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Chairman Boucher, Ranking Member Stearns, and other distinguished members of the Subcommittee on Communications, Technology and the Internet, my name is Dr. Karen Rheuban. I am a pediatric cardiologist, Senior Associate Dean for Continuing Medical Education and Medical Director of the Office of Telemedicine at the University of Virginia Health System. I am also honored to serve as President of the American Telemedicine Association and as board chair of the Virginia Telehealth Network. I am also a board member of the Center for Telehealth and E-Health Law. As a physician serving many rural patients, I have come to appreciate how broadband and information technology can greatly enhance the delivery of quality healthcare, and substantially reduce the cost of providing healthcare for tens of millions of Americans. Thank you for this opportunity to provide testimony regarding the Universal Service Reform Act of 2009 and related barriers to the adoption of telehealth.

The health reform debate has galvanized our nation. The powerful tools of health information technologies are key to the transition from healthcare delivered episodically in a balkanized model to an integrated systems approach focused on disease prevention, enhanced wellness, chronic disease management, quality care and patient safety. Sound policies that facilitate the integration of advanced broadband and information technologies with healthcare

delivery must be a priority in the digital era. **Such policies must include and facilitate ubiquitous and affordable access to the requisite broadband infrastructure that supports the delivery of healthcare using telemedicine, teleradiology, home telehealth and remote monitoring tools, health information exchange and distance learning for patients, students and health professionals.**

USING TELEMEDICINE TO REFORM THE DELIVERY OF HEALTHCARE

The need for access to care is greater than ever before. Our nation faces a critical shortage of physicians, with a projected deficit of 200,000 doctors by 2020.^{1,2} The aging of our population has created increased demand for healthcare services that address both acute and chronic disease. Access to specialty care remains inadequate for many Americans, attributable to a host of factors including geographic, economic and societally imposed barriers. Although rural communities face the same basic challenges in access, quality and cost as their urban counterparts, they do so at far greater rates. “Core health care services” as defined by the Institute of Medicine as primary care, emergency medical services, long term care, mental health and substance abuse services, oral health and other services are considerably less accessible in rural communities.³

The incorporation of telehealth technologies into integrated systems of care can address the challenges of access, specialty shortages, and changing patient needs in all

¹ Cooper, RA, Weighing the evidence for expanding physician supply, *Ann Intern Med* 2004; 141:705-714.

² Blumenthal D. New steam from an old cauldron: the physician supply debate, *N Engl J Med*: 2004;350:1780-1787

³ Quality Through Collaboration, *The Future of Rural Health*, Institute of Medicine, National Academies Press, 2004

settings. Telemedicine does not create a new field of healthcare, but rather allows appropriately credentialed clinicians to provide care at a distance using technology and broadband communications services. Live interactive videoconferencing linking patients and specialists, asynchronous transfer of medical data (store and forward) and home telehealth and remote monitoring all improve access, lower costs, improve patient triage, reduce travel, and improve outcomes.

Telemedicine programs can be found in every state. Clinical services delivered via telehealth technologies span the entire spectrum of healthcare, and across the continuum from prenatal care to geriatric care, with applicability to more than 50 clinical specialties and subspecialties.⁴ The University of Virginia's Telemedicine program that I oversee provides services in more than 35 subspecialties to patients located at more than 60 sites in the Commonwealth of Virginia. In particular, we have been privileged to work with Chairman Boucher and his staff to deploy a robust and extensive telemedicine network in southwest Virginia.

Medical specialty societies have endorsed telehealth as an effective tool for the delivery of care, and many have published practice guidelines and standards, based on a careful analysis of the evidence. As an example, during an acute stroke, when "time is brain", life saving

⁴ Hersh WR, Hickam DH, Severance SM, Dana TL, Krages KP, Helfand M. (2006). Telemedicine for the Medicare Population: Update. Evidence Report/Technology Assessment No. 131. (Prepared by the Oregon Evidence-based Practice Center under Contract No. 290-02-0024.) AHRQ Publication No. 06-E007. Rockville, MD, Agency for Healthcare Research and Quality. February 2006.

thrombolytic (clot-busting) therapies administered by stroke neurologists through telemedicine networks reduce the morbidity, mortality and burden and cost of ischemic stroke.⁵

Telemedicine programs improve access to prenatal care supported by maternal fetal medicine specialists. The “Arkansas Angels” telemedicine program, designed to improve access to high risk obstetric services has reduced premature deliveries and neonatal mortality in Arkansas by 26%.^{6, 7} Virginia Medicaid reports expenditures of more than \$50 million dollars annually on neonatal intensive care. Our own pilot high risk obstetrics program in Virginia has demonstrated reduced newborn ICU admissions through appropriate management of high risk pregnancies.

Telemedicine plays an important role in chronic disease management. Jencks et al published an analysis of the readmission rates in the Medicare population. In 2004, 19.6% of nearly 12 million hospitalized Medicare beneficiaries were readmitted with the same diagnosis within 30 days, 34% in 90 days and 56% in one year.⁸ Of those, it was estimated that only 10% were planned re-hospitalizations. The Medicare Payment Advisory Commission reported that in

⁵ Schwamm LH, Holloway RG, Amarenco P, Audebert HJ, Bakas T, Chumbler NR, Handschu R, Jauch EC, Knight WA 4th, Levine SR, Mayberg M, Meyer BC, Meyers PM, Skalabrin E, Wechsler LR; American Heart Association Stroke Council; Interdisciplinary Council on Peripheral Vascular Disease. A review of the evidence for the use of telemedicine within stroke systems of care: a scientific statement from the American Heart Association/American Stroke Association. *Stroke*. 2009 Jul;40(7):2616-34.

⁶ Hall-Barrows, J. Evaluation of ANGELS - Report of Findings from First Thirty-Three Months April 2003 to December 2005 Arkansas Department of Human Services March 16, 2009

⁷ Lowery C, Bronstein J, McGhee J, Ott R, Reece EA, Mays GP. ANGELS and University of Arkansas for Medical Sciences paradigm for distant obstetrical care delivery, *Am J Obstet Gynecol*. 2007 Jun;196(6):534.e1-9.

⁸ Jencks SF, Williams MV, Coleman EA.; Rehospitalizations among Patients in the Medicare Fee-for-Service Program; *N Engl J Med*. 2009 Apr 2;360(14):1418-28.

2004, Medicare expended \$17.4 billion dollars on unplanned hospital admissions. Home telehealth and remote monitoring tools have been shown to reduce hospitalizations, readmission for the same diagnosis, and improve outcomes. In Congressional testimony, the Department of Veterans Affairs reported that its Care Coordination and Home Telehealth program resulted in a 19% reduction in readmission and a 25% decrease in hospital days.^{9, 10} To provide a real-life demonstration of this, next month, the University of Virginia and Habitat for Humanity in partnership with Comcast and the Intel Digital Health Group will be breaking ground on Habitat's first "Health House," with remote monitoring embedded into affordable housing in Charlottesville.

Each telehealth application relies on scaleable broadband communications services that meet the need of the specific clinical service required. Surgical mentoring requires high definition and higher bandwidth as does the transfer of large medical image files and video-teleconferencing. Remote monitoring and home telehealth require lesser bandwidth. Either wired or wireless, broadband facilitated connectivity is far superior than POTS (plain old telephone service) when connecting patient and provider. Regardless of the clinical application, reliable, secure quality of service is imperative.

IMPROVING UNIVERSAL SERVICE PROGRAMS

⁹ Darkins, A., Congressional Testimony, http://veterans.senate.gov/hearings.cfm?action=release.display&release_id=9fb33d22-3b6c-483d-b43c-2637e6e4c6f3

¹⁰ Darkins A, Ryan P, Kobb R, Foster L, Edmonson E, Wakefield B, Lancaster AE. (2008). 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. *Telemedicine and e-Health*, 14(10): 1118-1126.

The Rural Healthcare Program, established in the Telecommunications Act of 1996, administered by the Universal Services Administrative Company (USAC), has been critical to the deployment and sustainability of telehealth networks nationwide. Prior to the passage of the Act, in 1995 we priced a 1.54 Mbps connection to a rural hospital in southwest Virginia at an unaffordable \$5800 per month. In 2009, with enhanced competition and Universal Service subsidies, that connection to a small rural hospital cost \$170 per month over Network Virginia, managed by Verizon Business Solutions and Sprint.

Although initially authorized to support funding requests up to \$400 million per year, statutory and regulatory barriers have severely undermined the effectiveness of the Rural Healthcare Program. Many on your Committee strongly supported the establishment of this program. You therefore may be taken aback to learn that as of the last fiscal year, ending June 30, 2009, USAC reports a **total disbursement over 12 years of only \$249 million, about 5% of the originally authorized amount. Of those funds, over half supported communications services in Alaska.** In the past year, USAC reports funding commitments of \$61 million, still far short of the \$400 million authorized for the program.

In its first 12 years, the Rural Healthcare Program has clearly failed to meet the worthy goals set by Congress. For the program to succeed as intended, a number of areas need to be corrected:

1. Eligible Sites - Statutory barriers limit eligible consult origination sites, excluding such important entities as nursing homes, EMS providers, and for-profit rural hospitals.

2. Definition of Rural - The program is bound by definitions of rural that fail to take into account our serious national mal-distribution of specialty healthcare providers. In its December 2004 Order, the Federal Communications Commission (FCC) changed the rural definition¹¹, and approved funding of telecommunications support for for-profit rural hospitals with an emergency department. The FCC recognized that for emergency preparedness, and bound by federal EMTALA¹² (the Emergency Medical Treatment and Active Labor Act), rural for-profit hospitals serve the public interest. Unfortunately, however, the 2004 FCC Order excluded from the Rural Healthcare Program many otherwise eligible telemedicine consult origination sites with limited access to specialty medical services. Specialists tend to locate in regions with denser populations and we believe expansion of the rural definition will further align universal service support with specialty workforce shortage areas. In comments to the FCC, the American Telemedicine Association requested permanent grandfathering of previously eligible sites prior to the 2004 Order. Other administrative barriers in the Rural Healthcare Program include only 25% support for internet services, counterintuitive in an era in which most telehealth programs deploy technologies that are IP based.
3. Determination of discounted services - The rural-urban disparity in line rates envisioned in the original legislative language for the rural health care program for such broadband services as ISDN is disappearing with the use of alternative technologies. However, the need for broadband-based health telecommunications remains. The FCC should consider replacing current discounts in rural rates with an across-the-board discount.

¹¹ FCC Second Report and Order, Order on Reconsideration, and Further Notice of Proposed Rulemaking Federal Register: February 7, 2005 Volume 70, Number 24

¹² EMTALA 42 USC 1395 dd 42

4. Eligible services - Health provider access to services including new “on demand” broadband services from alternative carriers should be included. All communications providers should be eligible to participate in the health program.
5. Rural Healthcare Pilot Program –As discussed above, in 2007, to improve utilization of the rural healthcare program, the FCC launched the Rural Healthcare Pilot program, recognizing 69 entities as eligible to receive more than \$400 million in funds to expand the communications infrastructure for healthcare. As of June 30, 2009, however, entering the third year of the program, only \$902,000 had been disbursed and only 12 of 69 programs received their funding commitment letters. The Pilot Program, although well intended, is fraught with significant administrative barriers. As examples, no funds were made available for project management. The applicant must obtain letters of agency from each of the remote sites, be fiscally responsible for each site’s activities, secure 15% in cash as matching funds, provide detailed quarterly reporting even in the absence of funding and sign five year contracts for service. Applicants may include within their network a de-minimus number of urban locations, however, the eligible entities remain the same as those previously articulated in the Act. For-profit hospitals were specifically excluded, as were EMS providers and nursing homes. Despite these problems, the intent of the pilot program is important and should be preserved. The development of regional network grids, extending through firewalls and different network architectures to link neighboring telemedicine networks will facilitate a "best practice" model for health care delivery. This is the core of the current rural health pilot program and is a critical component in the national objective of building a healthcare information infrastructure as well as a central component in many proposed approaches to the use of

telecommunications for disaster response. The support of such regional network grids using any available broadband network or technology should be permanently incorporated into the rural health program.

Telehealth services can help drive demand for broadband adoption by increasing access to acute care and chronic disease management through networks that include hospitals, clinics, physician offices, nursing homes, ambulances, the workplace, and the home. Broadband provided over wireline, wireless, cable, satellite networks, power lines and other emerging technologies provide the communications footprint that supports the transformation of healthcare delivery. Universal service should take into account all such technologies that provide broadband services for purposes of healthcare.

In establishing universal service policies there are several other important issues related to telemedicine that need to be addressed:

1. Minimum broadband speeds – unlike entertainment applications, remote health care services rely on information coming **upstream** from the patient to the provider or monitoring center. Establishing only downstream broadband goals will ignore the rates and quality of service requirements that are essential in order to make many telemedicine applications viable.
2. Universal service support for wireless – Home telehealth is no longer tied to the home. Thousands of new remote monitoring and related health applications for wireless phones allows for the provision of care at the point and time of need. The cell phone has become a critical part of everyday life for millions of Americans and the use of wireless continues

to accelerate. Congressional reform of lifeline programs and universal service access should take into account this new development and incorporate wireless access into national goals for universal service.

OTHER FEDERAL PROGRAM CHANGES

It is not enough to simply ensure deployment of the communications infrastructure, -- we must also address other serious barriers to adoption and sustainability. The most critical barriers are limited coverage and reimbursement for telehealth services. The prime example is that the nation's largest payer, Medicare, spends only about a nickel per year per fee-for-service beneficiary for telehealth. More than 34 million disabled and elderly beneficiaries are not covered for the most common form of telemedicine, clinical services provided via interactive video, solely because they live in a metropolitan county.

The Centers for Medicare and Medicaid Services (CMS) recently published its final rule under the Physician Fee Schedule and other Revisions to Part B for CY 2010. Per CMS, “The total annual Medicare payment amount for telehealth services (including the originating site facility fee) is approximately \$2 million. Previous additions to the list of telehealth services have not resulted in a significant increase in Medicare program expenditures. While we believe that these proposals will provide more beneficiaries with access to these services, we do not anticipate that these changes will have a significant budgetary impact on the Medicare program.”¹³

¹³ CMS Rule: Medicare Program; Payment Policies Under the Physician Fee Schedule and Other Revisions to Part B for CY 2010, p1179 <http://www.federalregister.gov/inspection.aspx#special>

To bill Medicare for professional services rendered via telemedicine, the beneficiary must reside in or receive care through a telemedicine system located in:

1. a federally designated rural Health Professional Shortage Area (HPSA); or
2. a county that is not included in a Metropolitan Statistical Area (MSA); or
3. via a Federal telemedicine demonstration project that was approved or funded by the Secretary of Health and Human Services as of December 31, 2000.

The Federal government and even Medicare have several definitions of "rural." The rural definition used for telehealth coverage is the most restrictive - it even classifies Grand Canyon National Park as metropolitan. Many metropolitan counties seem rural (there are about 400 of them with less than 50,000 population) and many parts of metropolitan counties almost everyone would call rural. For example, some of Medicare's critical access hospitals do not utilize telehealth because they are "metropolitan," such as Carilion Giles Memorial Hospital in the Chairman's District because it is in a metropolitan county (Giles), despite a county population in 2000 of only 16,657 and a population density of 47 persons per square mile. Store and forward telemedicine is covered under Medicare for patients in Alaska and Hawaii, but not in the other 48 states. Yet, store and forward services offer timely access to diagnosis and care, and improves the efficiency of the workforce. As an example, screening for diabetic retinopathy can be accomplished via store and forward retinal photography, resulting in early interventions that spare patients and the healthcare system the burden and cost of blindness.

In addition, Medicare Conditions of Hospital Participation Standards require that every consulting physician who provides services via telehealth be credentialed and privileged at every

consult origination site. This is an overly burdensome Medicare regulation that proves to be costly, time consuming and counter to the 2004 Joint Commission standards which allowed for credentialing and privileging by proxy with appropriate hospital and medical staff agreements. Our program at the University of Virginia makes available any of our on-call physicians for emergency or elective telemedicine consultations. If we are required to credential and privilege all 790 physicians on our medical staff at each of our 60 telemedicine sites in Virginia, it would cost the University millions of dollars in remote hospital fees and many hundreds of hours of administrative time. Each of our physicians is appropriately credentialed and privileged at the University of Virginia, and we detail the scope of services and ensure the credentials of our participating physicians in letters of agreement with each telemedicine partner.

Medicaid coverage determinations fall within the purview of the states, despite federal law which governs the Medicaid programs. More than 30 states include telemedicine as a covered service under Medicaid. Virtually all Medicaid programs fund the cost of transportation to care. To spend millions of dollars on transportation to care, but not reimburse consultations provided more cost effectively over telemedicine networks is incomprehensible..

Third party private pay reimbursement for telehealth has been mandated by statute in ten states, and three more state legislatures, including the Virginia General Assembly, have before them similar bills. The American Telemedicine Association proposes that any federally supported health insurance plan require coverage for telehealth services.

To ensure expansion of telehealth, the continued development of technology standards and clinical practice guidelines beyond what has been accomplished to date should be funded.

Federal agency alignment, engagement and incentivization of the states and the private sector remain a critical priority. **We strongly urge Congress to require greater interagency collaboration for telehealth services, with a goal of advancing telemedicine within all the agencies.** More than a dozen federal agencies recognize or fund telemedicine related grant programs and services and yet there is no office for or champion of telehealth within the Centers for Medicare and Medicaid Services. This is why the CMS Telehealth Advisory Committee called for in the House health care reform bill is so important. Equally important, is the need for collaboration between Federal Communications Commission and relevant agencies of multiple departments, notably Health and Human Services, Defense, Veterans Affairs, Commerce and Agriculture.

The recently House approved health reform bill, H.R. 3962, expands the eligible consult origination sites, and allows for credentialing by proxy but not privileging which remains a costly and time consuming process. The Senate bill, and in particular the recently introduced Rural Telemedicine Enhancing Community Health Act, S. 2741, addresses both credentialing and privileging barriers, and expands coverage, importantly to priority safety net sites: HHS-funded community health centers and Indian Health Service facilities.

In conclusion, as our nation moves forward in restructuring its healthcare delivery system, innovative uses of telehealth tools will likely be an important driver of that change. With the adoption of favorable policies, innovation applied to the care of patients using integrated telehealth tools that include interactive video teleconferencing, home telehealth, remote monitoring, and mobile health technologies hold promise to enhance access to timely, appropriate and expert care that will improve the health of our citizens. Universal Service

Reform and accelerated broadband deployment and adoption are critical pillars of this transformation of healthcare for all Americans. Thank you.