

**Before the  
Federal Communications Commission  
Washington, DC 20554**

In the Matter of )  
)  
A National Broadband Plan for Our Future ) GN Docket No. 09-51  
)  
Providing Eligible Entities Access to ) GN Docket No. 09-47  
Aggregate Form 477 Data as Required by the )  
Broadband Data Improvement Act )  
) GN Docket No. 09-137  
Inquiry Concerning the Deployment of )  
Advanced Telecommunications Capability to )  
All Americans in a Reasonable and Timely )  
Fashion, and Possible Steps to Accelerate Such ) WC Docket No. 02-60  
Deployment Pursuant to Section 706 of the )  
Telecommunications Act of 1996 )  
)  
Comment Sought on Health Care Delivery )  
Elements of National Broadband Plan – NBP )  
Public Notice #17 )

To: The Commission

**COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®**

**I. INTRODUCTION AND SUMMARY**

CTIA – The Wireless Association® (“CTIA”)<sup>1</sup> submits the following response to the above-captioned Public Notice seeking comment on the impact of advanced broadband infrastructure and services on health IT applications.<sup>2</sup> As described below, the wireless industry currently enables a myriad of services and devices that are making possible the improvement of health and health care for rural and urban Americans alike. Along these lines, the Federal Communications Commission (“FCC” or “Commission”) should adopt policies that will promote

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<sup>1</sup> CTIA – The Wireless Association® is the international organization of the wireless communications industry for both wireless carriers and manufacturers. Membership in the organization covers Commercial Mobile Radio Service (“CMRS”) providers and manufacturers, including cellular, Advanced Wireless Service, 700 MHz, broadband PCS, and ESMR, as well as providers and manufacturers of wireless data services and products.

<sup>2</sup> *Comment Sought on Health Care Delivery Elements of the National Broadband Plan – NBP Public Notice #17*, GN Docket Nos. 09-47, 09-51, 09-137, WC Docket No. 02-60, Public Notice, DA 09-2413 (rel. Nov. 12, 2009) (the “Public Notice”).

the growth of mobile health services and applications (“mHealth”) in the United States. Moreover, new health IT services, devices and applications are made possible through wireless broadband – and the evolution of networks to 3G and now 4G technologies promises to release more innovations – but depend on providers’ ability to freely invest in, modify, and manage their networks. Accordingly, CTIA urges the Commission to reallocate additional spectrum to enable the continued innovation and invention of mHealth applications and services, recognize carriers’ need for reasonable network management, and utilize the universal service rural health care support mechanism in a technologically-neutral approach to facilitate deployment of advanced wireless networks and mHealth applications.

Because of its mobility and unique nature of service to the person, for some mHealth services and applications, there simply is no substitute for wireless. The current U.S. market for wireless, home-based health care applications is \$304 million, according to one estimate.<sup>3</sup> That market is expected to grow to \$4 billion in 2013, with estimated annual growth rates of 96 percent in 2010, 126 percent in 2011, 95 percent in 2012, and 68 percent in 2013.<sup>4</sup> With solutions ranging from educational tools to advanced monitoring and diagnosis applications, wireless applications decrease the cost of health care by reducing emergency room visits, hospitalization and nursing home costs. Mobile broadband solutions improved U.S. health care productivity at a savings of almost \$6.9 billion – an amount expected to grow to \$27.2 billion by 2016.<sup>5</sup> Thus, the Commission can play a pivotal role in helping to ensure that mHealth solutions continue to advance and realize this vast potential to continue to improve the health and health care of Americans.

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<sup>3</sup> See Joseph Goedert, *Assessing Home Health Wireless Growth* (Aug. 6, 2009), available at [http://www.healthdatamanagement.com/news/home\\_health-38778-1.html](http://www.healthdatamanagement.com/news/home_health-38778-1.html) (last visited Dec. 1, 2009) (citing a report from Parks Associates).

<sup>4</sup> *Id.*

<sup>5</sup> Comments of Verizon Wireless; GN Docket Nos. 09-51, 09-157, at 47 (filed Sept. 30, 2009) (“*Verizon Comments*”).

## **II. THE COMMISSION SHOULD ADOPT POLICIES THAT PROMOTE THE DEPLOYMENT OF MOBILE WIRELESS HEALTH APPLICATIONS**

From its humble beginnings as a wireline voice connection between health care professionals, today's telemedicine offers an affordable, effective method of bringing modern medicine to the farthest reaches of the U.S. As mobile wireless services are part of daily life for more than 277 million Americans, this pervasiveness allows for an incredible opportunity to improve health care and health care access regardless of geographic location, race, age, gender or disability.

As CTIA previously has explained, the recent growth of mHealth can be attributed to a virtuous cycle of innovation and investment that characterizes the wireless ecosystem.<sup>6</sup> As spectrum is made available, service providers invest and innovate in more advanced networks and infrastructure. These advanced capabilities and capacity lead to innovations in devices, including smartphones, wireless remote cardiac monitors, wireless barcode readers, etc. With the versatility of devices and the increased capacity and capability of networks comes an explosion of wireless operating systems and applications. These innovative applications, in turn, lead to a further increase in demand for services, which then creates a need for more spectrum.

As the Commission considers what it can do to continue, and possibly expand, the mHealth sector of the wireless ecosystem, it should focus on a few core issues. In light of the growing consumer and enterprise demand for wireless broadband capabilities, the Commission must identify and allocate additional spectrum to ensure that the U.S. mobile wireless market remains the world's leader. Specifically, CTIA reiterates its call for the Commission to identify

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<sup>6</sup> See generally *Fostering Innovation and Investment in the Wireless Communications Market*, GN Docket Nos. 09-157 and 09-51, Comments of CTIA (filed Sept. 30, 2009).

and reallocate at least 800 MHz of spectrum for licensed commercial wireless services.<sup>7</sup> Moreover, the exclusive-use, flexible rights licensing regime provides the certainty to incent carriers to invest in infrastructure necessary for more extensive buildout, greater capabilities, and innovative new mHealth services, devices and applications.

In addition, Commission consideration of possible wireless network management obligations threatens to undermine the advances in mHealth. With remote monitoring and off-site care via wireless comes the constant flow of real-time information to and from patients. Due to the life-saving importance of this information, significant network management by carriers is necessary to ensure that vital information can reach caregivers with the utmost haste. The Commission must recognize that wireless broadband networks are fundamentally different than other broadband networks for many reasons. The Commission also should be mindful of how network neutrality rules would be applied to relationships in the wireless and health care ecosystems, and how they might affect the efficient delivery of health care over wireless networks.

CTIA also supports utilizing the universal service rural health care support mechanism for mHealth applications. It is critical that the Commission maintains a technologically-neutral approach to universal service support, particularly with respect to the rural health care mechanism. CTIA encourages the Commission to adopt a program with sufficient funding to achieve that goal.

Just as the robust wireless market has led to current advances in the delivery of health IT applications, having appropriate regulatory policies in place will facilitate the deployment of additional mHealth services, infrastructure and applications.

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<sup>7</sup> See generally Letter from Christopher Guttman-McCabe, Vice President, Regulatory Affairs, CTIA, to Julius Genachowski, Chairman, Federal Communications Commission, *et al*, GN Docket No. 09-51 (filed Sept. 29, 2009) (“*CTIA Spectrum Demand Ex Parte*”).

### III. CURRENT WIRELESS SERVICES AND INFRASTRUCTURE PROVIDE CONSUMERS WITH A VARIETY OF HEALTH CARE APPLICATIONS

The convenience and pervasiveness of wireless broadband devices, including smartphones, has helped enable the implementation of advanced health IT applications. More Americans are taking an active approach toward their health and the access provided by their wireless devices is helping them make informed decisions. More than 146 million Americans adults utilized the Internet to obtain health information in 2008, with much of this information obtained wirelessly.<sup>8</sup> Carriers reported 237.1 million web-enabled phones and 40.7 million smartphones and wireless-enabled personal digital assistants (“PDAs”) on their networks as of June 2009.<sup>9</sup> 89 percent of users with wireless Internet connectivity sought health information online.<sup>10</sup>

The increasing reliance on mobile devices for health information has led to software developers creating consumer-friendly smartphone applications. The Pill Phone Application, introduced by several wireless carriers in 2008, allows individuals to look up drug interactions via their mobile device and to schedule pill reminders.<sup>11</sup> Separately, the National Institute on Aging and the National Cancer Institute funded the creation of eMedMobile, a smartphone application that works with “smart labels” on prescription medication bottles and sends alerts to caregivers when a medication is skipped.<sup>12</sup> The explosion of medical applications available over mobile phones also is demonstrated by the applications available at Apple’s iTunes store and thus available over the iPhone. Zume Life, for example, is an iPhone application that allows patients to

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<sup>8</sup> See California HealthCare Foundation, *Participatory Health: Online and Mobile Tools Help Chronically Ill Manage Their Care* (Sept. 2009), at 7 (“CA Health Study”) (citing Manhattan Research, *Cybercitizen Health™ v.8.0, Catch the New Pharmaceutical Marketing Wave: Trends and Strategies for Reaching Today’s Healthcare Consumer* (Dec. 2008)).

<sup>9</sup> CTIA’s Wireless Industry Indices: Semi-Annual Data Survey Results: A Comprehensive Report from CTIA Analyzing the U.S. Wireless Industry, Mid-Year 2009 Results (rel. Nov. 2, 2009) (“CTIA’s Wireless Industry Indices Report”) at 10.

<sup>10</sup> *CA Health Study* at 8 (citing results of the Pew Internet & American Life Project).

<sup>11</sup> *CA Health Study* at 9.

<sup>12</sup> *Id.* at 12.

record all their daily health activities and ongoing health conditions and provides patients medication reminders.<sup>13</sup> The information supplied by the patient is transmitted wirelessly to a website for physician monitoring. As of June 2009, there were over 500 medical applications available via iTunes and, according to O'Reilly Media, medical applications are the third-fastest growing category of applications available at iTunes.<sup>14</sup>

But even for the remaining, non-smartphone mobile device users, there are solutions utilizing off-the-shelf services and technology, including text messaging, to prompt them to take medication, follow a certain diet, engage in physical activity, check glucose levels, monitor blood pressure and more. An exciting example of such applications includes the Text4Baby program, supported by the wireless industry, which will involve the delivery of periodic messages and reminders to pregnant mothers highlighting basic healthcare needs in an effort to lower infant mortality rates.<sup>15</sup> As consumers become more proactive in their health care, device manufacturers and software developers are providing them with the tools to effectively manage and maintain their health.

#### **IV. NEW HEALTH IT DEVICES AND APPLICATIONS ARE MADE POSSIBLE THROUGH WIRELESS BROADBAND SERVICE AND INFRASTRUCTURE, BUT REQUIRE REASONABLE NETWORK MANAGEMENT**

##### **A. MHealth Solutions for Primary Caregivers and Medical Facilities**

The deployment of wireless broadband is essential to the continued development and use of wireless devices within the health care industry. Physicians increasingly rely on new

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<sup>13</sup> See ZumeLife, available at <http://www.zumelife.com/index.php> (last visited Dec. 1, 2009); *CA Health Study* at 15.

<sup>14</sup> *CA Health Study* at 9.

<sup>15</sup> See Remarks of Secretary Kathleen Sebelius, U.S. Department of Health & Human Services at mHealth Summit (Oct. 29, 2009), available at <http://videocast.nih.gov/summary.asp?live=8097> (last visited Dec. 4, 2009) ("Mobile health also has enormous benefits for individuals and improving the health of all Americans.... We have a new program that is underway in terms of research that will provide guidance to pregnant women and new moms, that people will be able to take advantage of that's about to launch."); Brian Dolan, *mHealth Summit: HHS sees enormous potential* (Oct. 29, 2009), available at <http://mobihealthnews.com/5159/mhealth-summit-hhs-sees-enormous-potential-in-mobile/> (last visited Dec. 4, 2009).

applications and devices that utilize wireless technology to improve health care management. One such solution is the EMMA<sup>®</sup> system which links a patient's home with the pharmacy and prescribing physician. A Medication Delivery Unit ("MDU") is installed in the patient's home and is enabled via a wireless, two-way connection that allows a physician to remotely manage the medication stored in the MDU.<sup>16</sup> Another device is a wireless tablet that permits clinicians to access patient data wirelessly, in real-time from a portable medical chart.<sup>17</sup> Likewise, a high-magnification microscope attachment (the "CellScope") has been designed for cell phones that would allow users to take images of sputum or blood samples and forward the images wirelessly for analysis.<sup>18</sup> Due to its portability and affordability, this device can be used by health workers in remote areas and could be used to monitor disease outbreaks more quickly and affordably than with conventional technology.<sup>19</sup> With regard to mobile device applications used by physicians, a survey conducted by MDsearch found that 53 percent of responding physicians owned a smartphone and that 63 percent of those with smartphones used mobile medical applications over the device.<sup>20</sup>

While hospitals in the past have tried to limit mobile device use in their buildings, administrators are now beginning to embrace the benefits of a fully wireless environment with multiple wireless networks co-existing to provide anywhere communications and real-time

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<sup>16</sup> See EMMA, Understanding EMMA, available at <http://www.inrangesystems.com/index.php?page=understanding-emma> (last visited Dec. 1, 2009); see also *CA Health Study* at 8.

<sup>17</sup> See Brian Dolan, @CTIA Verizon on mHealth 4G (Apr. 1, 2009), available at <http://mobihealthnews.com/1112/ctia-verizon-on-mhealth-4g/> (last visited Dec. 1, 2009).

<sup>18</sup> See Brian Dolan, *White House: We are excited about wireless health* (July 21, 2009), available at <http://mobihealthnews.com/3345/white-house-we-are-excited-about-wireless-health> (last visited Sept. 29, 2009); Blum Center for Developing Economies, CellScope for Disease Diagnosis, available at <http://blumcenter.berkeley.edu/global-poverty-initiatives/mobile-phones-rural-health/remote-disease-diagnosis> (last visited Dec. 1, 2009).

<sup>19</sup> See Blum Center for Developing Economies, CellScope for Disease Diagnosis, available at <http://blumcenter.berkeley.edu/global-poverty-initiatives/mobile-phones-rural-health/remote-disease-diagnosis> (last visited Dec. 1, 2009).

<sup>20</sup> See Brian Dolan, *Survey: 63% physicians with smartphones use apps* (Sept. 11, 2009), available at <http://mobihealthnews.com/4354/survey-63-of-physicians-with-smartphones-use-apps/> (last visited Dec. 1, 2009).

delivery of medical testing data and telemetry.<sup>21</sup> Sprint, for example, has teamed with GE Healthcare, a division of GE, to offer in-building voice and data transmission. One of their most recent projects was with Methodist Healthcare in San Antonio, Texas, where a converged wireless infrastructure is being deployed at six hospitals. Based on Sprint's work, the new wireless infrastructure will be able to support WiMAX and other 4G technologies in the future.<sup>22</sup>

## **B. MHealth Solutions for Patients with Chronic Diseases**

New wireless devices also go beyond the hospital to improve the ability of patients with chronic diseases, such as diabetes, to manage their conditions on a daily basis. Many of these devices are designed to improve patients' compliance with prescribed medication regimens, which is extremely important given that "as much as 60 percent of patients do not adhere to their prescribed medication regimens."<sup>23</sup> For example, WellDoc Inc. has an application that turns any web-enabled phone into an interactive diabetes monitoring and management device.<sup>24</sup> In addition, the MedMinder Systems' wireless-enabled pillbox has been deployed in a pilot program by Harvard Pilgrim Health Care for use by patients with chronic kidney disease.<sup>25</sup> The wireless pillbox "lights up, sounds alarms, places phone calls and even emails users for alerts and notifications" regarding their medication regime.<sup>26</sup> Similarly, AT&T and Vitality announced a collaboration to connect wireless pill bottle tops to a small station that can track whether a pill top has been opened at the proper time, and remind patients to take their medication.<sup>27</sup> Yet another

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<sup>21</sup> See Carol Wilson, *Hospitals becoming wireless hotbeds* (Sept. 23, 2009), available at <http://telephonyonline.com/3g4g/news/hospitals-becoming-wireless-0923/> (last visited Dec. 1, 2009)

<sup>22</sup> *Id.*

<sup>23</sup> *CA Health Study* at 12.

<sup>24</sup> See WellDoc, available at <http://www.welldoc-communications.com/index.html> (last visited Dec. 2, 2009).

<sup>25</sup> See Brian Dolan, *Harvard Pilgrim to pilot wireless pillbox for CKD patients* (Aug. 31, 2009), available at <http://mobihealthnews.com/4153/harvard-pilgrim-to-pilot-wireless-pillbox-for-ckd-patients/> (last visited Dec. 1, 2009).

<sup>26</sup> *Id.*

<sup>27</sup> Reply Comments of AT&T, Inc.; GN Docket Nos. 09-51, 09-157, at 57-58 (filed Nov. 5, 2009).

innovation and the 2009 winner of the DiabetesMine Design Challenge transformed an iPhone into a combined glucose meter and insulin pump, with a storage container for strips.<sup>28</sup> By eliminating the need for diabetics to carry several devices, it increases the likelihood of regular monitoring.

### **C. MHealth Solutions for Off-site and Home Health Care**

The connection between primary caregivers and outside specialty services is also enhanced by new wireless devices and services. LifeWatch Services, Inc. uses Verizon Wireless' wireless communications services for its LifeStar™ ACT Ambulatory Cardiac Telemetry service to remotely monitor over 60,000 patients since its introduction in 2007.<sup>29</sup> Similarly, Verizon also offers OnCare, a location-based service that dispatches and routes home health care and hospice personnel to patients in the greatest need at that moment.<sup>30</sup> In fact, the California Health Care Foundation found that “using remote monitoring devices in a patient’s home, coupled with follow-up phone contact, can lower the cost of delivery while maintaining quality.”<sup>31</sup>

M2M devices also hold the promise for significantly improving home health care. M2M device shipments may top 430 million units by 2013, many of which will be used in health care.<sup>32</sup> In this regard, Verizon Wireless, in partnership with Alcatel-Lucent and Ericsson, has launched a new 4G innovation center for M2M devices that will operate on the Verizon Wireless network.<sup>33</sup> Similarly, AT&T recently opened a device certification lab to accelerate the deployment of

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<sup>28</sup> See Diabetesmine, *ANNOUNCING OUR WINNERS: The 2009 DiabetesMine™ Design Challenge* (May 18, 2009), available at <http://www.diabetesmine.com/2009/05/announcing-our-winners-the-2009-diabetesmine-design-challenge.html> (last visited Dec. 1, 2009).

<sup>29</sup> Comments of *Verizon*; GN Docket Nos. 09-51, 09-157, at 57-58 (filed Sept. 30, 2009) at 81-82.

<sup>30</sup> *Id.*

<sup>31</sup> *CA Health Study* at 13.

<sup>32</sup> See Brian Dolan, *AT&T, Verizon, Sprint to fast-track health devices* (Sept. 3, 2009), available at <http://mobihealthnews.com/4221/att-verizon-sprint-to-fast-track-health-devices/> (last visited Nov. 30, 2009).

<sup>33</sup> See Brian Dolan, *@CTIA Verizon on mHealth 4G* (Apr. 1, 2009), available at <http://mobihealthnews.com/1112/ctia-verizon-on-mhealth-4g/> (last visited Nov. 30, 2009).

healthcare-related tracking devices.<sup>34</sup> Once these advanced devices reach health care providers, the demand for new applications and services that fully utilize their capabilities will increase. MHealth is a key element within the virtuous cycle of innovation and investment. As carriers continue to develop and deploy advanced wireless networks and new powerful devices emerge, applications and content that fully utilizes the potential of these new devices will help patients and bring down health care costs. The result will be more health care providers moving to implement mHealth solutions.

## V. CONCLUSION

For the foregoing reasons, CTIA urges the Commission to adopt policies that will promote the growth of mHealth in the U.S., including allocating more spectrum for wireless broadband, retaining carriers' ability to manage their networks, and utilizing a technologically-neutral approach to universal service rural health care support mechanism. MHealth is improving the lives of Americans everyday, but in order to sustain its growth the Commission should account for the virtuous cycle of innovation and investment that regularly occurs in the mobile wireless ecosystem.

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<sup>34</sup> See Brian Dolan, *AT&T, Verizon, Sprint to fast-track health devices* (Sept. 3, 2009), available at <http://mobihealthnews.com/4221/att-verizon-sprint-to-fast-track-health-devices/> (last visited Nov. 30, 2009).

Respectfully submitted,

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