners across vast distances. Hospitals are embracing the use of telehealth technologies because they offer benefits such as virtual consultations with distant specialists, the ability to perform high-tech monitoring without requiring patients to leave their homes, and less expensive and more convenient care options for patients. According to AHA survey data, in 2013, 52 percent of hospitals used telehealth and another 10 percent were beginning the process of implementing telehealth services.¹

Telehealth offers significant promise for health care patients and providers, yet significant barriers to expansion remain, greatly limiting health care access for many patients. *The AHA applauds the Committee for its interest in advancing the use of telemedicine, and we look forward to working with its members to achieve that goal.* Below we outline the different types of telehealth modalities, examples of how telehealth is used to provide care and, finally, current obstacles and proposed solutions for the Committee to consider as it develops legislation. *We specifically urge the Committee to consider the limitations of Medicare payment on services delivered via telehealth and expand support for broadband access for health care providers under the Health Care Connect Fund administered by the Federal Communications Commission (FCC).*

The Three Traditional Modalities of Telehealth

Telehealth traditionally encompasses three main modalities, each with distinct applications within the broader telehealth industry.

One telehealth modality is “*real-time*,” a live, two-way interaction between a patient (or the patient’s caregiver) and a health care provider using audiovisual technology. Real-time telehealth services can be used to consult, diagnose and treat patients.

Another telehealth modality is “*store-and-forward*,” which involves the transmission of a patient’s recorded health history (*e.g.*, pre-recorded videos or digital images such as X-rays and photos) through a secure electronic communications system to a health care provider, usually a specialist. The information is used to evaluate a patient’s case or, in some cases, render a service outside of a real-time interaction. Store-and-forward technologies have the advantage of providing access to patient data after it has been collected, and are particularly beneficial to patients requiring specialty care when providers are not otherwise available locally.

A third telehealth modality, “*remote patient monitoring*,” involves collection of a patient’s personal health and medical data via electronic communication technologies. Once collected, the data is transmitted to a health care provider at a different location, allowing the provider to continue tracking the patient’s data once the patient has been released to his or her home or another care facility.

In addition to these traditional telehealth modalities, a growing number of mobile health, or “*mHealth*” technologies, applications and online services are being sold directly to patients, such as wearable devices to track health and wellness. The market for wearable devices is expected to increase from \$1.5 billion in 2014 to \$6 billion by 2016.² Patients will be able to benefit from tools such as wearable electrocardiogram (EKG) monitors, which deliver readings to a treating physician.³

Increasingly, information from these devices and applications will become linked to the health information managed by providers. For example, Apple is marketing its Health app to patients, allowing them to aggregate personal health information on their Apple devices and link those data to mobile health applications that work with the Apple platform through *HealthKit*. At the same time, Apple is partnering with providers and electronic health record (EHR) companies to determine how the tool can be used in health care settings.

¹AHA Annual Survey, Health Information Technology Supplement (2013).

²NTT Data, *Trends in Telehealth* (2014), available at: http://americas.nttdata.com/Industries/Industries/Healthcare/~/_media/Documents/White-Papers/Trends-in-Telehealth-White-Paper.pdf.

³NTT Data, *Trends in Telehealth* (2014), available at: http://americas.nttdata.com/Industries/Industries/Healthcare/~/_media/Documents/White-Papers/Trends-in-Telehealth-White-Paper.pdf.

Similarly, mobile platforms, such as smartphones, will likely become a more significant part of the telehealth platform over time.⁴ Easy access to smartphones, tablets and other devices is a critical component enabling patients to more fully embrace mHealth applications. Between 2011 and 2016, the number of Americans with smartphones is expected to grow two-fold from 93.1 million to 192.4 million.⁵

Applications of Telehealth by Hospitals and Health Systems

Hospitals can provide the base from which telehealth services are offered, thereby expanding access to care for a wider population. Some examples of hospital-based platforms include telestroke, tele-ICU, cybersurgery and remote monitoring.

Improving Access to Health Care and Convenience for Patients

Approximately 20 percent of Americans live in rural areas where many do not have easy access to primary care or specialist services. Patients in urban areas also face challenges due to physician shortages. The availability of telehealth services to these areas facilitates greater access to care by eliminating the need to travel long distances to see a qualified health care provider. Telehealth also can fill gaps in subspecialist care. Telepharmacy is another way to offer patients the convenience of remote drug therapy monitoring, authorization for prescriptions, patient counseling and monitoring patients' compliance with prescriptions. With a nationwide shortage of psychiatrists, telepsychiatry allows psychiatrists to use videoconferencing to speak to and evaluate patients in need of mental health services, who may otherwise have to drive hours to see mental health providers.

Rural and critical access hospitals (CAHs) often are in need of critical care clinicians to diagnose, manage, stabilize and make transfer decisions concerning their most complex patients, and can use telehealth to connect to those services. Telestroke programs can expedite delivery of time-sensitive treatments to patients who present to emergency rooms that lack needed specialists, saving lives and reducing the adverse consequences of stroke. Tele-ICU programs can help hospitals supplement clinician staffing of their ICU beds.

In addition to improving access, patients are increasingly expecting levels of convenience in health care similar to what is available in the retail and banking sectors.⁶ Telehealth, regardless of geographic location, can foster a patient's ability to connect with a primary care physician or health system on a more flexible basis and often without an in-person visit. Patients are able to receive services at a distance by using secure online video services or through secure e-mail, often with the added benefit of reducing travel to health care facilities.

Improving Quality of Care and Patient Satisfaction

There is a growing body of research illustrating that the use of telehealth can significantly improve the quality of patient care. Research conducted in 2013 on nearly 120,000 adult patients from 56 ICUs in 32 hospitals belonging to 19 U.S. health-care systems concluded that ICU telehealth interventions, especially those that increase early intensivist case involvement, improve adherence to ICU best practices, reduce response times to alarms and encourage the use of performance data. In addition, the overall effects of ICU telemedicine programs were associated with better survival rates for patients and reduced hospital lengths of stay.⁷ Significant improvements in the quality of care for seriously ill and injured children treated in remote rural EDs also were achieved by using telehealth consultations with pediatric critical care medicine physicians at the University of California, Davis Children's Hospital.⁸

For several years, the Veterans Health Administration (VHA) has used telehealth for home health monitoring to track vital signs and conditions for patients with chronic diseases or who have been released recently from the hospital. Adam Darkins, former chief consultant for telehealth services for the VHA, reported that telehealth services in its post-cardiac arrest care program resulted in a 51 percent reduction in hospital readmissions for heart failure and a 44 percent reduction in

⁴Akanksha Jayanthi. The Rise of mHealth: 10 Trends. Becker's Health IT and CIO Review (June 27, 2014), available at: <http://www.beckershospitalreview.com/healthcareinformation-technology/the-rise-of-mhealth-10-trends.html>.

⁵NTT Data, Trends in Telehealth (2014), available at: <http://americas.nttdata.com/Industries/Healthcare/~media/Documents/White-Papers/Trends-in-Telehealth-White-Paper.pdf>.

⁶PricewaterhouseCoopers Health Research Institute. New Health Economy (2014).

⁷Craig M. Lilly, M.D., FCCP *et al.*, A Multicenter Study of ICU Telemedicine Reengineering of Adult Critical Care, CHEST 145(3): 500–507 (2014), article abstract available at: <http://journal.publications.chestnet.org/article.aspx?articleID=1788059>.

⁸Madan Dhamar, et al, Impact of Critical Care Telemedicine Consultations on Children in Rural Emergency Departments, CRITICAL CARE MEDICINE (2013).

readmission for other illnesses. In addition to improved patient care, veterans reported patient satisfaction levels of 84 percent for the home telehealth services provided through the program. VHA's Clinical Video services with real-time video conferencing between VA medical centers and VA Community Based Outpatient Clinics also were rated highly, with a 94 percent patient satisfaction rate.⁹

Barriers to Expanding Telehealth Services

Coverage and Payment for Telehealth Services

Few obstacles present greater challenges for providers seeking to improve patient care through telehealth technologies than coverage and payment for telehealth services. Whether providers are adequately reimbursed for telehealth services is a complex and evolving issue and, as a result, a possible barrier to adopting such services.

A baseline question with respect to provider payment for telehealth services is whether the payer covers telehealth services at all. On the public payer front, inconsistencies exist. For example, Medicare's policies for coverage and payment for telehealth services lag far behind other payers due to its restrictive statutes and regulations. Many state Medicaid programs cover telehealth services to some extent, although the criteria for coverage vary widely from state to state. On the private payer side, by contrast, there has been significant expansion with many states passing laws requiring private payers to provide coverage for telehealth services.

Private Payers

According to the American Telemedicine Association (ATA), 20 states and the District of Columbia have enacted "parity" laws, which generally require health insurers to cover and pay for services provided via telehealth the same way they would for services provided in-person. Virginia and New Mexico are two states that have created a regulatory environment that encourages the availability and provision of telehealth services, including providing telehealth coverage for their state employee health plans. Two additional states—Arizona and Colorado—have enacted partial parity laws that require coverage of and reimbursement for telehealth services. However, coverage is limited to a certain geographic area or a predefined list of qualified services.¹⁰

Medicaid

A 2014 report by the Center for Connected Health Policy noted that 46 state Medicaid programs, both fee-for-service (FFS) and Medicaid managed care, have some form of coverage for telehealth services, such as for remote patient monitoring (13 states). Live video is the most frequently covered telehealth service, while store-and-forward services are defined and reimbursed by only a handful of state Medicaid programs. State Medicaid programs rarely cover e-mail, telephone and fax consultations, unless they are used in conjunction with some other type of communication. Twenty-four states pay providers either a transmission or a facility fee, or both. A few states have adopted the Medicare policy that restricts coverage to only telehealth services that are provided in rural or underserved areas.¹¹

Medicare

Despite recent expansions in covered services, Medicare lags behind the private sector and many state Medicaid programs in promoting telehealth. For example, at least 20 states across the Nation require private payers to pay the same amount for all medical services, whether delivered via telehealth or through an in-person encounter. In addition, many state Medicaid programs have more progressive policies than the Medicare program. Even within Medicare, some Medicare Advantage plans are beginning to provide telehealth benefits that are not covered under Medicare FFS rules, leaving the 70 percent of those utilizing FFS with limited access to these technological advances. In order to modernize Medicare coverage and payment for telehealth, several statutory restrictions must be addressed, including:

- Eliminating geographic and setting location requirements;

⁹Adam Darkins, "Telehealth Services in the United States Department of Veterans Affairs (2014), available at: <http://c.ymcdn.com/sites/www.hisa.org.au/resource/resmgr/telehealth2014/Adam-Darkins.pdf>.

¹⁰American Telemedicine Association, STATE TELEMEDICINE GAPS ANALYSIS: COVERAGE & REIMBURSEMENT, available at: <http://www.americantelemed.org/docs/default-source/policy/50-state-telemedicine-gaps-analysis-coverage-and-reimbursement.pdf?sfvrsn=6>.

¹¹Center for Connected Health Policy, STATE LAWS AND REIMBURSEMENT POLICIES, available at: <http://cchpca.org/sites/default/files/uploader/50%20STATE%20MEDICAID%20REPORT%20SEPT%202014.pdf>.

- Expanding the types of covered services (today, Medicare pays for only 75 services);
- Simplifying the process to expand the list of covered services by type instead of CPT codes; and
- Including store-and-forward and remote patient monitoring as covered services.

The committee can help address some of these issues by expanding our Nation's telecommunications infrastructure. This would help specifically with:

- Expanding eligible patient location (originating site). Telehealth services will be covered only if the beneficiary is seen at an originating site listed in law, such as a hospital, skilled nursing facility or physician office. As our Nation's telecommunications systems continue to improve, it will become increasingly possible to safely provide care to patients in other settings, including, potentially, the office, school or home.
- Expanding approved technologies. Medicare may only cover telehealth services that are furnished via a real-time, video-and-voice telecommunications system. Outside of Hawaii and Alaska, Medicare may not pay for telehealth services provided via store-and-forward technologies. And, despite growing evidence of the benefits of remote monitoring technologies for quality of care and cost savings, they are not included in Medicare's telehealth policy.

Rural Health Care Program and Health Care Connect Fund Limitations

Subsidy and Usage. The FCC created the Health Care Connect Fund (HCCF) as a part of the Rural Health Care Program (RHCP) in 2012 with the goal of expanding broadband access for health care providers. The AHA urges the Committee to look at these underutilized programs for ways to provide a greater benefit to health care providers. The pilot program that served as a precursor to the HCCF allowed providers an 85 percent subsidy level. The HCCF reduced the subsidy amount to 65 percent. According to a 2010 Government Accountability Office report, the RHCP program disbursed \$327 million while in operation—well below the \$400 million yearly cap.¹² Funds are going unused, while providers still struggle to expand their networks. The AHA recommends the Committee consider expanding the subsidy to offer reduced cost sharing for participating health care providers and to more appropriately utilize the HCCF. Reducing the administrative burden of participation also would likely increase involvement by providers.

Limits on Hospitals—Provider Status and Capacity Limits. Current program requirements restrict access for certain types of providers. For-profit entities are an integral part of the rural health care system. For example, 12 percent of rural hospitals are for-profit. The program can clearly support additional providers, and we urge the Committee to consider ways to expand participation for those for-profit entities serving vulnerable populations. The AHA also would support lifting the cap on funding for non-rural hospitals with more than 400 beds that are part of a consortium that is predominantly rural.

Conclusion

The AHA and the hospital field appreciate your recognition of telehealth as a vital component of the health care system of the future. However, implementation has been hampered by operational challenges. The implementation and effective use of Internet, mobile and video technologies offer hospitals, physician groups and health plans ways to improve performance and provide greater convenience and value to patients. The Rural Health Care Program, including the Health Care Connect Fund, is a critical source of support for health care providers. We appreciate the Committee's consideration of proposed changes, which would greatly strengthen the program and support the advancement of telehealth. These programs need to continue to evolve to encourage provider participation through lower administrative burden, reduced cost sharing, and better compensation for program administration. We urge the Committee to work toward creating a policy environment that supports these efforts and accelerates the transition to the health care system of the future.

¹²FCC's Performance Management Weaknesses Could Jeopardize Proposed Reforms of the Rural Health Care Program, available at: <http://www.gao.gov/new.items/d1127.pdf>



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Panasonic Health & Wellness Solutions

- About Panasonic
- Why Health & Wellness Solutions
- SmartCare Service
- On4Today Service
- Discussion



Why Panasonic?



Every Moment of Every Day ...

People all over the world turn to Panasonic to make their lives simpler, more enjoyable, more productive and more secure. Whether at home in front of your 4K Life+ Screen, in your car, on a plane, or out and about in your community ... **Panasonic is with you every step of the journey.**



Aging in Place – Driver for New Solutions

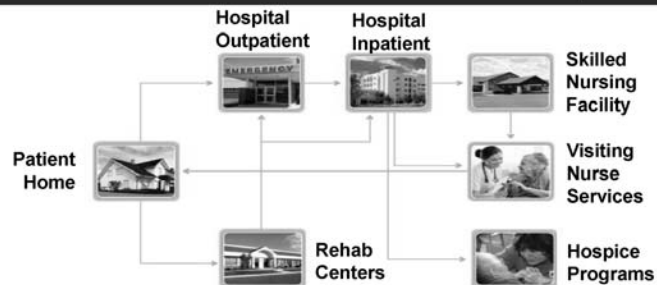
Healthcare: 17% of U.S. GDP
75% of U.S. Healthcare Costs to Chronic Care
80% of Americans 65+ suffer from Chronic Disease

Telehealth paves the way for cost-effective “Care in Place”

10,000 U.S. Baby Boomers to retire each day
Shift from Fee-for Service to Value-based reimbursement



Care Continuum – Need Flexibility



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Panasonic SmartCare

Intelligent Telehealth
Solutions designed to
meet the Challenges of
Care Management and
Population Health



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IHI Triple AIM



Institute for
Healthcare
Improvement

Population Health



Experience of Care

Per Capita Cost

Panasonic SmartCare

Solution:

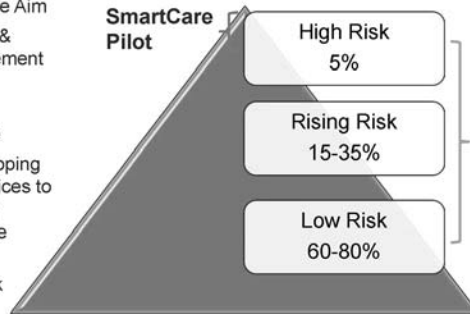
Positive Impact on all 3 Aims:

- Enhanced Patient Experience
- Cost Reduction
- Supports Population Health Management

Population Health Management

- Support for Triple Aim
- Positive patient & provider engagement
- Opportunity for reimbursement via telemedicine
- Strategy: Developing technology services to address 80% of population's care delivery
- Analytics for risk stratification

SmartCare Pilot



SmartCare Potential

TV as Source of Engagement



- **Familiar**
- **Comfortable**
- **Intuitive**
- **Simple**

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SmartCare – Patient Experience

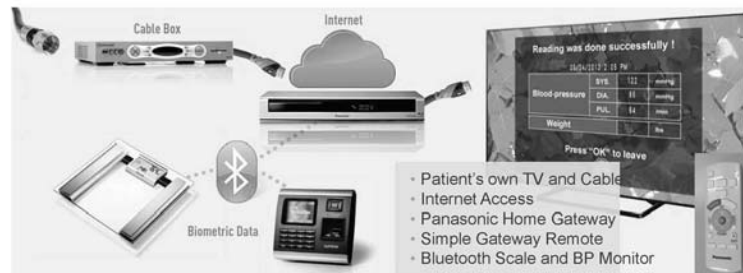


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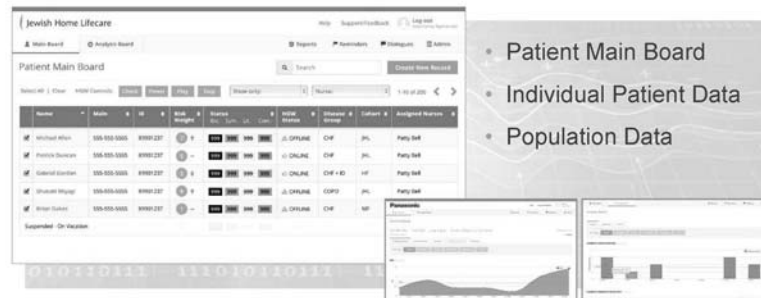
SmartCare – Patient Experience



SmartCare Home Gateway



SmartCare Portal



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SmartCare – Flexible Architecture



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Pathways to Healthcare – Pilot Program



Jewish Home Lifecare



Innovative care management program for the elderly

Utilizes SmartCare technology to reduce the costs related to chronic disease management for CHF patients

Results:

- reduced hospitalization and emergency room visit rates
- high degrees of patient satisfaction

SmartCare Pilot

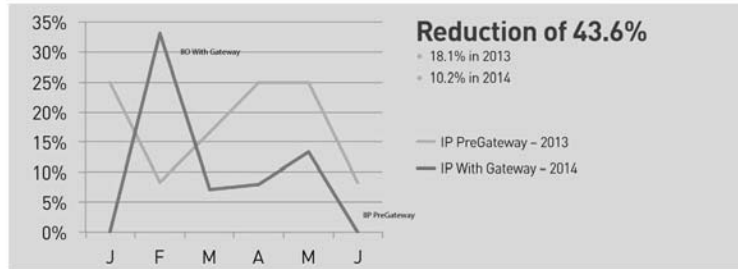
- 37 Patients in NYC (12 HF)
- Patients with CHF & Diabetes
- Installs November & December
- Data Collection from January 2014
- 6 Month Duration > Whitepaper



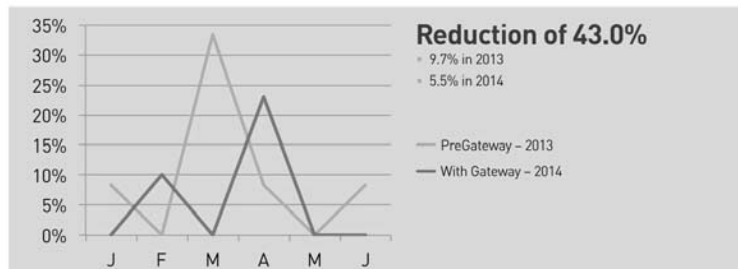
SmartCare Pilot - Satisfaction Results



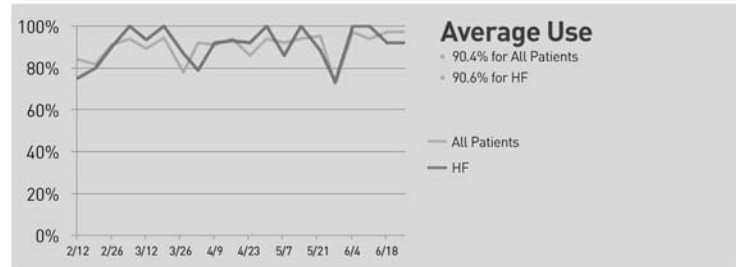
SmartCare Pilot - Hospitalizations



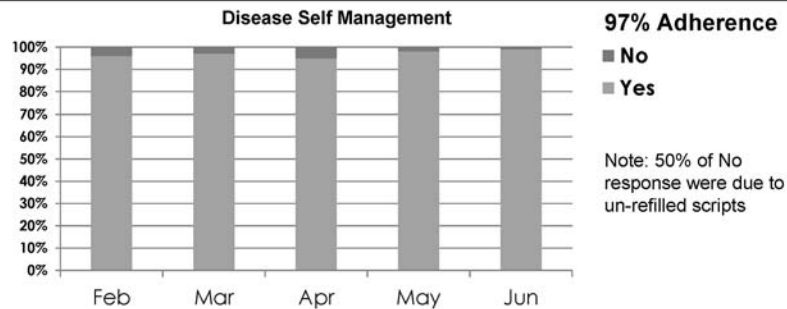
SmartCare Pilot - ER Visits



SmartCare Pilot - Program Adherence



SmartCare Pilot - Medication Adherence



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JHL Receives McKnight Award with Panasonic

McKnight's
The news you need

**Jewish Home Lifecare named
Innovator of the Year**

"Panasonic's Home Gateway system was a huge hit with our patients. Almost all of them — 97% — reported being better able to manage their conditions, which led to an equally high percentage following their medication regimes," Melly said



<http://www.mcknights.com/jewish-home-lifecare-named-innovator-of-the-year/article/374286/>

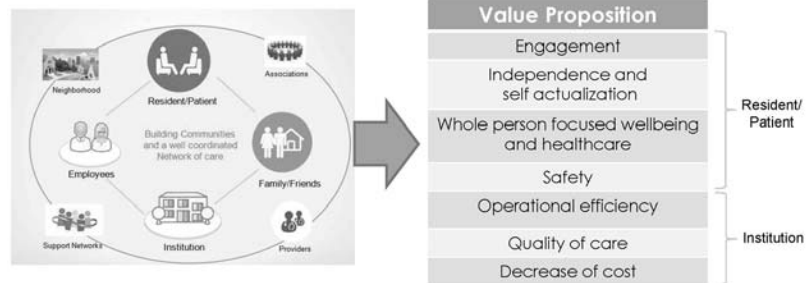
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Panasonic On4Today Service

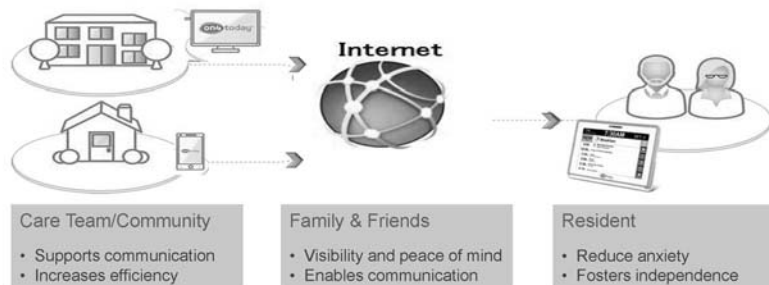
A service solution to
foster resident
engagement and
socialization that
supports well being



On4Today – Vision and Value

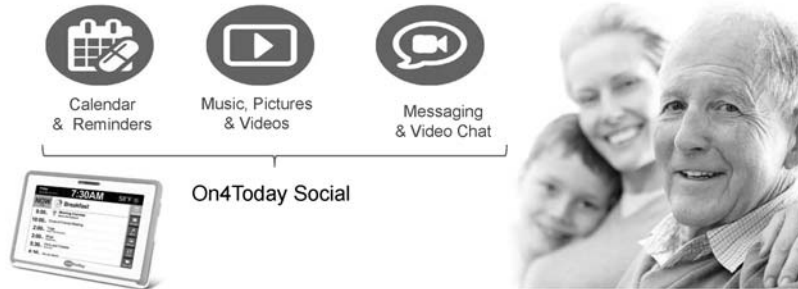


Panasonic On4Today Service



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On4Today Social



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On4Today Social



On4Today Social

On4Today Social

On4Today – What residents say

- *"My mother was one of the original users of On4Today and in my mind, it was one of the best things about her moving into her Assisted Living apartment!" (Laura)*
- *"My dad has really enjoyed the On4Today system. It helps him know the things that are happening at Belmont" (Sharon)*
- *"She LOVES the On4today system, especially because she can touch the screen and it will tell her verbally about the events" (Sharon)*
- *"Mom actually pays attention to the daily schedule on the display, and is participating in more activities as a result" (Peggy)*



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A Better Life, A Better World

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. DAN SULLIVAN TO
DR. KRISTI HENDERSON

Question. In Alaska, telehealth is hugely important, as it is the primary way many people in rural areas are able to receive healthcare. Some of our health facilities have reported interoperability problems with telehealth software and electronic health records (EHR) software. In addition to the problems caused by this lack of integration, we are also missing out on potential benefits of having fully integrated systems. Have you seen this interoperability problem in other areas of the country? If so, are there possible solutions to the problem?

Answer. Thank you, Senator Sullivan. You are correct. Healthcare providers across the country experience problems with EHR integration, and ensuring interoperability of the EHR platforms costs time and money. This inability for various EHR systems to interface is concerning, as providing the patient's data when and where it is needed is crucial for enabling better care coordination and improved health outcomes.

In Mississippi, the state developed the Mississippi Health Information Network (MS-HIN) to deliver the interfacing solution across multiple EHR programs throughout the state. A public-private partnership established by House Bill 941 in the 2010 state legislature and funded by an American Recovery and Reinvestment Act (ARRA) grant, the mission of MS-HIN is "to provide sustainable, trusted exchange of health information to improve the quality, safety, and efficiency of health care for all Mississippians." Its vision is to be "the trusted source for secure, quality health care information—anywhere, anytime for a healthier Mississippi."

MS-HIN integrates various EHR platforms among providers in the state, allowing for a secure and reliable exchange of health information. Statewide EHR interoperability is especially important for our work at the University of Mississippi Medical Center (UMMC)—Center for Telehealth. Of our 166 distant telehealth sites across the state, the majority of these locations do not use the same EHR as UMMC. Consequently, we work with MS-HIN to help integrate the different medical record platforms for us, enabling this important data exchange to occur.

MS-HIN provides a streamlined and efficient approach and cost-effective strategy for EHR interoperability. As you explore the possibility of a national medical record system, Mississippi's exchange could be a model worth replicating. Please contact me with further questions or for additional information.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. TOM UDALL TO
DR. KRISTI HENDERSON

Question 1. As you know, Congress recently replaced the SGR with an alternative payment model. The bill includes a new Medicare program of alternative payment methods free from longstanding telehealth restrictions. How does this provide a model for Congress and the Center for Medicare and Medicaid Innovation to remove the current restrictions by identifying "better incentives of value-based payments"?

Answer. The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA), through which the SGR was repealed, provides for the GAO to conduct a study on the use of telehealth in Federal programs, as well as on remote patient monitoring services in Medicare and private payor settings. The study is to address "issues that can facilitate or inhibit the use of telehealth under the Medicare program under such title, including oversight and professional licensure, changing technology, privacy and security, infrastructure requirements, and varying needs across urban and rural areas."¹ It also includes an evaluation of payment and delivery models for telehealth and the monitoring of those payments in the Medicare program. The study, therefore, provides an opportunity to test these models of care, including the benefits of telehealth in urban settings, and provide valuable data and outcomes for evaluation.

Additionally, MACRA's Merit-Based Incentive Payment System (MIPS) encourages incentivized payments to physicians based on various metrics. One of the subcategories that affect a physician's MIPS score is the implementation of care coordination, including remote patient monitoring and telehealth. The telehealth and remote patient monitoring solution is ideal for these incentivized payments, as telehealth enables improved health outcomes and, thus, lower costs. For example, at the University of Mississippi Medical Center (UMMC) Center for Telehealth, we are

¹ Medicare Access and CHIP Reauthorization Act of 2015, H.R. 2, 114th Cong. (2015). Retrieved from <https://www.congress.gov/bill/114th-congress/house-bill/2/text>

providing remote patient monitoring to high-risk diabetic patients in rural Sunflower County for ongoing assessment and, if needed, intervention.

While costs may be higher at the onset of the program from equipment, training and other expenses, significant costs savings will result from improvement in the chronic condition and related health issues, decreased medication expenses and other outcomes. Chronic diseases in Mississippi cost the state approximately \$4 billion in 2010, but projections indicate that the state will save nearly \$125 million each year with the use of remote patient monitoring.

Already in UMMC's remote patient monitoring program, patients have reduced their A1C levels by an average of nearly 2 percent. Because of the success of this program and its outcomes, UMMC currently is ramping up this program to include monitoring for patients across multiple chronic disease states throughout Mississippi.

Question 2. In your opinion given our mobile society, should providers have the ability to treat their patients anywhere using technology as long as they have an established patient-provider relationship in the state of licensure?

Answer. The issue of location is determined by the location of the patient at the time of the encounter. If the patient is located in a state where the provider is licensed, providers should be able to treat patients using telehealth. In many states, including Mississippi, the patient-provider relationship can be established over the telehealth connection.

Question 2a. Would you support Federal legislation directing the states to allow this for all Federal health programs?

Answer. I would most certainly support Federal legislation that enables greater access to telehealth services for patients utilizing Federal health programs.

Question 2b. What are some Federal licensing options that may also work for non-federal plans?

Answer. I am not aware of Federal licensing options for health care providers. However, the Federation of State Medical Boards (FSMB), which represents all medical boards in the country, is promoting an Interstate Medical Licensure Compact to help streamline the licensure process for physicians practicing across state lines. This compact now has taken effect, as the required number of states has passed legislation adopting this process. These states include Idaho, Montana, Wyoming, Utah, South Dakota, Minnesota, West Virginia and Alabama.

The process is the following: a physician would designate a member state in the Interstate Compact as his or her state of principal license and would apply for the Interstate Commission's expedited license with the board in his state of principal practice. The state board would evaluate if the physician is eligible for expedited licensure and would submit a letter confirming the physician's eligibility and credentialing to the Interstate Commission. The physician would then complete the registration process established by the Interstate Commission for licensure in another compact member state; and the Interstate Commission would receive all fees and registration information and transmit these documents to the additional states requested.

Question 3. Today, adult children may be the caregivers for their parents, even if they live in another state. What role could telehealth have to assure that family members and caregivers can be included, virtually, at patient visits or in communication with the provider (with patient permission)?

Answer. Family members are an important part of our health care system. Twenty-nine percent of the U.S. population (65.7 million) provides care to someone who is ill, disabled or aged.² Additionally, 43.5 million adult family caregivers care for someone 50 years of age or older, and 14.9 million care for someone who has Alzheimer's disease or other dementia.³ Therefore, the use of technology to connect the family member to the health care team can enhance the care of the patient and improve care coordination.

Telehealth truly provides a comprehensive approach to health care, enabling greater information sharing and care coordination. Remote monitoring devices in the home setting allow family members and the health care team to be more engaged with patients and provide the right level of care when and where it is needed. By monitoring aging patients—who often suffer from chronic diseases and dementia—in their home, deviations in their normal health status and behavior can be identified earlier, allowing for earlier intervention. Aging people often need rein-

²Selected Caregiver Statistics. *Family Caregiver Alliance: National Center on Caregiving*. (2012 November). Retrieved May 27, 2015, from <https://caregiver.org/selected-caregiver-statistics>

³*Ibid.*

forcement of medication and treatment plans that can be done through telehealth in an easy, cost effective manner that is customized to the individual's needs.

Data sharing through the Electronic Medical Record (EMR), Health Information Exchange (HIE), remote patient monitoring devices and other platforms establishes meaningful use of the information in ways that can improve the quality of health care by preventing duplication, reducing variations in care and allowing for earlier disease detection.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. JOHN THUNE TO
DR. CHRIS GIBBONS

Question. When the FCC created the Healthcare Connect Fund in 2012, the agency said that it expected to consider in the future whether the [Rural Health Care] Telecommunications Program should be reformed or eliminated. The FCC recognized that the Telecommunications Program, which generally pays for older "legacy services," may be heavily relied upon in very remote communities but thought that many health care providers would migrate to the new Healthcare Connect Fund because they could purchase higher bandwidth services at a lower out-of-pocket cost. Has the FCC begun the assessment of the Rural Health Care Telecommunications Program that it talked about in 2012 and, if not, does it plan to do so in the near future?

Answer. At this time, the Healthcare Connect Fund is still in its infancy, with funding only having been made available to new applicants starting on January 1, 2014. The FCC does not have any near-term plans to reform the Telecommunications Program, as some more time will be needed to assess how the Healthcare Connect Fund is progressing. Thereafter, a decision can be made about any possible reforms to the Telecommunications Program.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. ROY BLUNT TO
DR. CHRIS GIBBONS

Question. What are some of the barriers that telehealth programs have in expanding services, and what are you doing to alleviate these issues?

Answer. Barriers to telehealth programs vary widely depending on the nature and scope of the services at issue. For example, telemedicine involves using telecommunications technologies to support the delivery of medical, diagnostic and treatment-related services usually by doctors. Telehealth includes a wider variety of remote healthcare services beyond the doctor-patient relationship, including services provided by nurses, pharmacists, paramedics or social workers, for example, who may leverage technology to assist with patient health education, social support and medication adherence, and to promote preventive approaches that obviate acute or chronic illness.

The Commission, through the Connect2Health^{FCC} Task Force, is working to engage a broad cross-section of stakeholders to better understand both the barriers and opportunities related to the deployment and/or utilization of broadband-enabled health tools and services. Thus far, several perceived barriers have been reported: (i) lack of availability and affordability of broadband in rural and underserved areas; (ii) lack of consumer awareness of the potential value of broadband-enabled tools and devices in health; (iii) lack of technical expertise to deploy and maintain advanced technology solutions; (iv) inadequate healthcare provider reimbursement for telehealth services; and (v) lack of interoperability of telehealth tools across vendors and healthcare systems.

The Commission remains committed to addressing potential connectivity barriers through its universal service programs, including the Rural Health Care support mechanism which provides funding to eligible health care providers for telecommunications and broadband services necessary for the provision of health care. In addition, a critical part of the Connect2Health^{FCC} Task Force stakeholder engagement strategy includes not only an assessment of potential barriers to telehealth services, but also a solicitation of actionable strategies and solutions to any identified barriers. We believe that innovative approaches are underway across the country and that bringing those solutions to light, including lessons learned and best practices, could help advance telehealth nationwide. The Commission is also working closely with other relevant Federal agencies in this effort. Most recently, the Commission and Food and Drug Administration co-sponsored a well-attended workshop on promoting the safe co-existence of wireless medical devices, which are often part of telehealth strategies and services. Finally, the Commission is aware that

other government agencies and stakeholders at both the Federal and state levels are pursuing the reimbursement and interoperability issues.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. DAN SULLIVAN TO
DR. CHRIS GIBBONS

Question 1. As Senator Wicker announced, there are plans to introduce a new version of the Telehealth Enhancement Act. How can we improve the Rural Healthcare program of the Universal Service Fund through legislation?

Are you familiar with the Telehealth Enhancement Act introduced last Congress? If so, what are your thoughts on it, and how do you think we can improve upon it?

Answer. While the FCC typically does not endorse or take official positions about specific pieces of legislation, to the extent it is useful, my colleagues in the Wireline Competition Bureau are happy to work with your staff and provide any technical assistance you may request as the bill moves forward in the legislative process.

Question 2. In Alaska, telehealth is hugely important, as it is the primary way many people in rural areas are able to receive healthcare. Some of our health facilities have reported interoperability problems with telehealth software and electronic health records (EHR) software. In addition to the problems caused by this lack of integration, we are also missing out on potential benefits of having fully integrated systems. Have you seen this interoperability problem in other areas of the country? If so, are there possible solutions to the problem?

Answer. The Commission defers to the Office of the National Coordinator for Health IT, which is the principal federal entity charged with coordination of nationwide efforts to implement and use the most advanced health information technology and the electronic exchange of health information. As a clinician, I am aware that software interoperability problems involving Electronic Medical Record systems have been reported across the country. My understanding is that the problem is caused, in part, by EMR and telehealth vendors who each develop their products using proprietary processes and standards. Industry-wide health IT development standards or protocols would help to substantially reduce and or totally eliminate this problem.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY THE HON. TOM UDALL TO
DR. CHRIS GIBBONS

Question 1. With so many Federal agencies having some responsibility for and interest in telehealth, why isn't there some formal coordinating mechanism to communicate and collaborate, making more consistent and effective the standards, industry expectations, goals and even funding parameters across Federal agencies?

Answer. The Office of the National Coordinator for Health Information Technology (ONC) in the Office of the Secretary at the U.S. Department of Health and Human Services (HHS) lead ongoing, formal coordination and collaboration efforts on health IT policies and strategies across Federal agencies. The FCC coordinates with ONC and other Federal entities on issues within its purview. For example, the FCC routinely participates in various cross-government meetings and discussions with ONC and other Federal agencies on telehealth policies and strategies, and it most recently provided input on the draft *Federal Health IT Strategic Plan 2015–2020*, which proposes a whole government approach to reaching defined health IT strategic goals. (The draft Plan is available at <http://healthit.gov/sites/default/files/federal-healthIT-strategic-plan-2014.pdf>.) We look forward to continuing to coordinate closely with our colleagues at HHS, the Food and Drug Administration, and other agencies.

Question 2. Today, adult children may be the caregivers for their parents, even if they live in another state. What role could telehealth have to assure that family members and caregivers can be included, virtually, at patient visits or in communication with the provider (with patient permission)?

Answer. Research confirms the significant role of caregivers in promoting, assuring and maintaining the health of family members and friends. According to a June 2013 report from the Pew Research Center, 39 percent of adults said that they had “provided unpaid care to an adult relative or friend to help them take care of themselves” over the previous 12 months. According to a 2012 report by the AARP Public Policy Institute, *Home Alone: Family Caregivers Providing Complex Chronic Care*:

- 46 percent of family caregivers performed medical/nursing tasks for care recipients with multiple chronic physical and cognitive conditions. These tasks in-

clude managing multiple medications, helping with assistive devices for mobility, preparing food for special diets, providing wound care, using monitors, managing incontinence, and operating specialized medical equipment.

- 78 percent of family caregivers who performed medical/nursing tasks were managing medications, including administering intravenous fluids and injections.
- Despite frequent emergency department visits and overnight hospital stays, few family caregivers reported receiving assistance and training from health care professionals.
- More than half of family caregivers performing medical/nursing tasks said they did not feel they had a choice because there was no one else to do it, or insurance would not cover a professional's help. They also reported very few home visits by health care professionals. A total of 69 percent of the care recipients did not have any home visits by health care professionals. Of those who did have home visits, roughly seven in 10 were visited by a nurse.

Technology-based solutions have the potential to reduce the substantial burden of caregiving reported in these studies, enhance the quality of care provided by caregivers, and facilitate aging in place.

For example, "smart" pill bottles and medication dispensers can help increase medication adherence and reduce harmful errors. Digital diet and nutrition aids could lessen the burden of special meal planning and preparation. Social networking tools for the elderly could address social isolation (a known exacerbating and contributing factor to certain chronic health conditions) and help relieve caregiver stress, providing real-time social support and remote trouble-shooting assistance.

Similarly, broadband-enabled health applications could offer more tailored and interactive training and education to improve caregiver skill and proficiency with critical caregiving tasks. Life-like robots (e.g., "carebots") with wireless capabilities could enable remote "check-ins" by health care providers. "Smart home" and other wireless sensor solutions that automatically adjust lights and appliances for consumers could help those with vision, musculoskeletal or cognitive impairments. Finally, point-and-click digital translation tools could distill doctors' orders and discharge instructions in near-real time for seniors with low literacy levels and for consumers who speak English as a second language, ultimately enhancing patient engagement, self-care, and health outcomes.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. ROY BLUNT TO
JONATHAN D. LINKOUS

Question 1. Many States are wrestling with what constitutes a "patient-provider relationship" when telehealth medicine is involved and these rules vary greatly from State-to-State. How should patients, providers, and States balance the convenience and access of telehealth options with the importance of engaging patients in a dialogue about their health with a physician who can manage their ongoing needs?

Answer. In general, a state's patient-provider relationship requirements should be comparable between in-person and telehealth care. For example, urgent care services have no requirement for a pre-existing provider-patient relationship. It should be noted that most states accommodate the requirements for a relationship by the type of health service rendered and other circumstances such as emergencies.

Question 2. The Office of Rural Health at the Department of Health and Human Services administers several grant programs to provide funding for projects that demonstrate telehealth networks and improve healthcare services for medically underserved populations. This program can be a particularly important tool in allowing access to medical specialists for rural populations. How do we adequately expand this program to ensure patients in underserved communities receive access to specialty care?

Answer. Without Congress providing additional appropriations for such, one approach would be to consolidate the more categorical grant funding for the Office for the Advancement of Telehealth and possibly other HHS programs into one program specifically focusing on the delivery of services to underserved areas.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. DAN SULLIVAN TO
JONATHAN D. LINKOUS

Question. In Alaska, telehealth is hugely important, as it is the primary way many people in rural areas are able to receive healthcare. Some of our health facilities have reported interoperability problems with telehealth software and electronic health records (EHR) software. In addition to the problems caused by this lack of integration, we are also missing out on potential benefits of having fully integrated systems. Have you seen this interoperability problem in other areas of the country? If so, are there possible solutions to the problem?

Answer. The lack of interoperability for sharing patient data is almost nationwide and comparable between in-person and telehealth services. As the major payor of health care services and the major payor for electronic health records, the Federal Government seems to have significant opportunities for requiring interoperability.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. TOM UDALL TO
JONATHAN D. LINKOUS

Question 1. We were pleased to see that the ATA recognized New Mexico with an “A” grade for our state’s telehealth coverage and reimbursement policies. What is happening in states presently to create parity with in-person coverage?

Answer. Currently, 24 states and the District of Columbia have adopted parity legislation for private insurance. Arkansas and Washington, enacted parity for private insurance plans this year and several others are close.

It is important to broaden the parity concept in states for Medicaid and state employee health benefit plans.

It is also important that states foster other opportunities beyond mere parity with in-person coverage, such as foster open access state telehealth networks and shifting reimbursement from fee-for-service to value-based methods.

Question 2. As you know, Congress recently replaced the SGR with an alternative payment model. The bill includes a new Medicare program of alternative payment methods free from longstanding telehealth restrictions. How does this provide a model for Congress and the Center for Medicare and Medicaid Innovation to remove the current restrictions by identifying “better incentives of value-based payments”?

Answer. We hope that the actual experience of alternative payment methods with telehealth will give Congress, the Congressional Budget Office, the Centers for Medicare and Medicaid Services the data and knowledge for greater coverage under other payment methods.

Question 3. Currently, a provider must be licensed in the state where the patient is located at the time of care, despite being a mobile society that emphasizes coordinated care. The Department of Defense, IHS and VA providers treat patients in any of the agencies’ provider sites without obtaining separate state licenses. Why doesn’t this exemption apply to Medicare and other Federal health programs?

Answer. We support its extension for Federal agencies to all Federal programs and federally-funded health care sites.

Question 3a. Could that happen with a change in regulation, or does it require a statutory change?

Answer. As a practical matter, this may require Congressional action, like the STEP Act that passed Congress without one vote of opposition.

Question 4. In your opinion, should providers have the ability to treat their patients anywhere using technology as long as they have an established patient-provider relationship in the state of licensure?

Answer. Yes

Question 4a. Would you support Federal legislation directing the states to allow this for all Federal health programs?

Answer. Medicare and other payors reimburse for a telehealth encounter based only on the provider’s location—with the implication that the provider’s location is where the health service is rendered. It seems that under either Federal sovereignty (just as each state has sovereignty for its own operations) or the interstate commerce clause of the U.S. Constitution that Congress can take such action—and without the step of directing the states.

Question 4b. What are some Federal licensing options that may also work for non-federal plans?

Answer. The goal is to allow patients to receive medical care from any qualified health provider regardless of location, to reduce the extensive time delay and the cost of the existing licensing structure.

For a variety of reasons, the most probable option is for Congress to enact an interstate compact based on a one-state-license-with-reciprocity or mutual recognition among the states. This maintains state sovereignty to issue a license but allows patients to see and be seen by their physician regardless of their location.

A reciprocal approach would save healthcare millions of dollars in duplicative licensing fees and remove the delays inherent in gaining state medical boards approval. Since the requirements to be licensed in any state are very consistent nationwide, a common concern of an “easy” state would seem diminished. Such a compact should also allow for multi-state provider databases investigations and enforcement. A rough parallel to this would be the Nurse Licensure Compact or interstate Driver License Compact and the National Driver Register.

It should be noted that the new interstate compact proposed by the Federation of State Medical Boards (FSMB) that is being considered by state medical boards establishes up a unified application process but may fail to achieve any of the three goals listed above. Such approach still requires state-by-state actions to process and approve each license before a physician can practice in the state, still requires the payment of a duplicative licensing fee to each state board and will probably require the payment of additional fees to the FSMB itself for administering the process.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. JOHN THUNE TO
TODD RYTTING

Question. Thank you for your testimony highlighting the innovative work that Panasonic has done to study the effects of remote patient monitoring. I'd like to ask about the proposal you raised that would use the FCC's Universal Service Fund to subsidize the connectivity costs of remote patient monitoring for rural health care providers.

Based on your own remote patient monitoring pilot, do you have a sense of what the costs and benefits would be of this proposal—for example, how much money would need to come from the universal service fund to support remote patient monitoring as compared to the potential cost savings for providers and patients resulting from such technologies?

Answer. In 2014, Panasonic conducted a Home Telehealth performance study in partnership with a New York-based provider of long term, sub-acute eldercare services and a major Medicare Advantage provider in Metropolitan New York.

The study was centered on Panasonic “SmartCare,” a television-based remote patient monitoring technology designed to be user-friendly for seniors—who may not be comfortable with contemporary consumer technologies, such as smartphones. SmartCare utilizes a small set-top box that interacts with a patient's television to deliver remote biometric monitoring, interactive health-assessment surveys, and condition-specific educational health videos to facilitate patient self-management. The study's background, objectives, design parameters, and outcomes are documented in the White Paper submitted to this Committee under separate cover.

The general objective of our study was to determine the impact of Panasonic's television-based remote patient monitoring technology on the chronic care management of seniors with congestive heart failure and having a high-risk for re-hospitalization.

Using baselines established from Medicare Advantage claims data, and historic data for dual-eligible patients drawn from studies published by the Kaiser Family Foundation, SmartCare reduced six month hospital readmission rates by an average of 44 percent for Medicare Advantage Patients and 69 percent for dual-eligible patients, respectively. Strikingly positive results were also attained in the reduction of Emergency Department visits, increased Medication Adherence, and positive measures of patient engagement.

As demonstrated by our study, and the potential for savings is real, and significant.

An estimated 17 percent of Medicare beneficiaries have Congestive Heart Failure (CHF), which account for 800,000 hospital admissions annually. And, approximately 25 percent of Medicare patients hospitalized for CHF are re-hospitalized within 30 days of discharge. On average, Medicare pays \$15,000 in overall costs for heart failure admission without a readmission, and \$33,000 for an episode with a single readmission.

Therefore, if 800,000 patients are admitted for heart failure at a cost of \$15,000 for each admission, and, subsequently, 25 percent, or about 200,000 patients, are readmitted to the hospital at a cost of \$33,000, the total Medicare spend is \$18,600,000,000 per year.

However, assuming that home telehealth technology, like Panasonic SmartCare, can reduce both admissions and readmissions for CHF by a conservative 20 percent, the total Medicare spend would be reduced to \$13,824,000,000. Furthermore, a more ambitious 40 percent reduction in hospitalizations and readmissions would reduce readmissions to 72,000, resulting in an aggregate Medicare cost of \$2,376,000,000 per year. These are meaningful potential savings.

Notably, the most significant challenge uncovered by the Panasonic study was the lack of broadband Internet connectivity. In some cases, broadband was simply not available. But the most common reason for the lack of Internet was affordability. Our test subjects were predominantly elderly, poor, and urban; with all suffering from multiple chronic health conditions. Chronic conditions are common among those over the age of 65—whether urban, or rural. Furthermore, low income and poverty are highly correlated to poor lifestyle choices that lead to the early onset of chronic conditions, well below retirement age.

These demographic cohorts—the elderly; the urban and rural poor, and others lacking the social capital to inform healthy lifestyle choices—are the very groups least likely to have broadband connectivity in the home. They simply can't afford it. And broadband can also help ensure that the 1,326 rural Critical Access hospitals in the U.S. can remotely tap into a variety of dearly needed specialty healthcare services currently only available in more densely-populated urban centers.

As detailed in the Panasonic White Paper, Home Telehealth solutions can have a significant positive impact by improving health outcomes and reducing costs. Excluding the cost of enabling hardware and service initiation, preliminary estimates indicate that as little as \$15 to \$20 per patient per month could potentially have a profoundly positive impact on the adoption and utilization of home Telehealth by low-income seniors. Use of the FCC Universal Service Fund to subsidize the connectivity costs of remote patient monitoring for society's most needy and deserving citizens, in both urban and rural populations, would be money well-invested.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. DAN SULLIVAN TO
TODD RYTTING

Question. In Alaska, telehealth is hugely important, as it is the primary way many people in rural areas are able to receive healthcare.

Some of our health facilities have reported interoperability problems with telehealth software and electronic health records (EHR) software. In addition to the problems caused by this lack of integration, we are also missing out on potential benefits of having fully integrated systems. Have you seen this interoperability problem in other areas of the country? If so, are there possible solutions to the problem?

Answer. The interoperability of Telehealth Solutions with provider systems—such as Electronic Medical Records (EMR) and Health Information Management (HIM) systems—is essential to unlocking the potential of these innovative new technologies. However, the attainment of these objectives involves technical challenges, including standards for data aggregation, normalization, analysis, and exchange; the evolution of business policies, which may require the sharing of data sets held by competing stakeholders; complex workflow challenges; and regulatory issues, such as the issues surrounding the storage and management of Protected Health Information (PHI). For these reasons, and others, true interoperability represents a significant challenge.

But healthcare information technology challenges of similar magnitude have been faced before—and overcome. For instance, it was reported just this week that over 67 percent of the prescriptions written in the United States in 2014 were transmitted electronically over the Surescripts network. That's over 6.5 billion electronic prescriptions—more than the number of financial transactions processed by American Express. Surescripts was created in 2001 to connect physicians with pharmacies. But it wasn't until 2008 when the Surescripts electronic prescribing network was merged with a benefits network called RxHub—thus aligning the major stakeholder interests—did electronic prescribing really take off. So these things take time, but the benefits are tremendous.

Analogously, the growth and expansion of a emerging “connected health ecosystem” will begin to resolve the vexing challenge of Telehealth system interoperability. Like Surescripts, companies now creating large, technology-agnostic, analytics-driven Telehealth networks can support the standards and workflow processes required to facilitate system-wide interoperability, while innovators can rapidly create the edge devices, such as the wearable monitors & communications devices that

optimize the user experience, and algorithms the power the analytic engines that support risk management & clinical decision support.

With reimbursement policy rapidly moving in the direction of Accountable Care—which requires care coordination across many settings, bound to outcome-based reimbursement—connected, interoperable technology becomes an absolute imperative.

