

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

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| In the Matter of |) | |
| |) | |
| Promoting Telehealth for Low-Income Consumers |) | WC Docket No. 18-213 |
| |) | |
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COMMENTS OF CTIA

Thomas C. Power
Senior Vice President, General Counsel

Scott K. Bergmann
Senior Vice President, Regulatory Affairs

Jackie McCarthy
Assistant Vice President, Regulatory Affairs

Krista L. Witanowski
Assistant Vice President, Regulatory Affairs

CTIA
1400 Sixteenth Street,
NW Suite 600
Washington, DC 20036
(202) 785-0081

www.ctia.org

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CTIA¹ submits these comments in response to the *Notice of Inquiry* (“NOI”)² seeking comment on launching an experimental “Connected Care Pilot Program” (“Pilot Program”) in order to increase access to broadband-enabled telehealth technologies among underserved Americans.

I. INTRODUCTION AND SUMMARY.

As the trade association for the wireless industry, CTIA has been a strong advocate for the integration of advanced wireless technologies into the American health care system. The Commission is right to recognize the trend towards “connected care everywhere” through mobile wireless services and applications and to study how the federal universal service program can

¹ CTIA[®] (www.ctia.org) represents the U.S. wireless communications industry and the companies throughout the mobile ecosystem that enable Americans to lead a 21st- century connected life. The association’s members include wireless carriers, device manufacturers, suppliers as well as apps and content companies. CTIA vigorously advocates at all levels of government for policies that foster continued wireless innovation and investment. The association also coordinates the industry’s voluntary best practices, hosts educational events that promote the wireless industry, and co-produces the industry’s leading wireless tradeshow. CTIA was founded in 1984 and is based in Washington, DC.

² *Promoting Telehealth for Low-Income Consumers*, Notice of Inquiry, WC Docket No. 18-213, FCC-18-112 (rel. Aug. 3, 2018) (“NOI”), WC Docket No. 18-213, <https://docs.fcc.gov/public/attachments/FCC-18-112A1.pdf>.

help improve health outcomes and lower health care costs.³ As discussed in more detail below, CTIA members have helped develop and deploy mobile wireless telehealth solutions that are already demonstrating promise towards achieving these goals. As consumers lead increasingly connected lifestyles and the 5G revolution brings lower latency and higher capacity to support more new broadband-enabled telehealth applications, the benefits of connected care will only grow.

While the proposed Connected Care Pilot Program holds the promise to establish connected care initiatives that recognize the increasingly important role of mobile wireless services, the Commission should ensure that the Connected Care Pilot Program maximizes the effective and efficient application of federal universal service support. Specifically, the NOI appropriately raises important questions about the scope of the Pilot Program in relation to existing universal service programs, such as the Commission’s Rural Health Care, Lifeline, and High-Cost Programs, as well as other federal telehealth subsidy programs administered by other agencies. The Commission should ensure the Pilot Program plays a unique role that does not overlap with other sources of funding that support telehealth services.

Further, the NOI appropriately focuses the Pilot Program’s goals on evaluating how universal service funds promote the adoption and use of “direct to consumer” broadband-enabled telehealth services and applications by low-income families and low-income veterans.⁴ To maximize the efficiency and effectiveness of the Pilot Program, the Commission should include non-facilities-based providers who currently serve many of the communities that the

³ *Id.* at ¶ 1.

⁴ *Id.* at ¶¶ 11 and 21.

Commission seeks to reach with the Pilot Program—including low-income consumers, people with disabilities, and veterans.⁵

II. MOBILE TELEHEALTH CAN IMPROVE HEALTH OUTCOMES AND PROMOTE MORE EFFICIENT CARE.

CTIA supports the Commission’s initiative to conduct pilot projects to determine how telehealth provided outside the health care provider setting—connected care everywhere—can improve health outcomes and promote efficient care. From clinical trials to telehealth and chronic disease management, mobile health solutions can have a dramatic effect on patient care and health care costs. As CTIA President and CEO Meredith Attwell Baker noted at the 2015 Broadband Health Summit, mobile health means, “improving access, expanding opportunity, and democratizing the delivery of health care, especially for rural communities and the underserved.”⁶

Mobile broadband networks, in particular, are instrumental for realizing the vision of “connected care everywhere.” Wireless connectivity allows medical providers to care more efficiently and effectively for their patients, especially those who are homebound. Wireless connectivity also supports technologies like remote patient monitoring and diagnostics, which can facilitate clinical trials. This connectivity reduces the need for costly, in-person appointments, treatments, and surgeries, and it also guides patients towards embracing preventative care and managing chronic conditions by providing anytime, anywhere access to

⁵ *Id.* at ¶ 37.

⁶ Remarks of Meredith Attwell Baker, President and CEO, CTIA, Broadband Health Summit (Oct. 1, 2015).

actionable health data.⁷ These benefits hold particular promise for patients lacking access to traditional health care resources, patients of advanced age, or patients facing accessibility challenges.

CTIA's member companies have been leaders in developing and supporting new and innovative mobile telehealth solutions that collect and deliver more accurate and granular patient data to healthcare providers more quickly and easily than ever before. These solutions have enabled health care providers to better monitor and assess treatment; make informed diagnoses and prognoses; communicate with their patients, including those with accessibility issues; and even perform crucial interventions, such as remote surgeries. For example:

- Qualcomm and Novartis have collaborated to treat Chronic Obstructive Pulmonary Disease, leveraging Qualcomm Life's connectivity solutions to support Novartis' next-generation Breezhaler. A Qualcomm module connects seamlessly with Qualcomm Life's 2net Platform and it detects and reports inhaler usage, as well as the duration of the patient's inhalation, which indicates quality of inhalation.
- AT&T provides highly secure wireless connectivity for the ZywiePro, a mobile cardiac monitoring system that detects cardiovascular arrhythmias in patients and sends doctors detailed diagnostics of cardiovascular health metrics. This connected device provides prompt, actionable information of irregularities and reduces the need for patients to make multiple office visits for device adjustments.
- Ericsson, in partnership with King's College London, is using 5G connectivity to refine the surgeon's sense of touch in remote surgery, more effectively communicating sensory information like hard tissue versus soft tissue that surgeons rely upon during a procedure.⁸ These technologies will not only save lives, but they will facilitate access to specialists who may not otherwise be available, empower patient choice, encourage patients to see a health care professional sooner, and provide new functionalities for the health care industry.

⁷ Wireless Connectivity Fuels Industry Growth and Innovation in Energy, Health, Public Safety, and Transportation, DELOITTE (Jan. 2017), https://api.ctia.org/docs/default-source/default-documentlibrary/deloitte_2017011987f8479664c467a6bc70ff0000ed09a9.pdf.

⁸ See Ericsson, Live Demo: Remote Control and Intervention – 5G Medical Use Case, YouTube (July 13, 2016), <https://www.youtube.com/watch?v=L4nGXopLK8w>.

- Apple recently launched its Health Records platform, allowing developers and researchers to create an ecosystem of apps that use health record data to better manage medications, nutrition plans, and diagnosed diseases.⁹ Patients of more than 500 hospitals and clinics can now access, view, and share medical information (such as metrics like cholesterol levels and medication lists) from various institutions, organized into a single, combined portal view on their mobile device.¹⁰
- In 2017, the ReSound company introduced the LiNX 3D, which is a hearing aid that can be adjusted remotely, enabling doctors to access their patients' hearing aids and make minor adjustments without the person having to revisit the doctor's office.¹¹
- Through its SafeLink project, TracFone partners with more than 25 managed care organizations in 37 states to offer phones, service and mobile health technology to consumers eligible for Medicaid. A recent study found that individuals with SafeLink health phones were more likely to adhere to medications, less likely to drop from the health plan, and more likely to go to physician's office visits and participate in preventative screenings.¹² Notably, SafeLink users with chronic diseases had more significant and better outcomes, including reduced costs.¹³

Moreover, broadband-enabled telehealth can also facilitate key research and development efforts in the medical field. The U.S. Food and Drug Administration has recognized the positive impact that mobile health technology can have on clinical trials, including the potential to “improve ... retention of trial participants,” “allow for collection of data and communications

⁹ See Press Release, “Apple opens Health Records API to developers,” Apple (June 4, 2018), <https://www.apple.com/newsroom/2018/06/apple-opens-health-records-api-to-developers/>; Natasha Singer, “Apple, in Sign of Health Ambitions, Adds Medical Records Feature for iPhone,” N.Y. Times (Jan. 24, 2018), <https://www.nytimes.com/2018/01/24/technology/Apple-iPhone-medical-records.html>.

¹⁰ See “Apple Announces Effortless Solution Bringing Health Records to iPhone,” (Jan. 24, 2018), <https://www.apple.com/newsroom/2018/01/apple-announces-effortless-solution-bringing-health-records-to-iphone/>.

¹¹ Ashley Carmen, These iPhone-Connected Hearing Aids Let Doctors Make Adjustments Remotely, VERGE (Apr. 3, 2017), <https://www.theverge.com/circuitbreaker/2017/4/3/15166662/resound-linx-3dconnected-hearing-aid-iphone>. The aid pairs with iOS, Apple Watch, and Android, and allows patients to speak with their doctors regarding their hearing aids through the app.

¹² Eviction Health, *Study on SafeLink Health Initiative—Retrospective Claims Analysis Final Report*, 14, 25, 33, 35, and 44 (Aug. 13, 2018).

¹³ *Id.* at 25, 44.

wherever the trial participant is located,” and “present sponsors with the opportunity to capture data more frequently and efficiently than would be feasible if data collection were only conducted when the trial participant visited the study site.” Already, CTIA member companies are realizing the promise of telehealth for clinical R&D. Samsung, in collaboration with Partners HealthCare, provides software and devices that collect data on blood pressure, blood glucose levels, and weight to power clinical research of chronic conditions. Additionally, Samsung partnered with the University of California – San Francisco to establish a Digital Health Innovation Lab. A first-of-its-kind mobile health test bed, the Lab serves as a center of collaboration among researchers, biotechnology startups, venture capitalists, and technologists. Pharmaceutical company Novartis selected Qualcomm to be a partner in its Trials of the Future program to collect and aggregate medical device data during clinical trials. Intel and the Michael J. Fox Foundation for Parkinson’s Research use connected watches and wireless sensors to collect and analyze movement measurements in real time, better enabling Parkinson’s progression detection and symptom management.

In addition to supporting providers and key research and development, mobile telehealth also empowers patients, increasing transparency, treatment compliance, and access to healthcare resources, especially among historically underserved and minority populations.¹⁴ One recent study relying on 2016 data found that the “increase in smartphone ownership has created a growing market for mHealth applications,” and that there is a “great potential for mHealth applications to address health disparities by increasing access to health information and services

¹⁴ See Charkarra Anderson-Lewis et al., “mHealth Technology Use and Implications in Historically Underserved and Minority Populations in the United States: Systematic Literature Review,” 6(6) JMIR Mhealth Uhealth e12 (June 18, 2018), <https://mhealth.jmir.org/2018/6/e128/>.

for underserved populations.”¹⁵ For example, academics at the University of Pittsburgh have developed the IMHere platform, which includes a patient app and a clinician portal that allows better monitoring of medical care involving patients who live with accessibility challenges. Indeed, a wide range of studies have shown that similar inexpensive communications pathways and reminder programs can be surprisingly effective at improving health outcomes, particularly among low-income consumers: for example, studies have demonstrated success in promoting influenza vaccinations in children and young adults,¹⁶ supporting expecting mothers with appointment reminders and multimedia instructional content,¹⁷ encouraging regular exercise,¹⁸ and improving nutrition and diabetes management.¹⁹ Meanwhile, functionalities like voice

¹⁵ See Nita Vangeepuram et al., “Smartphone ownership and perspectives on health apps among a vulnerable population in East Harlem, New York,” 4:31 mHealth 2018 (Aug. 8, 2018), <http://mhealth.amegroups.com/article/view/20697/20323> (last accessed Aug. 20, 2018).

¹⁶ M.S. Stockwell et al., “Effect of a text messaging intervention on influenza vaccination in an urban, low-income pediatric and adolescent population: a randomized controlled trial,” 307(16) J. Am. Med. Assoc. 1702-08 (Apr. 25, 2012), <https://www.ncbi.nlm.nih.gov/pubmed/22535855?dopt=Abstract>.

¹⁷ See William Douglas Evans, Jasmine L. Wallace, and Jeremy Snider, “Pilot evaluation of the text4baby mobile health program,” 12 BMC Public Health 1031 (Nov. 26, 2012), <https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-12-1031>; J. A. Gazmararian, “Text4baby program: an opportunity to reach underserved pregnant and postpartum women?” 18(1) Maternity & Child Health J. 223-32 (Jan. 2014), <https://www.ncbi.nlm.nih.gov/pubmed/23494485?dopt=Abstract>.

¹⁸ Dori M. Steinberg et al., “Adherence to self-monitoring via interactive voice response technology in an eHealth intervention targeting weight gain prevention among black women: randomized controlled trial,” 16(4) J. Med. Internet Research e114 (Apr. 29, 2014), <http://www.jmir.org/2014/4/e114/>.

¹⁹ R. Khanna et al., “An automated telephone nutrition support system for Spanish-speaking patients with diabetes,” 8(6) J. Diabetes Sci. & Tech. 1115-20 (Sept. 19, 2014), <http://europepmc.org/abstract/MED/25239122>; S. Nundy et al., “How do mobile phone diabetes programs drive behavior change? Evidence from a mixed methods observational cohort study,” 40(6) Diabetes Educ. 806-19 (Oct. 2014), <https://www.ncbi.nlm.nih.gov/pubmed/25278512?dopt=Abstract>.

commands, artificial intelligence platforms, augmented reality systems, and location information are especially useful for empowering seniors and consumers with disabilities to engage better with healthcare providers.²⁰ One broadband-enabled treatment, for example, uses virtual simulations to help individuals on the autism spectrum adjust to real-world circumstances in a safe and controlled environment.²¹ This innovative form of social cognition therapy has been shown to increase brain activity in regions associated with social understanding.²²

5G wireless networks will unleash even greater wireless technological advancement in broadband-enabled telehealth technologies, supporting a growing Internet of Things that will enhance connectivity and data insights for better clinical research and improved patient outcomes at lower costs. Next-generation technologies will have lower latency, which will increase reliability for time-sensitive critical care applications and unlock new real-time applications for consumers. 5G solutions will also have increased capacity, which means that wireless networks will be able to support more devices, including medical devices that can connect patients and their caregivers. Building on the Commission's efforts to promote the deployment of wireless infrastructure,²³ 5G could thus create more than \$300 billion in annual health savings, especially

²⁰ Comments of CTIA, GN Docket No. 16-46 (filed May 24, 2017), <https://ecfsapi.fcc.gov/file/10524266138668/CTIA%20FCC%20Health%20PN%20comment%2005.24.17.pdf>.

²¹ Autism Speaks, "Virtual Reality Training Improves Social Skills and Brain Activity" (Nov. 17, 2014), <https://www.autismspeaks.org/science/science-news/virtual-reality-training-improves-social-skills-and-brain-activity>.

²² *Id.*

²³ See, e.g., *Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment*, Second Report and Order, WT Docket No. 17-79, FCC-18-30 (rel. Mar 30, 2018), <https://docs.fcc.gov/public/attachments/FCC-18-30A1.pdf>; *Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment*, Declaratory Ruling and Third Report and Order, WT Docket Nos. 17-79 & 17-84 (rel. Sept. 5, 2018), <https://docs.fcc.gov/public/attachments/DOC-353962A1.pdf> (on circulation).

for people with disabilities.²⁴ The wireless industry is expected to invest \$275 billion over the next decade to deploy 5G networks, and soon, patients, providers, and researchers will all experience the benefits of these investments.

As the Commission recognizes, telehealth offers significant potential to address health challenges faced by low-income, rural and veteran populations.²⁵ A pilot program will enable the Commission to explore ways that it “can do more to support the broadband needs of low-income patients to ensure that they can realize the benefits of connected care everywhere.”²⁶ The future of mobile health thus is very promising, and the Commission is right to recognize the trend towards “connected care everywhere” through mobile wireless services and applications. A Connected Care Pilot Program can help the Commission study how the federal universal service program can enable the adoption of mobile wireless health services among low income, rural consumers to improve health outcomes and lower health care costs.

III. THE CONNECTED CARE PILOT PROGRAM SHOULD MAXIMIZE EFFECTIVE AND EFFICIENT USES OF UNIVERSAL SERVICE FUNDS.

The NOI seeks comment on five potential goals for the Pilot Program: (1) supporting the trend towards connected care everywhere; (2) reducing health care costs; (3) determining how

²⁴ Wireless Connectivity Fuels Industry Growth and Innovation in Energy, Health, Public Safety, and Transportation, DELOITTE (Jan. 2017), https://api.ctia.org/docs/default-source/default-documentlibrary/deloitte_2017011987f8479664c467a6bc70ff0000ed09a9.pdf.

²⁵ NOI at ¶ 9 (“In addition to the rising health care costs affecting many Americans, rural residents face endemic hospital closures and doctor shortages, and are often forced to spend extensive amounts of time and money to travel to access essential health care. Low-income rural areas have also been hit especially hard by the opioid crisis, due to a lack of access to addiction treatment. Likewise, veterans living in rural areas are among the largest population of Americans who struggle to receive accessible and affordable health care.”) (internal citations omitted).

²⁶ *Id.* at ¶ 10.

universal service funding can positively impact telehealth initiatives; (4) increasing broadband deployment in unserved and underserved areas; (5) increasing broadband adoption among low-income households.²⁷ Mobile wireless services are uniquely capable of helping the Commission achieve these goals in the Connected Care Pilot Program. For example, the near-ubiquitous availability of mobile broadband services enables connected care everywhere and facilitates the evaluation of whether universal service funding can increase the deployment and adoption of broadband-based telehealth initiatives. Further, as noted above, mobile wireless services can lower health care costs and improve health outcomes among low income, rural consumers.

In setting and pursuing goals for the Pilot Program, the Commission should also continue to pursue its “section 254 goal of ensuring that universal service funding is used in the most efficient and effective manner.”²⁸ In structuring the Pilot Program to achieve this goal, CTIA recommends that the Commission consider the goals of existing telehealth initiatives, as well as broadband deployment and adoption programs, to identify a unique role for the Pilot Program and ensure that mobile wireless providers, including non-facilities-based providers, can participate in delivering telehealth services to low income consumers and veterans.

For example, the Commission should consider that federal grant and subsidy programs from the Department of Health and Human Services (“HHS”), the Department of Agriculture,²⁹

²⁷ *Id.* at ¶¶ 21-27.

²⁸ *See, e.g., Connect America Fund et al.*, 31 FCC Rcd 3087, 3135, ¶ 125 (2016); *see also e.g., Connect America Fund; Universal Service Reform—Mobility Fund*, 33 FCC Rcd 2540, 2549 ¶ 16 (2018).

²⁹ *See, e.g.,* USDA, “Distance Learning and Telemedicine program,” <https://www.rd.usda.gov/programs-services/distance-learning-telemedicine-grants> (last accessed Sept. 5, 2018).

and other federal agencies³⁰ already exist for telehealth services. HHS' Office for the Advancement of Telehealth supports connected care via its Telehealth Network Grant Program, Telehealth Resource Center Grant Program, Rural Child Poverty Telehealth Network Grant Program, and Rural Veterans Health Access Program,³¹ which all provide federal monies to support technologies and target populations similar to those proposed in the NOI. In addition, existing FCC universal service programs, including the Rural Health Care, Lifeline, and High-Cost programs, are designed to expand broadband access for and adoption of telehealth providers, low-income consumers, and rural residents—all communities that the Pilot Program is intended to serve. Thus, the Commission should take care to structure its Pilot Program so that the federal universal service funding is used effectively and efficiently, recognizing the specific goals of the existing programs and avoiding duplication to determine how best to achieve the Pilot Program's goals.

Further, the Commission can also promote the efficiency and effectiveness of the Pilot Program by enabling non-facilities-based providers to participate in the program. These providers are particularly well suited to advance the Commission's goals of promoting the adoption and use of "direct to consumer" broadband-enabled telehealth services and applications by low-income families and low-income veterans. Wireless resellers and mobile virtual network operators have a documented history of effectively serving low-income consumers and low-

³⁰ See, e.g., University of Arkansas for Medical Sciences, "The Arkansas Center for Telehealth," <https://cdh.uams.edu/researchers/research-and-evaluation/the-arkansas-center-for-telehealth/> (last accessed Aug. 22, 2018) ("The Arkansas Center for Telehealth was created through the NTIA Broadband Technology Opportunities Program Sustainable Broadband Adoption grant.").

³¹ HHS, Health Resources & Services Administration, "Telehealth Programs," <https://www.hrsa.gov/rural-health/telehealth/index.html> (last accessed Sept. 5, 2018).

income veterans, the primary intended beneficiaries of the Pilot Program.³² Moreover, in the absence of any evidence that low-income consumers or low-income veterans are any more or less likely to live in unserved or underserved areas, focusing on telehealth adoption issues rather than deployment by including non-facilities based providers is similarly more likely to promote efficient and effective results in the Pilot Program.

IV. CONCLUSION.

CTIA and its member companies share the Commission's commitment to bridging the digital divide and providing underserved communities with access to telehealth opportunities. Indeed, the use of mobile wireless services and applications by health service providers has enormous potential to improve healthcare outcomes and lower costs for vulnerable populations. The Commission should ensure that the Pilot Program is structured to maximize the effective and efficient use of universal service funding. To this end, it should identify a unique role for the

³² Comments of Randolph J. May, President, Free State Foundation, WC Docket No. 17-287 at 5 (filed Feb. 21, 2018) (“[t]here is no dispute that wireless resellers ... have focused their marketing on reaching Lifeline-eligible low-income consumers, and, this, in turn, has increased awareness of the program.”).

Pilot Program given existing federal funding programs, and should ensure non-facilities-based providers can participate the program.

Respectfully submitted,

/s/ Jackie McCarthy

Jackie McCarthy
Assistant Vice President, Regulatory Affairs

Thomas C. Power
Senior Vice President, General Counsel

Scott K. Bergmann
Senior Vice President, Regulatory Affairs

Krista L. Witanowski
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