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**REVISED STATEMENT**

**BY**

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**AND**

**CHAIR**

**FEDERAL INTERAGENCY JOINT WORKING GROUP ON TELEMEDICINE**

**BEFORE THE**

**FEDERAL-STATE JOINT BOARD ON UNIVERSAL SERVICE**

**FEDERAL COMMUNICATIONS COMMISSION**

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**MR. CHAIRMAN AND MEMBERS OF THE BOARD:**

On behalf of the Office of Rural Health Policy (ORHP), I am pleased to be here today to offer a number of comments on how the Joint Board could interpret the provisions of the 1996 Communications Act with respect to rural health care providers. In putting forth these comments, I would like to acknowledge the invaluable advice provided by my colleagues in ORHP and the Federal Interagency Joint Working Group on Telemedicine -- Larry Bryant (Rural Utilities Service), Earl Ferguson (National Aeronautics and Space Administration), Carole Mintzer (ORHP), Pat Taylor (ORHP) and Cathy Wasem (ORHP). We appreciate the opportunity to share with you our views on implementing this historic legislation.

**THE CHALLENGE**

Telecommunication and information technologies are playing an increasingly important role in health care. These technologies are seen as a means of addressing the historic three legged stool of health care reform -- improve the quality of health care, enhance access to health care services, and reduce costs. Whether and to what extent these technologies ultimately achieve these objectives remains to be seen. However, one thing is clear. As this nation continues to debate health care reform and struggles to find ways to provide health care more equitably to its citizens, the needs of rural residents and other underserved citizens have been thrust into the spotlight. If this nation is to make meaningful changes in its health care system, it must find innovative ways to surmount the barriers that traditionally have limited access for many of its citizens by virtue of their economic or social status or their geographic location.

This challenge comes at a time when advances in telecommunications make linking rural and urban communities potentially easier than ever before. In the modern information era, telecommunications technologies could hold one key for providing comprehensive, coordinated health care to rural residents. The potential of telecommunications to address the needs of rural residents and practitioners is enormous. Applications range from use of the

telephone for data transmission to full-motion, two-way interactive video for consultation and professional continuing education.

However, there is great variation in the availability and cost of rural telecommunications services. There are still rural communities that lack single party lines and touch tone service, let alone dial-up access to the Internet. Approximately half of the people who live in rural communities lack 911 access. And where the more advanced services exist, such as ISDN and T1 service, the costs can be prohibitive. For example, fixed monthly transmission charges for T1 service for rural grantees receiving support under ORHP's grant programs experience fixed monthly charges for T1 service that range from \$381 to \$3,934, depending on distance and pricing structure in a state. Installation charges range from \$427 to \$3,270, again depending on distance, level of existing infrastructure, and public utility pricing structure within a state. Although these charges may not appear to be prohibitive for an urban facility that can spread the costs over hundreds of patients a month, they represent an almost insurmountable barrier for a small (typically less than 50 bed) rural hospital that may provide less than 20 consults and distance learning sessions per month.

In short, the potential of telecommunications for improving rural health care services will not be realized until rural communities have access to adequate telecommunications services and the costs of transmission for those services become more affordable. In this regard, we believe the effective implementation of the 1996 Communications Act holds great promise for developing the necessary telecommunications infrastructure in these communities.

### **OFFICE OF RURAL HEALTH POLICY**

The Office of Rural Health Policy was established in 1987 by the Administration as the focal point for rural health policy advocacy and information development in the Federal government. The Office has played a key role in moving telemedicine and distance learning projects into rural and remote locations.

Beginning in 1988, the Office has funded telemedicine projects throughout the nation. Over the past 7 years, it has awarded almost \$20 million to support rural telemedicine programs. Today, it administers the Rural Telemedicine Grant Program. Now in its second year of funding, the program supports 11 projects in 10 states that use modern telecommunications to provide health care services to rural residents and facilitate the development of rural health networks. These projects currently serve over 55 rural communities. The Office also funds a special distance learning and telemedicine project in West Virginia, 15 telemedicine and health professions distance education projects under its Outreach grant program, and a major evaluation of rural telemedicine programs throughout the nation.

In addition to the funding of telemedicine projects, the Office is considered a leader in the development of Federal telemedicine policies. Its focus on rural barriers to health care, and its advocacy for rural studies have led to several rural telemedicine demonstration grants initiated by Congress. The Office currently provides staff support to the Joint Working Group on Telemedicine.

### **JOINT WORKING GROUP ON TELEMEDICINE**

The Joint Working Group on Telemedicine (JWG) is a Federal interagency committee responsible for coordinating Federal activities across all cabinet agencies that are actively involved in telemedicine. The Federal government is a major user of telemedicine technology as a provider of health care services and as a funder of private sector health care providers. It also has played a strong role in research and development of telemedicine. Membership on the Working Group includes representatives from the Departments of Agriculture, Commerce, Defense, Health and Human Services, and Veterans' Affairs; the National Aeronautics and Space Administration; the Office of Management and Budget; and most recently, the Federal Communications Commission. The JWG reports to the Vice President through the Secretary of Health and Human Services.

Together with the private sector, the JWG seeks to identify strategies that overcome barriers to telemedicine and facilitate private sector development of effective uses for telecommunications technologies in a range of health applications. And, among its many activities, the JWG has established a subgroup to work with the Joint Board and the FCC staff over the coming months as they implement the provisions of the 1996 Act.

### **SPECIFIC COMMENTS**

The FCC March 8, 1996 Notice of Proposed Rulemaking requests comments on a wide range of issues, only a few of which I will be able to address today. My comments reflect the extensive experience of ORHP in implementing rural telemedicine demonstrations and evaluations, and those of several members of the JWG. They will focus on the following issues that are critical for establishing modern telecommunications services to enhance access to badly needed health care services in rural communities:

- ◆ Definition of rural areas.
- ◆ Definition of eligible health care providers.
- ◆ Definition of core services that should be available to all rural consumers.
- ◆ Definition of advanced services available to health care providers.
- ◆ Pricing Issues.

**Definition of Rural Areas.** The Act requires carriers to provide rural consumers and public and non-profit health care providers (as specified under the Act) access to telecommunications and information services that are reasonably comparable to those services provided in urban areas, and at rates that are reasonably comparable to those charged for similar services in urban areas. Moreover, telecommunications carriers that provide reduced cost services to health care providers under this provision are entitled to have such support count towards their universal service obligation. The extent of the service obligation offset is to be calculated based on the "difference, if any, between the rates for services provided to health care providers for rural areas in a state and the rates for similar services provided in

comparable rural areas in that state."

Effective implementation of the Act requires a definition that is both practical and sensitive to the variations in rural communities, utilizing readily available data. No method of defining rural is perfect; all available methods have some deficiencies or problems.

For ease of administration, we recommend that the Joint Board adopt counties as the units of analysis. Moreover, we suggest that the Board use the Office of Management and Budget's metropolitan (metro) and non-metropolitan (non-metro) counties to initially distinguish between urban and rural counties. However, because telecommunications costs can vary dramatically by size and population density of a county and its proximity to a metro area, it is important to further divide non-metro counties so that comparable rural areas can be determined.

We suggest use of the 1993 Urban Influence Codes developed by the Department of Agriculture's Economic Research Service (ERS). These codes classify rural counties into 7 categories by adjacency to either small or large metro areas and by the size of the largest city or town within the county. We consider these codes superior to the Urban-Rural Continuum Codes referenced in the Proposed Rule (Section 98, Page 46) for assessing telecommunications costs for similar services in comparable rural communities.<sup>1</sup>

In addition, we suggest that the ORHP's Goldsmith Modification be used to identify remote rural areas in large metro areas. Some metro counties are so large that they contain small towns and rural areas that are isolated and lack geographic access to metro areas for all services. For example, San Bernardino County in California, which is classified as a metro county, stretches the Nevada border, where there are probably more snakes than people, to almost all the way to the Pacific Coast.

In determining comparable areas, the Board also may want to make special consideration for frontier counties that have population densities of six or fewer persons per

square mile. These counties are likely to experience high per capita infrastructure development costs where current services are limited.

**Eligible Providers.** Under the provisions of the Act, telecommunications carriers are eligible for support under the universal support mechanisms if they provide services to any of 7 categories of public or non-profit health care providers that serve rural persons who reside in the state. Unfortunately, some of the references to specific types of providers require clarification. The Act specifies certain types of providers that, if capitalized in legislation or regulation, would refer to providers that are designated to receive special consideration or funding under Federal programs. Without capitalization, the Act appears to imply a more generic, broader definition for these providers. For example, the Act refers to community health centers and health centers providing care to migrants, but it is unclear whether the provision is limited to those centers supported by the Federal government under the Community and Migrant Health Center grant programs (that is, supported under Sections 329 and 330 of the Public Health Service Act). Might it also include the Federally Qualified Health Centers, which receive special consideration under Medicare and Medicaid and meet the specifications of the Community and Migrant Health Center grant programs, but do not necessarily receive grant funds? Or could it refer to any clinic that happens to call itself a community health center or treats at least one migrant a year? Moreover, the Act refers to community mental health centers, a class of providers that was formerly designated by the Federal government but is no longer so designated. Although such centers do continue to exist, and many are probably receiving support from their states and the Federal government under the Federal mental health block grants, there currently is no such formal Federal designation. Rural health clinics also pose a problem because any rural practitioner's office could be considered a rural health clinic in the broadest terms. Under the Medicare and Medicaid programs, there are clinics that are officially designated as Rural Health Clinics (authorized under P.L. 95-210). These clinics operate in underserved rural communities and meet specific criteria set forth by statute.

The monetary implications of these differences in definition for the universal service fund could be enormous. We suggest that the FCC seek clarification of congressional intent as soon as possible. Whatever the outcome of the discussion, ORHP is most anxious to work with FCC staff to develop the most practical and equitable definitions feasible.

**Core Services.** We believe that universally available local dial-up access to the Internet for all rural customers, without the financial burden of long distance toll charges, is an essential prerequisite to providing advanced telecommunications services to health care providers. Currently, not all rural areas will be able to economically sustain the most advanced telecommunications services available, given their limited telecommunications infrastructure and low population density. However, the Internet offers access to many advanced services at an affordable price. Over time, as the nation's infrastructure is developed, access to more advanced services should be realizable for all rural communities. But, in the meantime, we believe local dial-up access to the Internet is essential.

From a health provider perspective, the Internet gives rural providers access to medical information data bases (medical texts, journals, National Library of Medicine, World Wide Web pages, etc.) to support their continuing education and decrease their professional isolation. In addition, it provides the capability for store-and-forward medical consultations (including limited transmission of medical images) and limited interactive video consultations. As telecommunications and computer technologies evolve, medical information management systems connected by the Internet have the potential to markedly improve the capabilities of rural health care providers -- giving them more ready access to medical records and studies completed on patients, assisting them with clinical decision making, supporting educational activities, and assisting them with management of their practices. These changes can improve quality of care, increase access and potentially decrease health care costs.

**Advanced Services.** The Office of Rural Health Policy believes that the universal service fund is intended to provide a level of infrastructure support which balances the need to develop an advanced telecommunications infrastructure with the need to avoid placing an

undue financial burden on the Universal Fund. We believe that the following two-tiered system for rural health care providers achieves this objective.

- ◆ Rural Primary Care Providers: For primary care providers (community and migrant health centers, rural health clinics) and other entities deemed eligible under this statute which provide primary health care services to rural residents, access to ISDN (64-128 Kbps) or similar technology is essential for simultaneous transmission of voice, video, and data on a 24-hour basis. In addition, these sites should have the capability to inverse multiplex ISDN lines or increase capacity up to 384 kbps (equivalent to 1/4 T1) on an emergency basis for on-line real time video.

It should be noted that in the vast majority of instances, real time video will not be needed. Moreover, full time access to higher levels of service is not economically feasible at this time for many rural clinics. We believe that, for the majority of primary care services that are generally performed in remote rural areas, full motion, real time video would be needed in less than 5% of cases. Therefore, most of the telemedicine needs of rural primary care practice sites could be met with ISDN.

From a practical standpoint, ISDN services can deliver telemedicine services at reasonably low costs compared with broadband services, while ensuring adequate performance levels. For example, in transmitting medical images, a study of chest x-rays using digitized uncompressed images (2 new films, plus 2 old films for comparison) requires approximately 7 hours over a 14.4 kbps modem, 3.5 hours over a 28.8 kbps modem, and 40 minutes over an ISDN line. We believe that ISDN or its equivalent offers sufficient capacity to permit rural primary care providers to transmit high quality resolution still images or "packaged video" to larger institutions for evaluation in a timely manner, while supporting other rural health care activities, such as transmission of medical information and administrative support.

- ◆ Rural Hospitals Providing Secondary Care and Above: All rural hospitals and other institutions providing secondary care and above should have access to telecommunications technology that supports real time interactive video for complex medical applications which require consultations with major urban centers. Experience with ORHP grantees suggests that this capability can be achieved by making available a level of service consistent with T1 throughput (1.54 Mbps). Not all medical applications require use of the full T1 capability. Distance learning and some clinical applications can be achieved with acceptable motion, using compression technology at fractional 1/4 T1 throughput, or 386 kbs. However, from a practical perspective, hospitals and other secondary care institutions will require T1 capability.

T1 capability provides acceptable motion quality and the flexibility to send or receive real time motion video and voice among multiple sites, as well as provide data transfer capability in a timely manner consistent with the needs of higher volume, larger providers of health care services. For example, the chest x-ray study referenced earlier would require 40 minutes over an ISDN line, but only 4 minutes over a T1 line.

It should be noted that the evolving technology of data compression technology is likely to significantly change the transmission times and capacity required in the future for sending diagnostic images. Given current technology, if images are compressed using 10:1 lossy compression (some loss of image resolution occurs), the transmission time would be reduced to a minimum of 40 minutes, 20 minutes, 4 minutes and 24 seconds, over a 14.4 kbps modem, 28.8 kbps modem, ISDN, and T1 line, respectively.

Unfortunately, image compression has not been approved by the American College of Radiology or other standards setting bodies. The FDA has given approval for studies using compression systems and compression of images from 10:1 or 20:1 is being used in some teleradiology centers. Nevertheless, until such time as there is

greater consensus on the use of compressed images by nationally recognized bodies, we will continue to base our calculations of transmission rates and recommendations for establishing T1 capabilities in secondary care facilities on the findings for uncompressed images.

In our experience, public switched networks currently do not support T1 bandwidth, requiring all of our grantees to support dedicated T1 lines to their facilities. If our experience is any benchmark for current practice, then the minimum level of advanced services for secondary care facilities should reflect T1 service from the rural facility to its medical partners in rural and urban communities consistent with the design of the most cost-effective networks. Technological neutrality should prevail in the design of these networks, with primary rate interface multiplexing of multiple ISDN lines as a viable alternative.

**Pricing.** As has been noted previously, the costs of transmission must be lowered if rural health care providers are to be able to effectively access modern telecommunications technology in their practices. The extent of the current infrastructure varies dramatically across rural America, which is reflected in the widely varying rates charged for telecommunications services. To ensure efficiencies, the FCC should promulgate regulations which promote sharing of infrastructure by educational, medical, business, and other community resources. In our experience, without such sharing, development of advanced rural health applications are more likely to fail.

Finally, ORHP would urge the FCC to consider revisiting the universal service definition at fixed intervals, such as every three to five years. If successful, the Act will stimulate enormous changes in the industry and particularly in previously underserved rural and urban communities. At the very least, the FCC should revisit its definition in three years to determine the relevancy of its definitions and pricing mechanisms in what hopefully will be a reformed and enhanced market.

## **CONCLUSION**

Given limited time to prepare these remarks, we have not had the opportunity to fully explore the concerns raised by FCC in its Proposed Rule. We look forward to working with the FCC and the Joint Board in the coming months by reviewing comments filed on health care and by filing reply comments. We also anticipate working closely with the FCC as it seeks to develop strategies for building the rural telecommunications infrastructure that go beyond the discussion today. For example, one issue not raised here is the question of dark fiber and how restrictions on access to its use and pricing might be considered in the Board's deliberations. Thank you again for the opportunity to participate on this panel. I am happy to answer any questions you may have.

## **END NOTES**

1. The Rural-Urban Continuum Codes aggregate the number of people in a county living in towns of 2,500 or more. A county with 10 small towns of 2,500 would be classified midway among non-metro counties even though it contains only very small towns and is unlikely to have the economic and health services usually present in larger towns, e.g., of 10,000 or 20,000. The new Urban Influence Codes, which classify counties by the largest city or town in the county, are preferable as a proxy measure for categorizing counties to assess costs of providing similar telecommunications services in comparable rural areas.

Transmission Costs of the ORHP Rural Telemedicine Grantees - as of February 1996

State	Site	Band-width	Dedicated Line	Crosses LATA boundary	Miles	Installation Charge	Fixed Monthly Cost	Per Use Costs
WA	Colville	112 kbs	N	Y	350	\$ 623	\$ 475	\$0.53 per min.
AK	Petersburg	112 kbs	N	Y	900	2,628	3,628	0.53 per min.
MT	Ronan	112 kbs	N	Y	600	200	200	0.53 per min.
ID	Driggs	112 kbs	N	Y	830	920	638	0.53 per min.
WA	Seattle-1	128 kbs	N	N	<10	129	81	0.53 per min.
WA	Seattle-2	128 kbs	N	N	<10	385	81	0.53 per min.
WA	Seattle-3	128 kbs	N	N	<10	385	81	0.53 per min.
WA	Seattle-4	128 kbs	N	N	<10	116	81	0.53 per min.
KY	Intra-LATA	T1	N	N	NA	0	\$ 665	----
KY	Inter-LATA	T1	N	Y	NA	0	823	----
MT	Billings	T1	Y	N	0	\$1,200	\$ 216	----
MT	Culbertson	T1	Y	N	34	1,200	1,055	----
MT	Colstrip	T1	Y	N	51	1,200	934	----
MT	Baker	T1	Y	N	55	850	768	----
MT	Glendive	T1	Y	N	72	1,200	1,187	----
MT	Glasgow	T1	Y	N	98	1,200	1,631	----
MT	Sidney	T1	Y	N	121	1,200	922	----
MT	Billings	T1	Y	N	135	1,200	1,945	----
NC	Edenton	T1	Y	N	53	1,250	\$1,869	----
NC	Faison	T1	Y	Y	55	1,250	3,019	----
NC	Chapel Hill - each site	ATM	N	NA	NA	3,300	\$2,992	\$23.00 per hour

State	Site	Bandwidth	Dedicated Line	Crosses LATA boundary	Miles	Installation Charge	Fixed Monthly Cost	Per Use Costs
NY	Richfield Springs	112 kbs	N	Y	15	\$1,160	\$ 157	Range from 34.4 cents per minute to 50 cents per minute.
NY	Cherry Valley	112 kbs	N	N	17	2,462	336	
NY	Edmeston	112 kbs	N	N	20	1,227	157	
NY	Oneonta	112 kbs	N	N	25	1,717	158	
NY	Herkimer	112 kbs	N	Y	30	1,104	175	
NY	Morris	112 kbs	N	N	35			
NY	Norwich	112 kbs	N	N	41			
NY	Stamford	112 kbs	N	N	45	1,097	157	
NY	Cobleskill	112 kbs	N	Y	45	2,675	267	
NY	Schoharie	112 kbs	N	Y	45			
NY	Walton	112 kbs	N	N	50			
NY	Liberty	112 kbs	N	Y	88			
NY	Sharon Springs	112 kbs	N	?	??	1,469	157	
NY	Coopers-town	T1.5	N	N		963	3,130	~\$115 per mo.
NY	Cobleskill	T1.5	Y	Y	30	963	2,342	~ \$10 per mo.
NY	Delhi	T1.5	Y	N	45	963	2,564	~\$100 per mo.
NY	Blenheim	T1.5	Y	Y	45			
SD	Viborg	112 kbs	N	?	??		\$ 165	
SD	Canton	112 kbs	N	?	??		165	
SD	Vermillion	112 kbs	N	?	??		165	
SD	Vermillion	ISDN*	N	?	??	\$ 320	336	~100 per mo.
SD	Vermillion	T1	Y	?	??	648	441	~120 per mo.

State	Site	Band-width	Dedicated Line	Crosses LATA boundary	Miles	Installation Charge	Fixed Monthly Cost	Per Use Costs
SD	Flandreau	ISDN*	N	?	50	\$2500 for all three lines	\$ 388	Amounts not specified
SD	McKenna	ISDN*	N	?			732	
SD	McKenna	T1	Y	?			482	
SD	Custer	T1	Y	?	48	\$1,928	\$ 381	----
SD	Philip	T1	Y	?	85	1,928	381	----
NE	Kearney	T1	Y	N	5	\$ 427	\$1,917	----
NE	Cozad	T1	Y	N	52	427	1,917	----
NE	Callaway	T1	Y	N	63	427	1,917	----
NE	Broken Bow	T1	Y	N	64	427	1,917	----
NE	Sargent	T1	Y	N	74	427	1,917	----
NE	Cambridge	T1	Y	N	87	427	1,917	----
MN	Fergus Falls	T1	Y	Y	??	\$ 625	\$1,250	Minimum of \$4000 per site per year. Hourly rate ranges from \$15 to \$42 depending on distance
MN	Red Wing	T1	Y	N	??	625	1,159	
MN	Hibbing	T1	Y	Y	??	625	1,158	
MN	Staples	T1	Y	Y	??	625	821	
MN	Minneapolis	T1	Y	N	??	625	365	
MN	Wadena	T1	Y	Y	??	625	250	
CO	ICC POP	T1	Y	N	0	\$ 372	\$1,072	----
CO	Haxtun	T1	Y	N	29	798	1,336	----
CO	Sterling	T1	Y	N	39	626	831	----
CO	Denver	T1	Y	N	70	626	1,271	----
CO	Denver	T1	Y	N	72	626	1,163	----

State	Site	Band- width	Dedicated Line	Crosses LATA boundary	Miles	Installation Charge	Fixed Monthly Cost	Per Use Costs
CO	Burlington	T1	Y	Y	140	\$1,758	\$3,934	----
KS	Atwood	ISDN	N	Y	80	0	545	\$0.04 per min.
KS	St. Francis	ISDN	N	N	29	0	545	0.04 per min.
MO	Fulton	T1	Y	Y	30	\$3,071	\$1,616	----
MO	Fulton	T1	Y	Y	30	3,071	1,616	----
MO	Macon	T1	Y	N	33	1,567	1,078	----
MO	Milan	T1	Y	N	33	944	1,241	----
MO	Memphis	T1	Y	N	44	1,567	1,063	----
MO	Unionville	T1	Y	N	46	1,567	1,063	----
MO	Brookfield	T1	Y	N	52	1,270	1,054	----
MO	Keytesville	T1	Y	N	83	1,567	1,502	----
MO	Fayette	T1	Y	N	90	1,270	1,656	----
MO	Kirksville	T1	Y	Y	90	3,071	2,048	----
MO	Kirksville	T1	Y	Y	90	3,071	2,048	----
MO	Boonville	T1	Y	N	101	1,270	1,886	----
MO	Boonville	T1	Y	N	101	1,270	1,886	----
WV	Madison	T1	Y	?	37	\$1,635	\$1,002	----
WV	Huntington	T1	Y	?	45	3,270	476	----
WV	Spencer	T1	Y	?	50	3,270	1,226	----
WV	Buckhannon	T1	Y	?	61	1,635	961	----
WV	Union	T1	Y	?	68	3,270	1,400	----
WV	Elkins	T1	Y	?	69	1,635	1,164	----
WV	Lewisburg	T1	Y	?	70	3,270	1,347	----
WV	Gassaway	T1	Y	?	91	1,635	1,510	----

State	Site	Band-width	Dedicated Line	Crosses LATA boundary	Miles	Installation Charge	Fixed Monthly Cost	Per Use Costs
WV	Petersburg	T1	Y	?	138	1,635	1,307	----
WV	Charleston	T1	Y	?	150	0	2,034	----

Bandwidth refers to the bandwidth purchased, not necessarily the bandwidth used for telemedicine.

The distance provided is the distance between the site and the "point of presence."

\* In South Dakota, the ISDN bandwidths are: at Flandreau and McKennan - 385 kbps; at Vermillion - 128 kbps