REPORT OF THE
JOINT COMMISSION ON HEALTH CARE

STUDY OF TELEMEDICINE PURSUANT TO HJR 455 OF 1995

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

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Preface

House Joint Resolution (HJR) 455 from the 1995 Session directed the Joint Commission on Health Care, in consultation with the Council on Information Management and the Department of Information Technology, to evaluate the use of telemedicine to provide better, more accessible health care to the Citizens of the Commonwealth. This report contains the results of this study and a summary of public comments on the report.

Telemedicine is the use of telecommunications technology to deliver health care services and health professions education to distant sites. The spectrum of potential telemedicine applications ranges from medical consultation via telephone, to electronic transfer of radiology tests, to medical diagnosis and consultation via interactive television (IATV), wherein a patient in a rural hospital can be seen by a specialist at a distant medical center over a live audio-video link.

Telemedicine has drawn significant attention primarily because of its potential as a tool for improving rural health care. Rural patients could benefit from telemedicine systems which allow convenient access to consulting specialists at distant facilities. Primary care providers could benefit from ready access to consultation services and continuing medical education programs delivered via satellite or computer. Telemedicine could be of benefit to rural hospitals by allowing them to continue serving and receiving payment for patients who would otherwise travel to a distant hospital for a specialty consultation. In addition, the electronic medical record -- one form of telemedicine -- can improve medical practice in both rural and urban settings in several ways, such as allowing for efficient transfer of information between providers within managed care networks, providing a data base for health care quality research, and allowing efficient access to public immunization records.

Research and development of telemedicine has mushroomed in recent years. As a result of federal, state, and private support, telemedicine projects are now underway in at least 35 states, including Virginia. Like most states, Virginia has not adopted a statewide strategy for telemedicine. However, as described within the report, a number of Virginia telemedicine projects are now underway. For example, the state is supporting one IATV telemedicine project involving Virginia

Commonwealth University-Medical College of Virginia (VCU-MCV) and the Department of Corrections, and another involving VCU-MCV and the Blackstone Family Practice Center. Also, the University of Virginia Health Sciences Center and Rockingham Memorial Hospital have obtained federal and private grant funds to support an IATV telemedicine link between the two institutions. In addition, the Virginia Department of Health, the Department of Mental Health, Mental Retardation, and Substance Abuse Services, and some local Area Health Education Centers are actively involved in telemedicine projects.

Several issues should be kept in mind when considering the state role in supporting the continued development of telemedicine. First, it is difficult to conduct a comprehensive cost-benefit analysis of IATV telemedicine because of the high percentage of uninsured in rural areas. As explained in more detail in the report, the economic incentives of telemedicine can vary considerably depending upon whether the patient has the ability to pay for hospital care. Second, most third-party payers are reluctant to pay for "high-end" IATV telemedicine, and until this changes, large grants or public subsidies will be required to operate IATV telemedicine systems. Third, some rural providers who want to use IATV telemedicine lack the necessary telecommunications link with the state's information highway. Finally, although much attention has been focused on IATV telemedicine, there are many other less sophisticated and less costly telemedicine applications which can greatly improve access to health care and education.

Given this background, the report presents several options for encouraging the expansion of telemedicine in the Commonwealth. One option would be to request the Secretary of Administration and the Secretary of Health and Human Resources to develop a policy for considering reimbursement for telemedicine services by state health programs. Another option would be to request the Department of Corrections and the state academic health centers to examine the feasibility of establishing additional telemedicine consultation services for selected sites in the state corrections system. A third option would be to encourage the Virginia Health Care Foundation to consider supporting projects which extend primary and preventive health care services to the uninsured through the use of telemedicine. A fourth option would be to request the Council on Information Management to evaluate roadblocks to implementation of telemedicine applications in rural Virginia and recommend legislative or regulatory action.

Our review process on this topic included an initial staff briefing which you will find in the body of this report. A panel discussion of telemedicine issues followed the staff briefing. An overview of Georgia's Telemedicine Program, which was presented by Laura Adams, Director of Operations of the Telemedicine Center at the Medical College of Georgia, was included in the panel discussion. Other panelists included Karen S. Rheuban, M.D., from the University of Virginia Health Center; Hudnall R. Croasdale, Director of the Council on Information Management; and Charles C. Livingston, Director of the Department of Information Technology.

Following the initial staff briefing and panel discussion, there was a public comment period during which time interested parties forwarded written comments to us on the report. In many cases, the public comments, which are provided at the end of this report, provided additional insight into the various topics covered in this study.

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October 31, 1995

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Authority for Study

House Joint Resolution (HJR) 455 of the 1995 Session directed the Joint Commission on Health Care, in consultation with the Council on Information Management and the Department of Information Technology, to evaluate the use of telemedicine to provide better, more accessible health care to the Citizens of the Commonwealth. Specifically, HJR 455 requested an evaluation of: (i) the means of implementing telemedicine; (ii) the success rate of telemedicine; (iii) potential cost savings from telemedicine, (iv) the potential of telemedicine to improve health care; and (v) the impediments to successful utilization of telemedicine. The Joint Commission was directed to complete its work in time to submit its findings and recommendations to the Governor and the 1996 Session of the General Assembly.

Introduction

Telemedicine, simply put, is the use of telecommunications technology to deliver health care services and health professions education to sites that are distant from the host site or educator. Telemedicine applications range from physician consultations via telephone, to televised medical education programs, to the use of two-way interactive television in which a provider at one site diagnoses or treats a patient at a distant site. Because of its potential to transcend distance, telemedicine is drawing increasing attention as a tool for improving health care services and health professions education in rural areas. Telemedicine is also drawing attention for its potential to improve the overall cost-effectiveness of health care.

As a result, there has been a spurt of research and demonstration projects aimed at developing the potential of telemedicine. Federal and state investment in telemedicine projects is expected to exceed $100 million during 1994-1995. Numerous federal agencies are providing support for research and demonstration projects to test the cost-effectiveness of telemedicine applications. More than a dozen states are providing legislative or financial support for telemedicine research as well as the

telecommunications infrastructure that makes telemedicine possible. Academic health centers are heavily involved in many of these federal and state projects.

The research to date shows that many "low-end" telemedicine applications have proven to be cost-effective tools for delivering health care and education. However, there is less clarity about the cost-effectiveness of "high-end" applications involving the delivery of health care via two-way interactive television. These applications are expensive to produce, and most third-party payers are not yet convinced that they are worthy of reimbursement. Yet, these same applications hold promise for improving access to high quality health care in rural areas, and should be developed further.

From a state policy perspective, it is important to recognize that telemedicine is a tool rather than an end in itself. In this context, telemedicine adds value to the extent that it can improve access to quality health care at an affordable cost. The Commonwealth could support the further development of high-end telemedicine by considering reimbursement for specific telemedicine procedures. The Commonwealth could also play an important role in developing a statewide telecommunications infrastructure capable of supporting state-of-the-art telemedicine projects.

Telemedicine Applications

Telemedicine applications may be used to deliver both clinical services and educational programs to distant sites. As shown in Figure 1, telemedicine delivery systems may include hospitals, clinics, and other health care providers. These providers are connected by some form of telecommunications infrastructure involving telephone lines, cable lines, or satellite links to carry the information over long distances, as well as hardware and software at each provider site. Six general types of telemedicine applications are summarized in Table 1, and Table 2 provides a list of specific clinical services for which telemedicine has been used.

Figure 1
Telemedicine Concepts

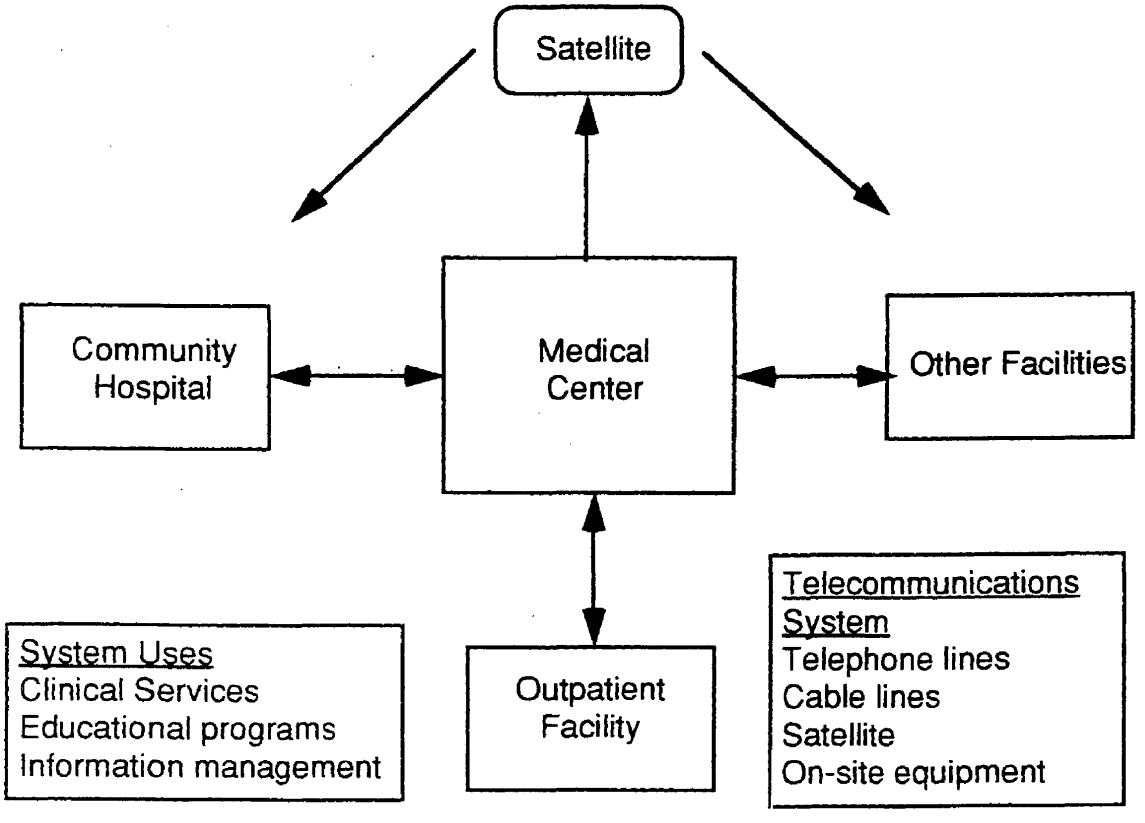


Table 1
The Spectrum of Telemedicine Applications

Application	Type of Information Transferred	Telecommunications Requirements
Medical consultation via telephone, facsimile, or computer	Voice, text, documents	Basic telephone/fax/ computer equipment; low capacity ground lines*
Research and education via computer	Text, documents	Basic computer equipment, modems; low capacity ground lines
Medical management using electronic patient records	Text, documents	Local- or wide-area computer networks; low or moderate capacity ground lines
Diagnostic consultation via electronic transmission of test results	Still images, text, documents	Local- or wide-area computer network; low or moderate capacity ground lines
Distance learning via video-conferencing	Live, one-way video, two-way audio	Audio-video equipment; satellite transmission or moderate capacity ground lines
Medical diagnosis and consultation via interactive television	Live, two-way video and two-way audio	Audio-video equipment, high capacity ground lines

* Ground lines include telephone or cable lines

Table 2
Clinical Services for Which Telemedicine Has Been Used

Cardiology	Ophthalmology
Dentistry	Pathology
Dermatology	Pediatrics
Emergency Care	Psychiatry
Endocrinology	Radiology
Home Care	Sign-language Communication
Disabilities Management	Sports Medicine
Neurology/Neurosurgery	Surgery
Obstetrics/Gynecology	Urology
Oncology	Veterinary Medicine

Source: Perednia, D.A. and Allen, A. (1995). *Telemedicine Technology and Clinical Applications.* JAMA, February 8, 1995.

Medical Consultation Via Telephone, Facsimile, or Computer. Physicians and other providers have provided telephone consultations to their colleagues for decades. More recently, the facsimile machine has allowed for the transmission of written consults. Over the past several years, advances in computer technology have facilitated widespread access to the Internet and other network services, which in turn allows providers to consult with colleagues around the world. These applications require the use of common telephone lines and basic telephone, fax, or computer equipment at each site.

Research and Education Via Computer: One of the most important resources for health care providers is access to recent research and continuing education on the latest developments in their practice. Through the use of personal computers and modems, practitioners and students can access Medline and numerous other health care research databases. They can also access on-line educational programs which may include text, color pictures and diagrams, and video clips. These applications typically require the use of computer modems and common telephone lines.

Medical Management Using Electronic Patient Records: There is growing interest among health care providers in the potential of the electronic patient record as a medical management tool. Within the hospital or clinic setting, the electronic patient record is replacing the paper record as the primary vehicle for documenting care and informing providers about a patient's medical history. In the public health setting, the electronic patient record is replacing paper systems for storing immunization records and other public health information. Electronic patient record systems typically require local- or wide-area computer networks and common or enhanced telephone lines.

Diagnostic Consultation Via Electronic Transmission of Test Results: One of the fastest growing telemedicine applications is the electronic transmission of diagnostic test results. This technology allows specialists at one site to receive and evaluate test results from another site. The most common applications are in the fields of radiology and pathology. These applications are often called "store and forward" applications because images are created and stored before being sent to the remote site, as opposed to being transmitted "live." These applications may require enhanced telephone lines or cable connections, as well as sophisticated computer equipment and high-resolution video monitors.

Distance Learning Via Video-Conferencing: Distance learning is becoming more important for all of higher education, including health professions education. Distance learning allows trainees and practitioners who are not on a campus to participate in educational programs at remote sites. Distance learning in various "canned" audio and video formats has been commonplace for years.

More recently, live video-conferencing of Grand Rounds and other health professions education programs has become commonplace. One provider interviewed for this study suggested that the idea of distance learning for health professionals could be extended to include distance learning programs for public health, in which citizens participate in educational programs for disease prevention, etc. A common approach to distance learning is to provide "one-way" video transmission via satellite or enhanced telephone lines, and two-way audio connections.

Medical Diagnosis and Consultation Via Interactive Television (IATV): Two-way interactive television (IATV) for medical diagnosis and consultation is the newest form of telemedicine. A typical application involves a patient and primary care provider seated in a telecommunications center in a rural hospital and a medical specialist seated in a large teaching hospital. The patient and local provider are able to view and hear the specialist, and vice versa. The specialist interviews the patient and local provider and, with the help of the patient and local provider, the specialist conducts a remote physical examination of the patient. Special attachments to the telecommunications equipment allow the specialist to hear the patient's heartbeat and view various test results.

IATV applications require a higher information transmission capacity, or "band width," than is commonly available through existing telephone, cable, or satellite systems. As a result, telecommunications system upgrades are usually required to implement IATV applications.

Potential Benefits of Telemedicine in Virginia

Advocates of telemedicine believe it has tremendous potential to improve access to health services in rural areas. While there is particular interest in the potential of IATV telemedicine in rural areas, other telemedicine applications also have tremendous potential for improving medical practice.

Potential to Improve Rural Health Care

Telemedicine has the potential to improve rural health care in several ways. Patients could benefit from telemedicine systems which allow convenient access to consulting specialists at distant facilities. To the extent that telemedicine plays a role in improving the practice environment for primary care providers, rural citizens could also benefit from a better supply of primary care providers. Rural communities could also benefit from a revitalization of local hospitals as a result of telemedicine.

Improved Access to Specialty Care. Most rural areas have neither the population nor the facilities to support the practice of many medical specialties. Patients in need of specialty care must often travel long distances and lose the continuity of receiving care in their own community. This is a particular problem for the rural uninsured who may lack the wherewithal to travel and take additional time off from work. Telemedicine could help to address this problem by allowing patients in need of specialty care to receive at least some of that care through a telemedicine consultation. Ideally, patients could have access to the highest quality providers available, avoid the time and cost of travel, and maintain their local support systems.

Improved Access to Primary Care. Another pressing rural health problem is lack of access to primary care. The primary care workforce is overly concentrated in urban and suburban areas, leaving primary care shortages in many rural areas of the Commonwealth. People in areas without an adequate primary care system are more susceptible to preventable medical problems such as hospitalizations for asthma and advanced stage cancers. In addition, the costs of preventable illness add weight to the economic pressures on rural health care systems. Again, lack of access to primary care is an even greater problem for the rural uninsured.

One of the major barriers to rural primary care practice is the sense of professional isolation among providers who lack convenient access to continuing education and professional support networks. Primary care providers often have a difficult time finding replacement coverage if they wish to attend and out of town professional development conference. An additional barrier to primary care practice is the difficulty of developing economically viable rural practices. Small rural practices often lack the economies of scale and population base available to urban practitioners.

In light of these problems, the Commonwealth has made primary care workforce reform a priority. The Virginia Generalist Initiative is designed to increase the overall supply of primary care providers. A key element of the Generalist Initiative is the practice of training medical students and residents in rural areas so that they can be exposed to the rural practice environment. Telemedicine could provide a virtual "umbilical cord" between trainees and their main campuses in the form of on-line or audio-video educational programs and advising. Trainees could also benefit from exposure to clinical telemedicine. In turn, their clinical teachers may benefit from having students who are adept at conducting computer-based research on the Internet and other electronic media.

The Virginia Practice Sights Initiative is focused on improving Virginia's ability to recruit and retain primary care providers in medically underserved areas. Primary care providers are more likely to set up practice in a rural area if they can count on ready access to consultation services and continuing medical education programs via telemedicine. In this context, telemedicine could also help to improve the quality of primary care practice in rural areas by giving providers access to educational programs which are tailored to rural health, as well as the prospect of consulting with the best specialists in the country. By extending the reach of providers across wide geographic areas, telemedicine could make rural primary care providers more viable network partners.

Improved Viability of Rural Hospitals: Rural hospitals have faced declining utilization as technological advances and reimbursement changes have fueled the migration of care from the inpatient to the outpatient setting. With the evolution of managed care, small rural hospitals are also at risk for being left out of provider networks. Telemedicine could be of benefit to rural hospitals by allowing them to continue serving and receiving payment for patients who would otherwise travel to a distant hospital. Telemedicine could also help rural hospitals to

become more viable partners in provider networks if they are able to provide more cost-effective care in the local setting.

Potential to Improve Medical Practice

Telemedicine systems have the potential to improve medical practice in several ways which could ultimately result in more cost-effective medical care in rural or urban settings. Potential benefits include better patient information for managed care, greater opportunities for medical effectiveness research, better integration between public and private health care, and better informed providers.

Patient information systems for managed care networks: As health care providers form networks for managed care delivery, the electronic medical record is envisioned to be part of the "glue" that holds the network together. Ideally, as the patient moves from primary care physician to specialist to diagnostic testing site to hospital, the electronic patient record will follow. Each provider will have immediate access to the patient's recent experience within the network, thus helping to assure better continuity of care.

Support of clinical pathways research: The electronic medical record also holds potential as a tool for research on effective clinical practices, or "clinical pathways." In this sense, the electronic record is not only a recording of what happened to the patient, but what medical decisions were made, and by whom. Clinical staff can use the electronic patient record data base to identify their own historical practice patterns with respect to patients with a given medical problem. These patterns can be critiqued by the staff to determine the most effective approaches, which can then be incorporated into the staff's clinical protocols.

Integration of public and primary health care: A third potential use of the electronic medical record is to improve the integration of public health and primary care. For example, one of the most cost-effective medical interventions is the immunization of children. Yet, child immunization rates are lagging, in large part because children do not receive the appropriate vaccines between ages one and four.

According to Dr. Stephen Borowitz of the University of Virginia Health Sciences Center (UVAHSC), child immunization rates could be improved dramatically if health care providers were able to have convenient access to immunization records when children visit them for

routine checkups or medical treatment. One way to facilitate this access is to allow providers to access electronic immunization records from public health departments. UVAHSC has worked with local health departments and providers in its region to develop VaCCine, a regional computerized immunization data base which provides participating physicians with quick access to child immunization records.

Information for providers: Telemedicine applications such as computer bulletin boards and on-line data bases can enhance medical practice by keeping providers informed about the myriad issues which affect their lives. A partial list of information which can be provided via computer bulletin boards and data bases includes:

* Health Department updates on immunization guidelines, infectious disease issues, etc.

* Posting of new information from insurance companies, Medicaid, and Medicare

* Clinical guidelines for medical practice

* Access to Medline and other health care research and education data bases

* On-line consultation with practice management experts

* Continuing medical education opportunities

* Email to other providers, educational institutions, professional societies, and others.

Federal and State Support of Telemedicine

Given the perceived potential of telemedicine, federal and state activity in this area has mushroomed over the last few years. Within Virginia there are a number of ground-breaking initiatives underway, most of which are supported with federal funds, although at least two are benefiting from state funding.

Federal Initiatives

During 1995 at least 15 federal agencies will sponsor telemedicine research and demonstration programs. Agency sponsors range from the Office of Rural Health to the Food and Drug Administration to the Department of Commerce. Funding of more than $80 million will be provided for dozens of individual projects representing all of the potential telemedicine applications outlined earlier. Key among these are four, three-year demonstration projects supported by the U.S. Health Care Financing Administration (HCFA) to evaluate the cost-effectiveness of IATV telemedicine:

* The Mercy Foundation in Des Moines, Iowa will develop a telemedicine network and evaluate a program for treating patients among six rural hospitals, one referral hospital, and its urban hub facility.

* University Medical Center of Eastern Carolina in Greenville, North Carolina will determine the effectiveness of linking two rural sites to the medical center via telemedicine technology. Case studies will be developed and hard data describing the impact and quality of medical care in remote areas will be generated.

* West Virginia University Hospital will investigate whether changing the Medicare reimbursement policy for telemedicine will enhance patient's access to care and improve the quality of care delivered in rural areas while limiting the grow of health care spending. The major objective of the project is the development of a reimbursement system for inpatient telemedicine consultations.

* The University of Michigan will independently assess telemedicine networks in West Virginia and in Georgia using cost and utilization

data. A detailed methodology for evaluating telemedicine will be developed by a panel of experts.

These projects involve waivers to allow Medicare reimbursement for IATV telemedicine services. HCFA plans to use the results of these studies to make decisions about instituting reimbursement for IATV telemedicine under the Medicare program.

Initiatives in Other States

According to the National Conference of State Legislatures, telemedicine projects are now in progress in more than 35 states. In many cases, they are run through universities with federal funding. Arkansas, Colorado, Florida, Georgia, Illinois, Kansas, Kentucky, Nebraska, North Carolina, Oklahoma, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, and Washington have passed legislation that in some way supports telemedicine. State actions have included appropriating funds for telemedicine, restructuring tariffs for telephone lines, creating or extending the use of statewide telecommunications systems, or forming task forces and commissions to explore the applications of telemedicine. The following examples illustrate various state approaches.

* With the help of $8 million in state non-general funds, the Medical College of Georgia Telemedicine Center has established a statewide telemedicine network linking 59 publicly funded health care and correctional facilities across the state. The major aims of the project are to extend access to high quality health care to Georgia's rural areas, and to provide support to rural providers in need of continuing education and consultative support. The network allows patients, health care providers and educators at the 59 sites to communicate via live two-way video. Specialty consultations and educational programs are provided through the network. (For more detail on the Georgia initiative, see Appendix A.)

* Oregon has created a Center for Advanced Telemedicine Research at the Oregon Health Sciences University. The Center is partially funded by the state. The work done at the Center has focused mostly on the development of effective teledermatology systems.

* The University of Kansas Medical Center operates as the central hub for a telemedicine program for five remote sites. The system has been used to conduct IATV consultations in psychiatry and

neurology, as well as provide educational programming in conjunction with the Kansas Area Health Education Centers Program. The state of Kansas leases telecommunications lines from AT&T and passes significant cost savings on to the telemedicine project.

* East Carolina University has developed a series of telemedicine clinics for providing health care to inmates of North Carolina prisons. The state corrections agency paid for the initial equipment costs, and pays a fee for each clinical consultation. The state hopes to reap significant cost savings by reducing the need to transport prisoners under guard for health care services.

Virginia Projects

Virginia, like most states, has not adopted a statewide strategy for telemedicine. However, Virginia providers have been active in seeking federal and private funding for telemedicine research and demonstration projects. The following examples represent a cross-section rather than a comprehensive list of telemedicine projects operating or under development in Virginia.

* The Virginia Commonwealth University-Medical College of Virginia (VCU-MCV) is working with the Blackstone Family Practice Center to develop an IATV telemedicine system for clinical consultation and education. The project is supported by a total of $200,000 from the Higher Education Equipment Trust Fund and University of the 21st Century funds. The Department of Information Technology is helping to develop an affordable telecommunications system for the project.

* VCU-MCV and the Department of Corrections (DOC) are developing an IATV telemedicine program for the Powhatan Correctional Center. The project will be supported with $150,000 in state general funds appropriated to the Department of Corrections for FY 1996. The Department of Information Technology is providing assistance with this project as well.

* UVAHSC and Rockingham Memorial Hospital have developed an IATV telemedicine pilot project for clinical consultation and education. The project is funded through federal and private

support. UVAHSC negotiated discounted telecommunications rates with local telephone carriers for a one year pilot test period.

* A consortium of mental health providers in Southwest Virginia has developed the Southwestern Virginia Telepsychiatry Project. This project will use IATV telemedicine technology to deliver mental health services between the Southwestern Virginia Mental Health Institute and three rural community service boards sites (Cumberland Mountain, New River Valley, and Dickenson County). A special feature of this project is that family members will be able to use the system to visit their loved ones via interactive television. The project is federally funded.

* The Virginia Department of Health has developed a wide-area network for its local health departments. This network allows local and district offices to key in public health data, which in turn allows the Department to quickly develop a variety of statistical reports and other management reports. The network also gives local departments access to numerous on-line research and education databases. The Department is exploring ways to expand the network to allow private providers to electronically submit public health data, as well as use the network to access on-line research and education data bases. The network has been developed with federal funds.

* The Eastern Virginia Area Health Education Center (AHEC) is working with the Center for the Advancement of Generalist Medicine at Eastern Virginia Medical School to develop a system for providing Eastern Shore health care providers with access to the Internet and numerous health care research and education data bases. The two organizations are also exploring the feasibility of broadcasting grand rounds and other educational programs to Eastern Shore providers.

More detailed profiles of these and other Virginia telemedicine projects are provided in Appendix B.

Unresolved Issues Surrounding Telemedicine

There are a number of unresolved issues surrounding telemedicine. Although IATV telemedicine is drawing the most attention as a vehicle for expanding access, there is some uncertainty about the demand for these services. One of the factors affecting demand is the presence or lack of reimbursement, and third party payers are still wary about reimbursing for IATV telemedicine services. Additional implementation issues include the cost and logistics of developing the necessary telecommunications system for IATV telemedicine, as well as uncertainty about the need for standards of telemedicine practice.

Uncertainty About Provider Acceptance of IATV Telemedicine

Several issues must be resolved if providers are to accept telemedicine and use it effectively. In other states, the introduction of telemedicine services has caused anxiety among community providers who are uncertain of how telemedicine might affect their practice. The economic incentives of telemedicine may also be uncertain, depending upon the formal relationships between the providers and the impact of uncompensated care. In addition, there are still a number of practice issues which must be addressed if providers are to embrace telemedicine.

In light of these issues, there is a growing realization that thorough needs assessment should be conducted before making a commitment to a major telemedicine initiative. There must be a clear demand for telemedicine services on the part of providers and patients, and the system must be tailored to meet these needs.

Competitive Issues: Rural providers could experience anxiety about the impact of telemedicine, and IATV telemedicine in particular, on their practice. This issue is captured by the following excerpt from a report by the Center for Health Policy Research in Denver, Colorado, which was commissioned by the U.S. Health Care Financing Administration to study the potential of telemedicine to expand access to care.

> *It has been the experience of many telemedicine programs that the introduction of this technology into rural areas is viewed as a threat by many physicians and providers. There are concerns that referral networks will be disrupted, that patients will be "stolen" by*

specialists at urban medical centers, and that the viability of rural community hospitals will be damaged.

The Medical College of Georgia has addressed this issue in several different ways. First, they have collected data that show that approximately 85% of patients examined via telemedicine are able to be treated in their own communities in conjunction with interactive video consultation. They have also established a program whereby physicians in rural areas who use the telemedicine system are able to obtain Category 1 continuing medical education credit for the time spent on interactive consultation. The approach has thus been to attempt to demonstrate the utility of telemedicine for rural communities.

Uncertain Economic Incentives: A related issue is the economic impact of IATV telemedicine on consulting medical centers and rural providers. Simply put, a patient day gained by the rural hospital as a result of telemedicine could mean a patient day lost by the consulting institution. This could make sound economic sense if the two providers are jointly participating in a managed care network, and therefore share a financial incentive to deliver the care in the most cost-effective fashion, or if the consulting institution stands to gain from an exclusive or nearly exclusive referral arrangement with the rural provider.

The cost benefit analysis becomes more complicated if the providers serve large numbers of uninsured patients. If there is no source of payment for the patient, then the medical center and the rural provider must be willing to serve the patient in the most cost-effective setting based on their commitment to community service, research, and education. In these instances, the rural hospital may be called upon to absorb the cost of additional uncompensated hospital days which would have been provided by the consulting medical center under the conventional system. These issues make it difficult to develop a comprehensive cost-benefit analysis of telemedicine.

Practice Issues: The most basic requirements for provider acceptance of a given telemedicine service are that it be medically effective and satisfactory to the patient. The telemedicine service must also make efficient use of the provider's time, so that the provider does not have to spend extra time or trouble to execute a telemedicine consultation. If the telemedicine application is done in a teaching environment, it must have demonstrable educational value as well. There also must be overarching administrative leadership and support for the use of telemedicine so that

adequate staff and capital resources will be allocated to the development and maintenance of telemedicine systems.

From the patient's perspective, there are immediate benefits to telemedicine such as avoidance of the time and cost of travel, and the ability to maintain a local support system. However, the patient must also be satisfied with the quality of care and the experience of visiting with a provider via television rather than face to face. The patient should also be comfortable with the use of electronic media to record their personal information. To date, there has been little research published in patient satisfaction with telemedicine services.

Uncertainty About Reimbursement for IATV Telemedicine

Several important concerns must be answered before reimbursement for IATV telemedicine is widely accepted by third-party payers. At the same time, it is important to recognize that as the market shifts toward capitated managed care programs, reimbursement decisions will shift from third-party payers to HMOs and provider networks.

What Services Should Be Covered? Third-party payers typically provide reimbursement for "store and forward" applications such as teleradiology and telepathology. These applications involve one provider interpreting a radiological or pathological test at a remote site. These types of services are often provided at another site even under conventional medicine. The diagnostic test results are simply being transmitted electronically instead of physically, which does not alter the basic practice which has been in place for years.

Third-party payers are more cautious when they consider reimbursement for IATV telemedicine. Medicare is conducting four reimbursement pilot projects at different sites around the country, but as yet has not changed its policy of not reimbursing for IATV telemedicine services. Within Virginia, neither Trigon Blue Cross Blue Shield nor the State Employee Health Benefits Program reimburse for IATV telemedicine services. Virginia Medicaid is evaluating the possibility of paying for IATV telepsychiatry services in Southwest Virginia. The Department of Corrections is working with VCU-MCV to IATV telemedicine program at the Powhatan Correctional Center.

One reason for caution among third-party payers is the fact that there are few clinical studies of the effectiveness of IATV telemedicine

applications. IATV applications are relatively new, and there has not been enough time for researchers to conduct well-designed clinical studies and publish the results. However, Medicare, Medicaid programs in several states, and Blue Cross plans in at least two states have been willing to reimburse for specific services, at least on a pilot basis. Also, the major pilot projects underway right now all include an evaluation component, and the literature on the clinical effectiveness of IATV telemedicine should expand in the near future.

Who should be paid? The cost of an IATV consultation involves the cost of the provider's time at each site as well as the cost of the IATV telecommunications system. In the fee-for-service setting, the third-party payer must decide whether to pay one provider or both, as well as whether to recognize the cost of the telecommunications system. If the payment requested by the providers is higher than that for a conventional consultation, the third-party payer must decide whether an incremental payment is justified by the benefits to the patient, or by other cost savings resulting from the use of IATV telemedicine. One such cost saving might be the cost differential between a hospital stay in a more expensive tertiary care hospital for a conventional consult, and a stay in a less expensive local hospital for a telemedicine consult.

An additional cost consideration for certain third-party payers is that of patient travel. Most third party payers do not cover the costs of patient travel, and therefore do not consider these costs in reimbursement decisions. However, the Virginia Medicaid program pays travel costs for Medicaid beneficiaries who must travel to receive medically necessary services. Also, the Department of Corrections pays the cost of transporting prisoners for health care services. Both of these programs would factor travel cost savings into a cost benefit analysis of IATV telemedicine services.

Will telemedicine fuel cost inflation? Some third-party payers are concerned that telemedicine will actually fuel health care cost inflation. There has been a tendency for new medical technology to stimulate increases in utilization which drive up overall expenditures for a service. One concern is that if telemedicine referral services are easily available and reimbursable, physicians may develop a tendency to over-refer patients. Another concern is that physicians who commonly provide brief, free consultations via telephone will begin to deliver these consultations via IATV and expect to be paid. As yet there is no empirical research demonstrating that either of these possibilities is occurring.

The changing reimbursement environment: The preceding discussion must be considered in light of the fact that the reimbursement environment for IATV telemedicine is likely to change with the continued evolution of managed care networks operating under capitated reimbursement. Under the fee-for-service scenarios outlined above, it is typically left to the third-party payer to decide whether to reimburse one or more providers for telemedicine services. Under capitated payment, third-party payers will make a fixed payment to the provider network for each covered individual. It will then be left to the network to decide whether to use IATV telemedicine to deliver service, and how to distribute payments for those services. These networks will have strong financial incentives to develop cost-effective telemedicine applications.

High Costs and Difficult Logistics of IATV Telecommunications Systems

The costs and logistics of developing telecommunications systems for most telemedicine applications are generally manageable for providers at the host site. However, providers interested in participating in IATV telemedicine services must have access to an advanced telecommunications system so that medical information can be sent from site to site at an acceptable level of speed, quality and price. These systems involve on-site equipment, a telecommunications infrastructure, and a telecommunications link to provide "last mile" coverage between the health care facility and the infrastructure (as shown in Figure 2 and described in the following sections).

Currently, it appears that Virginia has an adequate telecommunications infrastructure to support telemedicine. However, the cost of on-site equipment, the cost of last mile coverage, and telecommunications industry regulations are perceived as problems for rural providers. The latter two problems may be at least partially addressed as a result of recent legislation and a broad-based evaluation of the state's telecommunications infrastructure.

Telecommunications Infrastructure: According to a recent report conducted by the University of Virginia Center for Risk Management of Engineering Systems for the Virginia Telephone Association, Virginia has a strong telecommunications infrastructure in place. Existing telecommunications fiber covers 95% to 97% of local exchange carrier (LEC) offices in the Commonwealth, and fiber connectivity between all offices is planned within the next two to three years (Figure 3). This means

that the vast majority of rural health care providers either have access to an adequate "information highway" now, or will in the near future.

Figure 2

Major Components of a Telemedicine Telecommunications System

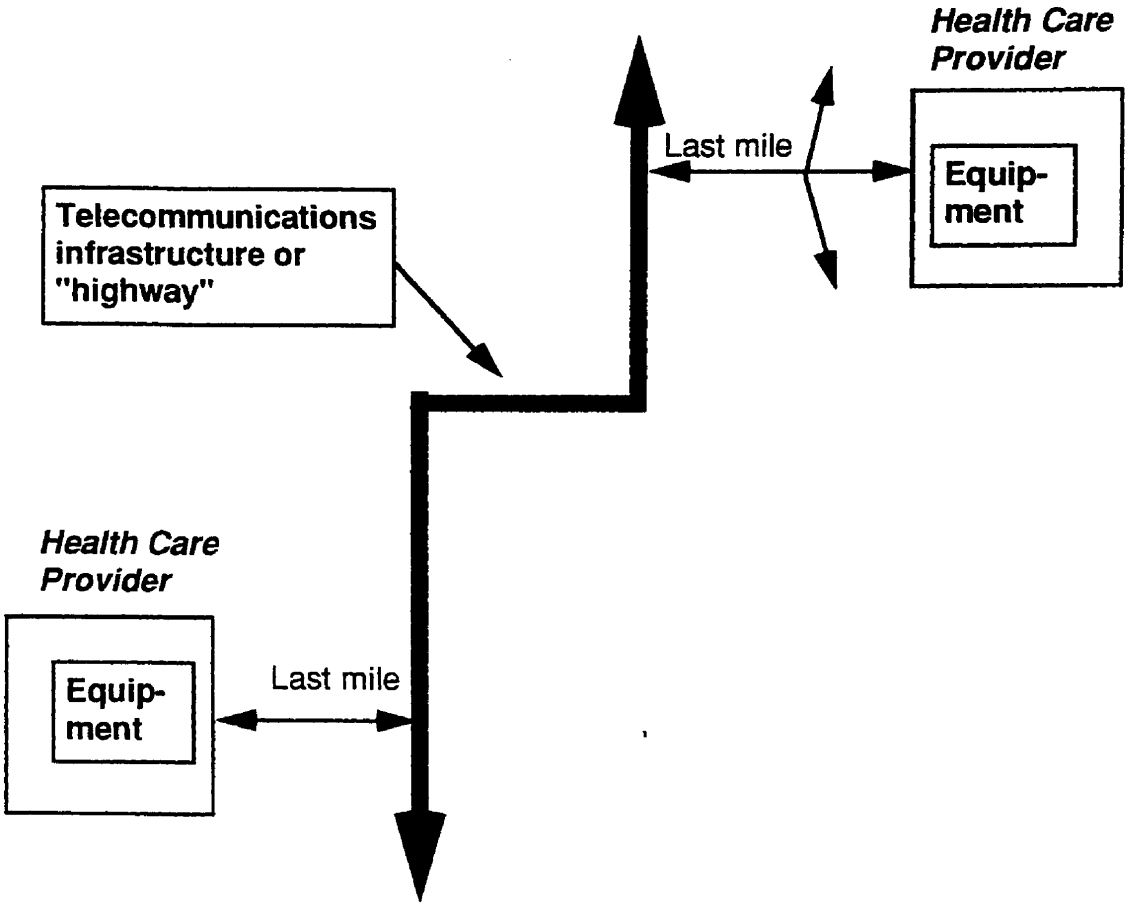
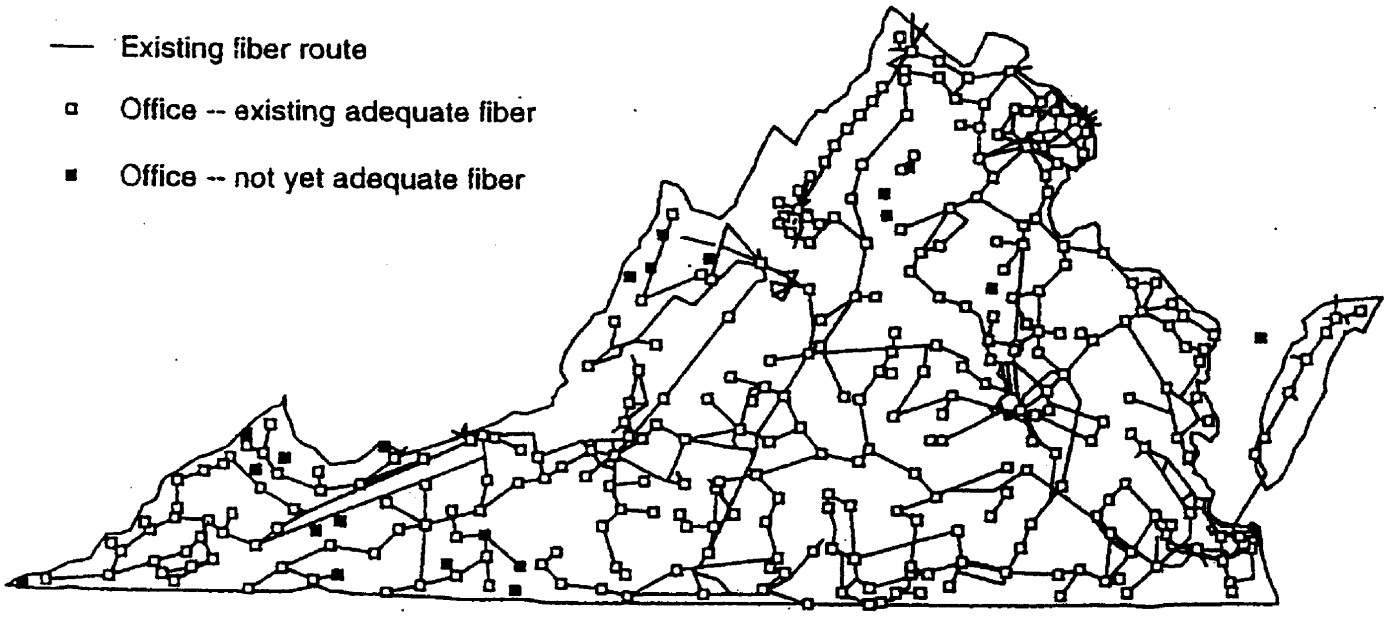


Figure 3

Existing and Planned Fiber Routes Among Local Exchange Carrier Offices



Source: Center for Risk Management of Engineering Systems (1995). Virginia Broadband Network Study Final Report.

On-Site Equipment Costs: IATV telemedicine requires on-site equipment which will allow the patient and provider at one site to see and hear the provider at the other site. The cost of this equipment can range from $50,000 to $150,000 depending on the requirements of the system. Equipment costs will vary depending on the level of sophistication required as well as the availability of volume discounts from vendors. One option for providers would be to attempt to reduce unit costs by creating purchasing cooperatives for telemedicine equipment.

Last Mile Coverage: Last mile coverage, or the connection between the health care facility and the main telecommunications infrastructure, is a distinct problem for rural health care providers interested in IATV telemedicine. IATV telemedicine requires high-capacity telecommunications lines which can carry live video images over long distances within a short period of time. Because normal telephone lines do not have this capacity, rural providers are often faced with the choice of acquiring a dedicated line to link their facility with the fiber infrastructure. The cost of such lines can be prohibitive, ranging as high as $8,000 per month. (Several of the current pilot projects in Virginia are benefiting from discounted telephone company rates for a fixed period of time.)

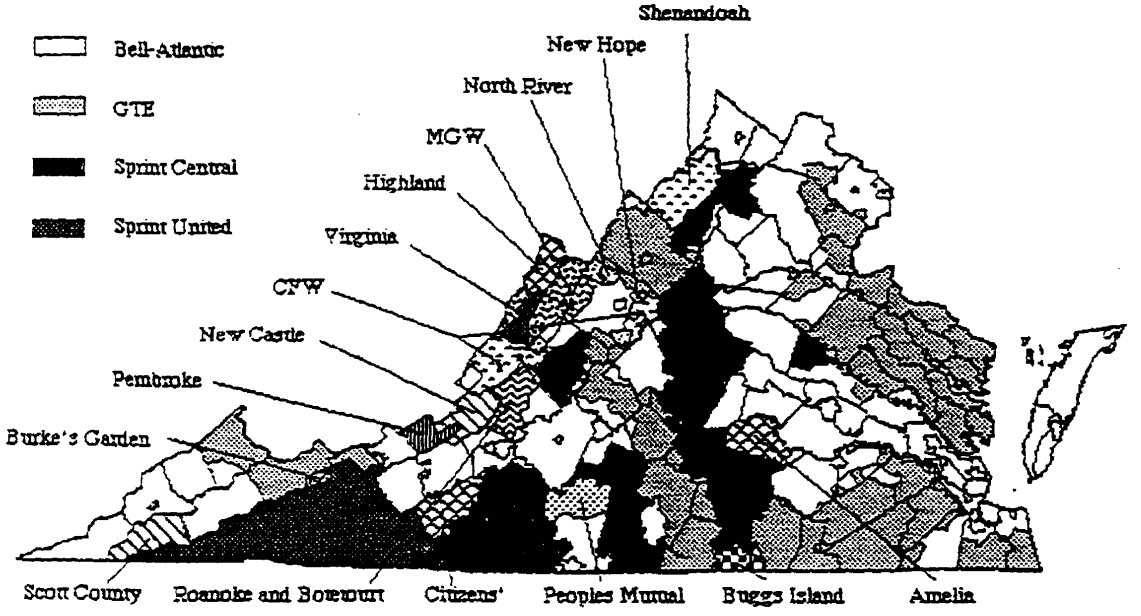
Ideally, rural providers would like to have access to "band width on demand" instead of a dedicated line. Band width on demand would allow them to use as much band width as necessary, and only when they wish to use it. The question is how to make band width on demand economically feasible for the telecommunications carrier as well as the provider. Some telemedicine experts have proposed the idea of creating local consortia of telecommunications users who could share the costs of a high capacity local telecommunications system. Others have proposed negotiating statewide "essential service" rates for telemedicine applications.

Looking ahead, recent legislation passed by the 1995 General Assembly could have an important impact on telecommunications costs for telemedicine systems. Currently, local exchange carriers have designated service areas which they alone serve. Senate Bill (SB) 880 will allow competition for local telephone service within the current service territories, effective January 1, 1996. Local competition could create new opportunities for health care providers interested in negotiating more favorable rates for telecommunications services.

Telecommunications Regulations: Providers in Virginia and in other states have identified telecommunications regulations as a significant problem in the development of effective IATV telemedicine systems. The establishment of local telephone service areas with the breakup of the Bell system has resulted in differences in tariff rates and policies among service areas (Figure 4).

Figure 4

Geographic Territories of Local Exchange Carriers in the Commonwealth



Source: Center for Risk Management of Engineering Systems (1995). Virginia Broadband Network Study Final Report.

This situation can make it difficult to coordinate telemedicine projects which cross multiple local telephone service areas. (The problem may be less severe for state institutions which are not subject to the same tariff requirements as private entities.)

Broad-Based Infrastructure Planning to Encompass Telemedicine: The Information Technology Infrastructure Initiative, established by Executive Memorandum 1-95, could also have important implications for the future of telemedicine in Virginia. The purpose of this initiative is to:

> *"...bring focus, coordination and new energy to Virginia's statewide information technology infrastructure and to further promote the establishment of a modern, state-of-the-art telecommunications and*

information technology network, fully utilized by state agencies and institutions as well as local governments and the public."

The Secretary of Administration is to provide overall direction to the initiative, and the Council on Information Management (CIM) is responsible for advising the Governor on establishing an information technology infrastructure in Virginia. A Virginia Information Technology Task Force has been established to review the issues, and an initial report is due to the Governor this year. The plan is to identify:

* Applications providing cost benefits and efficiencies if implemented on a statewide basis;

* Applications critical for purposes of economic development and those defined as critical to localities;

* Roadblocks to implementation and recommended legislative or State Corporation Commission action;

* Strategic plans for implementing applications providing the greatest benefit.

Although final recommendations are pending, the Director of the Council on Information Management has indicated that the Virginia Information Technology Infrastructure Task Force is considering telemedicine as an important application of telecommunications technology in Virginia.

Uncertainty About the Need for New Practice Standards

The evolution of telemedicine raises new questions about standards of medical practice. Commonly raised issues include protection of patient rights, provider licensure, and risk management.

Patient Rights: The confidentiality and privacy of personal health records is obviously an important concern under conventional medicine or telemedicine. The use of electronic record systems in telemedicine requires new methods for data protection. The most widely advocated approaches are data encryption and elaborate electronic "security fences" around sensitive data bases. As is the case with physical record keeping, there are no fail-safe methods of data protection in the electronic environment. However, many experts contend that the potential for electronic intrusion

and exposure of patient records is no greater than, and in some cases less than, the potential for illegal access in paper record keeping systems.

A related issue is the right of patients to decide who has access to their records. The issue is what rights the patient should have in decisions to use electronic patient records which are compiled for uses other than direct care, such as research and education. Here again, patient rights are an issue in the conventional medicine environment as well as the telemedicine environment.

Provider Licensure: Telemedicine creates the potential for providers in one state to deliver services to patients in other states. While licensure for telemedicine services is not explicitly addressed under current law, it is generally understood that a Virginia physician delivering telemedicine services to a patient in another state would have to be licensed in that state. Conversely, an out-of-state physician should be licensed in Virginia before delivering telemedicine services to a Virginia patient. Some telemedicine researchers have raised the option of developing national licensure standards to facilitate multi-state practice under telemedicine. For the time being, according to the Virginia Department of Health Professions, the process for obtaining licensure in other states is generally not arduous and can be completed in about three weeks.

Risk Management: Telemedicine also raises the following new questions about medical liability and malpractice:

* What is the liability of the telecommunications vendors for system failures that affect the medical treatment of the patient?

* What is the appropriate "standard of care" for a given telemedicine service?

* What is the obligation of providers to maintain recordings of telemedicine patient encounters, and what would be the value of such recordings in a malpractice suit?

These questions have yet to be answered through legal precedent. In the meantime, several of the major telemedicine projects across the country are attempting to develop standards for telemedicine technology and practice.

Options for Supporting Telemedicine in Virginia

In considering the options for supporting telemedicine in Virginia, it is important to keep five summary points in mind.

* Telemedicine has value to the extent that it addresses needs for better access, quality, or cost-effectiveness; it is not an end in itself. If telemedicine is to be used effectively, it must be tailored to meet the needs of rural communities and the providers who deliver care.

* Over the long run, reimbursement will drive the development of effective telemedicine applications. Until telemedicine reimbursement becomes mainstream, large grants or public subsidies will be required to operate high-end telemedicine systems.

* It is difficult to conduct a comprehensive cost benefit analysis of IATV telemedicine because of the high percentage of people without insurance in rural areas.

* Telecommunications is a problem for some rural providers who want to use IATV telemedicine. Local competition for telecommunications services and the Information Technology Infrastructure Initiative could help to address these problems.

* While much of the popular debate over telemedicine is focused on high- end applications involving IATV imaging, educational and other low-end telemedicine applications are also very important.

Option I: Status quo.

Under the status quo, it is likely that telemedicine applications will evolve at a pace which is consistent with market forces. IATV applications will evolve slowly until Medicare and other payers decide to provide reimbursement for high-end telemedicine services, or until capitated health plans begin to make their own decisions about utilization of this form of telemedicine.

Option II: Request the Secretary of Administration and the Secretary of Health and Human Resources to develop a policy for considering reimbursement for telemedicine services by state health programs.

This option would help ensure that consideration is given to cost-effective telemedicine services in state-financed health care programs. A policy could be developed for considering reimbursement on a pilot basis if this is deemed necessary to demonstrate the cost-effectiveness of a given telemedicine service.

Option III. Request the Department of Corrections and the state academic health centers to examine the feasibility of establishing additional telemedicine consultation services for selected sites in the state corrections system.

As described earlier, the Department of Corrections and VCU-MCV are currently developing a telemedicine project for the Powhatan Correctional Center. With the evolution of its telemedicine resources, the University of Virginia might also have the capacity to develop a companion project in the western part of the state. Under this option, the Department of Corrections and both state academic health centers would be requested to examine the feasibility of developing additional projects.

Option IV. Encourage the Virginia Health Care Foundation to consider supporting projects which extend primary and preventive health care services to the uninsured in medically underserved areas through the use of telemedicine.

The Virginia Health Care Foundation promotes and supports local public/private partnerships that extend primary and preventive health care services to Virginia's uninsured citizens. The Foundation looks for projects which feature innovative service delivery models and strong local support, and requires each project to be evaluated for its effectiveness. These features could make the Foundation an appropriate vehicle for developing effective approaches to telemedicine. This option would encourage the Foundation to consider supporting projects within the scope of its mission which use telemedicine as part of a strategy to extend primary and preventive care to the uninsured.

Option V. **Request the Council on Information Management, as part of the Information Technology Infrastructure Initiative, to evaluate roadblocks to implementation of telemedicine applications in rural Virginia and recommend legislative or regulatory action.**

The Director of the Council on Information Management has already indicated that the Virginia Information Technology Infrastructure Task Force considers telemedicine to be a potentially important application of telecommunications technology. This option would affirm the importance of telemedicine as a tool for improving Virginia's health care system and request the CIM to include specific recommendations for addressing roadblocks to the implementation of telemedicine in its reports to the Governor.

APPENDIX A

Appendix A

Profile of Georgia's Statewide Approach to Telemedicine

With the help of the state, the Medical College of Georgia Telemedicine Center has established a statewide telemedicine network linking 59 publicly funded health care and correctional facilities across the state. The project seeks to extend access to high quality health care to Georgia's rural areas, and to provide support to rural providers in need of continuing education and consultative support. The network allows patients, health care providers and educators at the 59 sites to communicate via live interactive television (IATV). Specialty consultations and educational programs are provided through the network.

The network was established through the Georgia Distance Learning and Telemedicine Act of 1992, which created a statewide board to plan for and oversee distance learning and telemedicine in Georgia. The legislation also made available approximately $8 million in excess earnings from Southern Bell Telephone to be used to support the purchase of equipment and other infrastructure requirements at 50 publicly funded health care institutions. Program staff are currently exploring the possibility of using lottery funds for continued support of the network.

The availability of reimbursement has been a key factor in the network's success to date. The Health Care Financing Administration (HCFA) has granted a waiver for Medicare reimbursement, and Georgia Medicaid and Georgia Blue Cross and Blue Shield have agreed to provide reimbursement as well. The state Department of Administrative Services also played an important role in negotiating affordable telecommunications rates with Georgia telephone companies.

HCFA is also supporting a major evaluation of the Georgia program by the University of Michigan. One of the most important evaluation findings is that 85 percent of consultations to date have allowed patients to receive definitive care at home without having to travel by car or ambulance to a distant hospital.

APPENDIX B

Appendix B

Profiles of Selected Telemedicine Initiatives in Virginia

Virginia Commonwealth University-Medical College of Virginia and Blackstone Family Practice

VCU-MCV is working with the Blackstone Family Practice Center in Blackstone, Virginia to develop a telemedicine system for clinical consultation and education. Clinical consultation services will include cardiology, orthopedic surgery, and dermatology. The telecommunications system will provide for interactive television (IATV) communications. Students and residents will aid in the presentation of patients at Blackstone to the specialists in Richmond. Funding sources include $75,000 from the Higher Education Equipment Trust Fund and $125,000 from the University of the 21st Century Fund. The Department of Information Technology is helping to develop a low-cost telecommunications system for the project.

Virginia Commonwealth University-Medical College of Virginia and the Department of Corrections

In response to budget language passed by the 1994 General Assembly, VCU-MCV is working with the Department of Corrections to develop a "correctional telemedicine " program at the Powhatan Correctional Center. The 1995 General Assembly approved $150,000 to support a telecommunications project. The major goals of the project are to provide clinical care to inmates with HIV/AIDS using IATV telemedicine technology, to train health professionals at VCU-MCV and DOC in the use of telemedicine systems. The pilot study will be for a two year period beginning on July 1, 1995. The Department of Information Technology is helping to develop a low-cost telecommunications system for the project.

University of Virginia Health Sciences Center and Rockingham Memorial Hospital

The University of Virginia Health Sciences Center and Rockingham Memorial Hospital are involved in a joint project to bring telemedicine

consultation and educational programs from the University to Rockingham Memorial. In April of 1995 the first demonstration consultation via IATV was conducted for an infant with heart problems. The telecommunications system is also used to transmit educational programs including Pediatric Grand Rounds and Urology Grand Rounds from UVAHSC to RMH. A grant from a local telephone company is helping to support the project.

PACS: Picture Archiving and Communication System at the University of Virginia Health Sciences Center

The Departments of Radiology and Neurosurgery at the University of Virginia have developed a teleradiology application called PACS: Picture Archiving and Communication System. PACS is a telecommunications system which allows radiological images such as CT scans and MRI examinations to be transferred between UVAHSC and remote sites via a telecommunications system. Current sites include Culpeper Community Hospital and two off-campus clinics. UVAHSC staff believe the system has allowed for more timely and more efficient radiological interpretation, improved the quality of care, and reduced costs.

Southwestern Virginia Telepsychiatry Project

The Southwestern Virginia Telepsychiatry Project seeks to provide integrated mental health services within a two-thousand square mile region of rural Southwest Virginia using state-of-the-art interactive television technology. Project participants include the Southwestern Virginia Mental Health Institute, Cumberland Mountain Community Services, New River Community Services, and Dickenson County Community Services. Services will include outpatient psychiatric clinics supported by psychiatrists at the Institute and the Community Service Boards. Families will also be able to use the system to visit their loved ones through interactive television. The project is being supported through a $900,000 federal grant. Also, Virginia Medicaid is considering reimbursement for telemedicine services delivered through the project.

Educational Telemedicine in Eastern Virginia

The Eastern Virginia AHEC and the Center for the Advancement of Generalist Medicine at the Eastern Virginia Medical School are

collaborating to extend health professions education programs to health care providers on the Eastern Shore. Plans are being developed to provide Eastern Shore providers with access to the Internet and a variety of national, state, and local data bases for research and education. The two organizations are currently working together to produce television broadcasts of grand rounds and other educational programs to the immediate area, and are exploring strategies for extending these broadcast to providers on the Eastern Shore.

VMedNet

The Virginia Medical Information Network is an electronic network of health care providers and information linked via the Internet. VMedNet was established by the University of Virginia Health Sciences Center with partial funding from the National Science Foundation and the National Library of Medicine. VMedNet is meant to serve as a central clearinghouse of clinical and educational resources, including electronic consultation with UVAHSC faculty; VaCCine, a computerized regional immunization data base; electronic access to the UVAHSC library and the National Library of Medicine; access to electronic mail and health care bulletin boards; and access to on-line tutorials for continuing medical education credit.

Virginia Department of Health
Health Information Network

Since 1993 the Virginia Department of Health (VDH) has used federal funds to develop a wide area network for its public health departments. This network allows local and district offices to key into a distributed data base birth records, death records, immunization records, and other public health data. These data are then almost immediately available for use in statistical analyses and management reports. In 1995, the system was upgraded to allow local health departments to use the system to access local, state, and national computer data bases. The VDH is currently working with the Williamson Institute at VCU-MCV and the Central Virginia Health Network to obtain a federal grant for upgrading the system. The upgraded system would allow health care providers to access immunization records and other currently accessible public health data via computer.

APPENDIX C

GENERAL ASSEMBLY OF VIRGINIA -- 1995 SESSION

HOUSE JOINT RESOLUTION NO. 455

Directing the Joint Commission on Health Care, in consultation with the Council on Information Management and the Department of Information Technology, to study "telemedicine."

Agreed to by the House of Delegates, February 4, 1995
Agreed to by the Senate, February 21, 1995

WHEREAS, according to the American Telemedicine Association, U.S. citizens logged more than one trillion miles of travel for medical purposes in 1993; and

WHEREAS, if only one-quarter of this travel could be avoided by using videoconferencing, the savings could amount to approximately $132 million per year; and

WHEREAS, telemedicine can improve health, especially in rural areas, by increasing access to health care providers, decreasing the geographic and professional isolation of rural physicians, improving physician recruitment and retention, and improving continuity of care through the use of computers, television, phone lines, cameras, and fax machines; and

WHEREAS, travel for medical care has increased in recent years as a result of the closure of many rural health care facilities, with the failure rate of rural hospitals averaging twelve per month; and

WHEREAS, telemedicine can provide education or training, patient information and diagnostic test results, actual patient examinations by physicians, and transmission of x-rays; and

WHEREAS, the cost of telemedicine has dropped dramatically each year and is becoming increasingly accessible to small hospitals and clinics; and

WHEREAS, telemedicine projects are now in progress in 35 states, some with federal funding, and other states have enacted legislation which supports the telemedicine concept; and

WHEREAS, although the use of telemedicine is increasing accessibility to medical care for many, the lack of insurance reimbursement is still a barrier; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Joint Commission on Health Care, in consultation with the Council on Information Management and the Department of Information Technology, be directed to study the use of telemedicine and evaluate its use to provide better, more accessible healthcare to the citizens of the Commonwealth. The Commission, during the course of its study, shall involve and consult with health care and health insurance providers to ensure the adequate evaluation of all issues involved.

Among, but not limited to, the issues which shall be evaluated is the success rate of the technology, the means of implementation, the potential cost savings, the impact such a system may have on the improvement of health care, and the impediments which currently bar such a system from being successful.

The Joint Commission on Health Care shall provide staff support for the study. All agencies of the Commonwealth shall provide assistance to the Joint Commission on Health Care, upon request.

The Joint Commission on Health Care shall complete its work in time to submit its findings and recommendations to the Governor and the 1996 Session of the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents.

APPENDIX D

Joint Commission on Health Care

Summary of Public Comments on Draft Issue Brief 1: Telemedicine

Comments regarding the "Telemedicine" Issue Brief were received from the following five interested parties:

Department of Corrections
The University of Virginia School of Medicine
Trigon BlueCross BlueShield
The Medical Society of Virginia Committee on Information Technology
The Virginia Health Care Foundation

Policy Options Presented in Issue Brief

Five policy options were presented in the Issue Brief for consideration by the Joint Commission on Health Care.

Option I: Status quo.

Option II: Request the Secretary of Administration and the Secretary of Health and Human Resources to develop a policy for considering reimbursement for telemedicine services by state health programs.

Option III: Request the Department of Corrections and the state academic health centers to examine the feasibility of establishing additional telemedicine consultation services for selected sites in the state corrections system.

Option IV: Encourage the Virginia Health Care Foundation to consider supporting projects which extend primary and preventive health care services to the uninsured in medically underserved areas through the use of telemedicine.

Option V: Request the Council on Information Management, as part of the Information Technology Infrastructure Initiative, to evaluate roadblocks to implementation of telemedicine applications in rural Virginia and recommend legislative or regulatory action.

Summary of Comments

Overall, those who submitted comments expressed support for exploring ways to expand the use of telemedicine. Some concern was expressed about the need to maintain the security of patient information transmitted through telemedicine applications and the potential for telemedicine to increase the number of "billable" services and cost of health care.

Summary of Individual Public Comments

Department of Corrections

The Director of the Department of Corrections expressed support for exploring the feasibility of establishing additional telemedicine consultation services for selected sites in the state corrections system. The Department is currently working with VCU-MCV on a state-supported project at the Powhatan Correctional Center.

University of Virginia School of Medicine

The Director of the University of Virginia Telemedicine Program provided an update on telemedicine activities at the University, including a possible telemedicine pilot project with Virginia Medicaid. The Director also described possible Congressional actions which could help to make telemedicine more widely available and affordable.

Trigon BlueCross BlueShield

Trigon BlueCross BlueShield commented that the effectiveness of newer telemedicine services has yet to be proven. Studies are needed to assess the effectiveness of these services, especially psychiatric services. An additional concern is that creating new "billable" services to cover phone

consultations, video conference consultations, or electronic mail consultations will increase the cost of health care.

Medical Society of Virginia Committee on Information Technology

The Chair of the Medical Society of Virginia Committee on Information commented that the Committee is comfortable with the status quo for interactive television (IATV) telemedicine, and believes that the state should provide leadership in promoting use of low-end, relatively inexpensive telemedicine applications. The Committee also believes that system security is a critical issue, particularly if the Internet is used as the mode of data transfer. Within this context, the Committee expressed support for the recommendations in the report.

Virginia Health Care Foundation

The Chair of the Virginia Health Care Foundation expressed support for the option to encourage the Foundation to support projects which extend primary and preventive health care services to the uninsured in medically underserved areas through the use of telemedicine. The Foundation is already supporting two telemedicine projects, one involving distance learning for nurse practitioners and one involving a computerized system for sharing immunization records with local providers in Health Planning District Ten.

JOINT COMMISSION ON HEALTH CARE

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