REPORT OF THE SPECIAL ADVISORY COMMISSION ON
MANDATED HEALTH INSURANCE BENEFITS

MANDATED COVERAGE FOR TELEHEALTH SERVICES

HOUSE BILL 2191 and SENATE BILL 1458

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

COMMONWEALTH OF VIRGINIA
RICHMOND
2010

January 11, 2010

To: The Honorable Timothy M. Kaine
Governor of Virginia
and
The General Assembly of Virginia

The report contained herein has been prepared pursuant to § 2.2-2504 and § 2.2-2505 of the Code of Virginia.

This report documents a study conducted by the Special Advisory Commission on Mandated Health Insurance Benefits to assess the social and financial impact and the medical efficacy of House Bill 2191 and Senate Bill 1458 regarding coverage for Telehealth services.

Respectfully submitted,

Timothy Hugo
Chairman
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INTRODUCTION

During the 2009 Session of the General Assembly, the House Committee on Commerce and Labor referred House Bill 2191 to the Special Advisory Commission on Mandated Health Insurance Benefits (Advisory Commission). House Bill 2191 was introduced by Delegate Clarence C. Phillips. Senator William C. Wampler, Jr. introduced Senate Bill 1458, and it was referred to the Advisory Commission with identical language as House Bill 2191.

The Advisory Commission held a public hearing on June 29, 2009 in Richmond to receive public comments on House Bill 2191 and Senate Bill 1458. In addition to patron Delegate Clarence E. Phillips, nine individuals spoke in favor of the proposal. Representatives from the Office of Telemedicine at the University of Virginia Health System (UVA), the Virginia Stroke Systems Task Force, the American Telemedicine Association, the Virginia Telemedicine Network, the Virginia Community Healthcare Association, the Northern Neck Middle Peninsula Telehealth Consortium and Southwest Virginia Health Authority spoke in support of the bill. Representing the Virginia Commonwealth University (VCU) Office of Telemedicine was a professor of Surgery, who serves as an Editor-in-Chief of the Journal of Telemedicine and E-Health (and fellow), and who is also a member of the American College of Chest Physicians. Also, a local physician in private practice for more than thirty years spoke in favor of the bill.

Written comments supporting the bill were received from the American Telemedicine Association, the Virginia Telemedicine Network, and the Virginia Community Healthcare Association and the Virginia Rural Health Association. The Medical Society of Virginia wrote a letter of support, as well as the Virginia Stroke System of Care Task Force (VSSTF). Congressman Rick Boucher, 9th District (Virginia), conveyed his support for telemedicine services in a letter dated October 292009. The Joint Commission on Health Care (JCHC) also submitted a letter of support of a mandate for coverage of telemedicine services. Two letters were submitted from private citizens in support of the proposed legislation.

Representatives from the Virginia Association of Health Plans (VAHP) and the National Federation of Independent Business (NFIB) spoke in opposition of the bill. The VAHP and the NFIB submitted comments opposing the bill.

The Joint Legislative Audit and Review Commission (JLARC) staff prepared an "Evaluation of the Proposed Mandated Health Insurance Benefits: House Bill 2191 and Senate Bill 1458, Mandated Coverage of Telehealth Services" pursuant to §§ 2.2-2503 and 30-58.1 of the Code of Virginia. A copy of the evaluation is available on the JLARC website at http://jlarc.state.va.us.

SUMMARY OF PROPOSED LEGISLATION

House Bill 2191 and Senate Bill 1458 would add § 38.2-3418.15 to the mandated benefits article and amend § 38.2-4319 to make it applicable to health maintenance

organizations (HMOs). These bills require insurers proposing to issue individual or group accident and sickness policies providing hospital, medical and surgical, or major medical coverage on an expense-incurred basis; corporations providing individual or group subscription contracts; and HMOs providing health care plans to provide coverage for the treatment of telehealth services.

“Telehealth services” means the use of interactive audio, video, or other telecommunications technology by a health care provider to deliver health care services within the scope of the provider's practice at a site other than the site where the patient is located, including the use of electronic media for consultation relating to the health care diagnosis or treatment of the patient, transfer of medical data, and medical education. "Telehealth services" do not include an audio-only telephone conversation, electronic mail message, or facsimile transmission between a health care provider and a patient.

An insurer, corporation, or HMO cannot exclude a service for coverage solely because the service is provided through telehealth and is not provided through face-to-face consultation or contact between a health care provider and a patient for services appropriately provided through telehealth services.

No insurer, corporation, or HMO can impose any annual or lifetime dollar maximum on coverage for telehealth services other than an annual or lifetime dollar maximum that applies in the aggregate to all items and services covered under the policy, or impose upon any person receiving benefits pursuant to this section any co-payment, coinsurance, or deductible amounts, or any policy year, calendar year, lifetime, or other durational benefit limitation or maximum for benefits or services that is not equally imposed upon all terms and services covered under the policy, contract, or plan.

The requirements of the bill apply to all insurance policies, contracts, and plans delivered, issued for delivery, reissued, or extended in the Commonwealth on and after January 1, 2010, or at any time thereafter when any term of the policy, contract, or plan is changed or any premium adjustment is made.

The bill does not apply to short-term travel, accident-only, limited or specified disease, or individual conversion policies or contracts, or to policies or contracts designed for issuance to persons eligible for coverage under Title XVIII of the Social Security Act, known as Medicare, or any other similar coverage under state or federal governmental plans.

SUMMARY of PREVIOUS LEGISLATION REVIEWED BY THE ADVISORY COMMISSION

House Document 48 (1999) pursuant to House Joint Resolution (HJR) 210 of the 1998 Session directed the Joint Commission on Health Care (JCHC) to study reimbursement and quality of care issues related to telemedicine. In 2009, the JCHC

continued its review of the present and future need of Virginia's Health Care Workforce as it related to recruitment and retention efforts of primary care, mental health, and other medical professionals for underserved areas of the Commonwealth. (JCHC, 9/1/2009).

The staff briefing identified physician acceptance, technological hardware, and physician payment for services as obstacles to telemedicine care in underserved regions. The JCHC met November 12, 2009 and recommended DHRM to consider and conduct pilot programs for selected telemedicine-covered services within the state employee health insurance program. The recommendation specifically noted that consideration should be given to obstetric care for high-risk pregnancies, telestroke services and telepsychiatry.

A second JCHC recommendation was that the Department of Behavioral Health and Developmental Services (DBHDS) report the department's current and historical utilization of telemedicine and telepsychiatry services, effectiveness of such services, locations offering such services, use of telemedicine by Community Service Board (CSB) providers, and impediments to greater adoption and usage by the Department and CSBs. The recommendation requested that the DBHDS present a report to the JCHC by August 31, 2010.

HJR 455 of the 1995 Session of the General Assembly directed JCHC, 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.

The report summarized five key points:

- 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.

- In the long term, 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 interactive television (IATV) telemedicine due to 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.

- Popular debate over telemedicine is typically focused on high-end applications involving IATV imaging. Educational and other low-end telemedicine applications are equally important. [1]

The report offered the following options for encouraging the expansion of telemedicine in the Commonwealth:

1. Request the Secretary of Administration and the Secretary of Health and Human Services to develop a policy for considering reimbursement for telemedicine services by state health programs;

2. 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.

3. Encourage the Virginia Heath 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.

4. 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 actions.

5. Implement no initiatives. IATV applications would likely evolve at a pace consistent with market forces until payers (public and private) 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. [2]

The Virginia Telehealth Network (VTN), operating under the guidance of the Virginia Department of Health (VDH), reports the following summaries of other studies conducted in Virginia:

> "Report of the Council of Information Management: Reimbursement for Telemedicine Services, House Document No. 51, 1997" requested the Secretaries of Administration, and Health and Human Resources to develop a policy for consideration of reimbursement for telehealth services by state health programs,

namely the Virginia Medicaid program and the Employee Health Benefit Program. The report concluded that health care payers did not support a policy of reimbursement for telehealth services; however, telehealth was believed to offer significant potential benefits to the Commonwealth's population and it felt that state efforts to evaluate and encourage telehealth pilot projects merited continuation.

The "Report of the Council on Information Management: Barriers to the Implementation of Telemedicine in Virginia, House Document No. 31, 1997" identified lack of reimbursement, lack of community physician acceptance, and confidentiality, as well as licensing and credentialing issues and malpractice liability, as the most important barriers to expansion of telehealth.

Additional studies identified reimbursement as a barrier to the expansion of telehealth services. The "Report of the Joint Commission on Health Care, Study of Reimbursement and Quality of Care Issues Regarding Telemedicine Pursuant to HJR 210, House Document No. 48, 1999," found that reimbursement was an obstacle to growth. The authority for the study was derived from recommendations in the report that suggested the Commissioner of Health should play a greater role in monitoring the state's commitment and progress in telehealth, including assessments of the three local telehealth programs sponsored by the Virginia Department of Health.

Pursuant to the 1999 Virginia Acts of Assembly Chapter 935 Item 355, the "Virginia Department of Medical Assistance Services (DMAS) Telemedicine Report, Study of Reimbursement and Quality of Care Issues Regarding Telemedicine Pursuant to JFR 210, House Document No. 48, 1999" required DMAS to evaluate current Medicaid reimbursement for telehealth, to develop protocols for telehealth services and to identify additional services appropriate for telehealth reimbursement. DMAS concluded that telehealth had significant potential to improve access to services, but changes in reimbursement should be approached cautiously pending further evaluation.

The "Report of the Secretary of Technology: A Joint Study to Establish Guidelines for Ensuring Compatibility among Telemedicine Equipment, House Document No. 18, 2000" was agreed to by the Virginia General Assembly through House Joint Resolution 683 (HJR 683) in February 1999. The resolution called for the Secretary of Technology, in cooperation with the Secretary of Health and Human Resources and other state agencies and organizations, to develop guidelines to ensure compatibility, where possible, among the equipment purchased by state agencies and others involved in telehealth. The Secretary of Technology assigned the Department of

Technology Planning (DTP) to conduct the study. The DTP was formerly the Council on Information Management. DTP was assigned the role of Study Team Leader. Invitations were extended to twenty (20) organizations for an organizational meeting held on August 5, 1999. In addition to the charge of HJR 683, the Study Team addressed other topics. Based on the consensus of those at the organizational meeting, the topics to be covered were to be of a wider scope than the original charge of HJR 683 and were included in the Study Report. The additional topics included:

- The need to develop guidelines that would ensure compatibility among telehealth equipment operated by state agencies and other affected entities;

- The need for a "catalog" of telehealth projects or programs throughout the Commonwealth;

- The need for a greatly improved communication mechanism for dialogs among practitioners of, and parties interested in, telehealth projects;

- The need to establish and maintain a listing of existing technical standards in telehealth telecommunications, with related hardware and software standards;

- The need to determine telehealth functional standards, i.e., which bandwidth is best suited for a particular service or mode of operation; and

- The need to reduce redundant or overlapping telehealth efforts. Many agencies and departments are pursuing the same or similar objectives. Statewide contracts for telehealth related hardware and software were also a priority, with inter-operability of such hardware and software being an essential requirement.

After reviewing the use of technology to support telehealth, it was determined that existing standards were sufficient to support telehealth initiatives. Improvements in application standards for specific applications were recommended. One of the study's recommendations suggested a comprehensive analysis be made of telehealth costs and benefits in order to quantify the benefits of telehealth programs in the Commonwealth.

The "Virginia Department of Health Telemedicine Study Pursuant to Senate Bill 1214 (1999) and Budget Item 333 j, October 1999, Senate Document No. 18, 2000," was the first report of the

Telemedicine Study (Senate Document 18, 2000) which summarized telehealth initiatives in the Commonwealth, recommended evaluative strategies for the study and presented the preliminary findings.

A comprehensive study on telehealth initiatives was conducted by the VDH. The “Report of the Virginia Department of Health: Report on Telemedicine Initiatives, Senate Document No. 28, 2001,” was a consensus of the money committees and the Joint Commission on Health Care (JCHC) to combine the language and intentions of both Senate Bill 1214 and Item 333 j of the 1999 Appropriation Act. The study focused primarily on clinical applications of telehealth rather than video conferencing and distance learning. Four primary barriers that confront telehealth programs in Virginia were identified as (1) Lack of adequate reimbursement and financing; (2) Technology integration needs; (3) Operational design; and (4) Physician acceptance of telemedicine.[3]

SUMMARY OF FEDERAL LEGISLATION

In February 2009, the federal stimulus package known as the American Recovery and Reinvestment Act (ARRA) was enacted. It included the Health Information Technology for Economic and Clinical Health (HITECH) Act, which was designed to improve the quality of health care in the United States by creating a system of incentives to encourage practices to implement Electronic Health Records (EHR) and disincentives to penalize slow adoption.

The provisional incentives (grants and loans) are the responsibility of the Office of the National Coordinator (ONC). The ONC will disburse the provisions to physicians and hospitals that participate in Medicare and Medicaid programs. The incentives will be issued to current users and new adopters of certified Electronic Medical Records (EMR) systems, who use the system in a meaningful way. Specifically, Section 4101 provides financial incentives effective CY2011 for Medicare eligible professionals (EPs) who are "meaningful EHR users," followed by financial penalties effective 2015 for EPs who are not "meaningful users." Section 4102 provides financial incentives effective FY2011 for eligible subsection (d) hospitals and critical access hospitals (CAHs) that are "meaningful users" followed by financial penalties effective in 2015 for eligible hospitals who are not "meaningful EHR users."

Section 4201 establishes 100% Federal Financial Participation (FFP) to states for eligible Medicaid providers to purchase, implement, and operate (including support services and training for staff) certified electronic health record (EHR) technology (certified as defined by Section 4101 the Public Health Service Act, as amended by the Recovery Act of 2009).

The ARRA, section 13101, directs the establishment of the Health Information Technology (HIT) Standards Committee. The HIT Standards Committee is responsible for making recommendations to the National Coordinator on standards, implementation specifications, and certification criteria for the electronic exchange and use of health information for purposes of adoption, consistent with the implementation of the Federal Health IT Strategic Plan, and in accordance with policies developed by the HIT Policy Committee.

Currently, the ONC's key operational issues include (1) developing policies required to implement statutory requirements (e.g., define "meaningful user" of EHRs, operationalize the definition of "certified EHR technology, etc.); (2) establishing Medicare and Medicaid payment policies, processes, and tracking methods; (3) developing regulations to provide the opportunity for public notice and comment on these requirements and publishing final regulations implementing the policies; (4) conducting initial assessments of potential systems and measures required to pay incentives (including calculation of incentive payments, capturing attestations, tracking and accepting quality measures); (5) planning extensive provider outreach on Medicare and Medicaid incentives and Medicare penalties; (6) planning audit and reimbursement considerations; and (7) with contractor support, provide States with technical assistance through guidance, outreach and education.[4]

NOTE: Appendices A (Federal Register: April 29, 2009 (Volume 74, Number 81), B (American Society for Gastrointestinal Endoscopy (ASGE) Fact Sheet), and C (Statement of the American College of Physicians to the National Committee on Vital Health Statistics, Executive Subcommittee, April 28, 2009) are located at the end of this analysis and provide further explanation of federal applications.

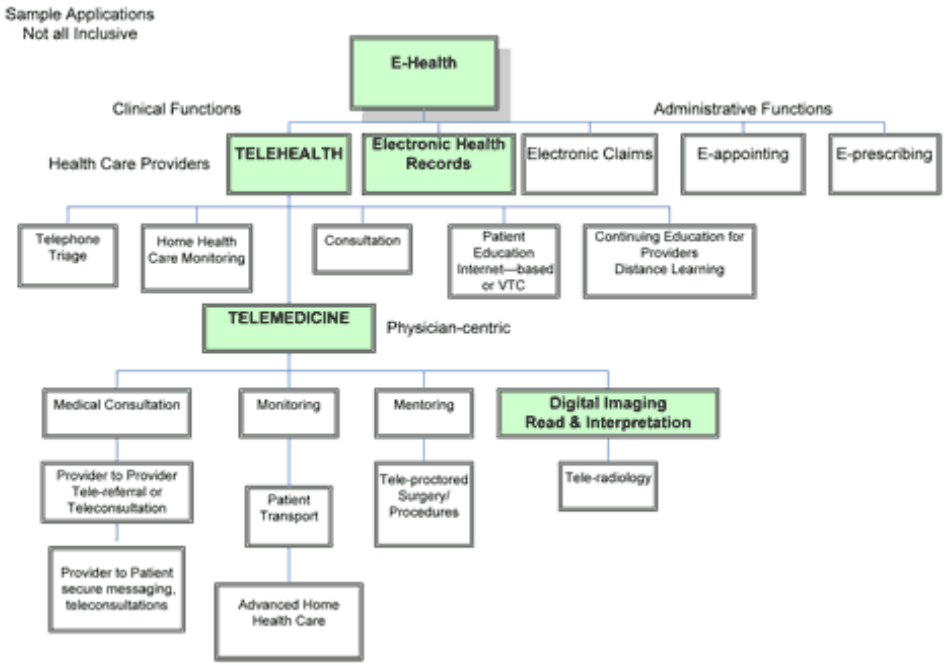
TELEMEDICINE AND TELEHEALTH

The Virginia Telehealth Network (VTN) indicates on its website that telehealth is broad in scope, and that the practice of telehealth includes all health care stakeholders as participants. Telehealth applications can range from basic to complex, and telehealth practices generally require changes to traditional clinical business processes and policy. It also involves an advanced technical infrastructure to enable optimal distribution of electronic information and services between patients and providers. [5]

Telemedicine is a subset of telehealth. Generally, the term telemedicine applies to more specific applications which usually involve a medical team. However, applications for both telemedicine and telehealth can be the same or very similar. For example, remote consultations (telehealth) might be accompanied by remote conference calls which relate to radiological images such as x-rays (telemedicine), which then feed back to patient treatment. The interaction may involve two-way live audio and video visits between patients and medical professionals, sending patient monitoring data from the home or to a clinic or transmitting images and medical files from a primary care provider to a specialist.[6]

The Institute of Medicine defines telemedicine as the "use of electronic information and telecommunications technologies to provide and support health care when distance separates the participants." Home telehealth is an expansion of the basic definition of telemedicine to include the use of telecommunications to provide care services to a patient in his or her place of residency.[7]

There are a number of studies addressing telemedicine and appropriately integrating telemedicine into mainstream medical care. There are several issues and concerns and some of the issues share common characteristics and rationale. The core telemedicine issues relate to policy and regulatory issues, technology, and human factors. [8]



http://tie.telemed.org/consumer/whatis.asp

SOCIAL IMPACT

Access to health care is sometimes difficult, especially for low-income citizens served by public health provider networks, or those individuals in rural areas. Telemedicine is considered to be a cost-effective alternative to the more traditional face-to-face way of providing medical care.[9] Telemedicine is part of the expanding use of communications technology in health care, or "telehealth," being used in prevention, disease management, home health care, long-term care, emergency medicine, and other applications. In the United States, telemedicine systems are used as a means of obtaining specialist advice and making referrals over distance.

For purposes of Medicaid, telemedicine is the use of medical information exchanged from one site to another via electronic communications to improve a

patient's health. Electronic communication means the use of interactive telecommunications equipment that includes, at a minimum, audio and video equipment permitting two-way, real time interactive communication between the patient, and the physician or practitioner at the distant site. Medicare's definition of telehealth is modeled after the federal Medicaid statute.[10]

The Virginia Department of Medical Assistance Services (DMAS) reported 458 telemedicine encounters in 2008. Two hundred and eighty claims reported a primary diagnosis under the mental health category. The highest number of claims were specifically identified as 1) attention deficit disorder child with hyperactivity (56); 2) episodic mood disorders–not otherwise specified (36); 3) hyperkinetic syndrome-not otherwise specified (26); 3) post-traumatic stress disorder (26); and depressive disorder-not elsewhere classified (25). Of the 280 claims, 215 represented claims for recipients under age 21.[11]

Although utilization of telemedicine in rural areas is a high priority, DMAS indicates there is a possibility that some claims are under reported or are not reported for a number of reasons. Submitting Medicaid claims requires states to select from a variety of Healthcare Common Procedure Coding System (HCPCS) codes (T1014 and Q3014), Current Procedural Terminology (CPT) codes and modifiers (GT, U1-UD) in order to identify, track and reimburse for telemedicine services. In some cases, telemedicine claims are not submitted because of a complex diagnosis for which no telemedicine code exists, there are few telemedicine claims in a certain geographical region, or a telemedicine claim could be considered an infringement of HIPAA regulations. [12]

The University of Virginia (UVA) Office of Telemedicine indicates that from 1995 through May 2009, UVA facilitated 14,948 clinical encounters from 53 sites across the Commonwealth in approximately 35 specialty areas. The highest number of encounters and consultations occurred in the areas of Psychiatry (4,407), Pediatric echocardiography (3,380), Hepatology (2,015), Dermatology (1,392), and Neurology (379).[13] The Virginia Commonwealth Health System (VCUHS) indicates that from 2003 to 2008, they facilitated 10,769 clinical encounters. Most encounters were between providers and the Virginia Department of Corrections.[14]

Patient satisfaction with the use of telemedicine to access care and the use of telecommunications technologies to connect with specialists and other health care providers in order to meet unmet medical needs has consistently been very high. Degrees of satisfaction may vary slightly with the specialty accessed through telemedicine, but overall patients have responded well to its use. The source of satisfaction for most patients is the ability to see a specialist trained in the area most closely related to the patient’s condition, the feeling of getting personalized care from a provider who has the patient’s interest in mind, and the ability to communicate with the provider in a very personal and intimate manner over the telecommunications technologies.[15]

J. D. Blum noted in the *Journal of Legal Medicine* that "…a cornerstone of medicine is the relationship a physician has with a patient. Core principles of confidentiality and essential elements of medial liability are an extension of the relationship between physician and patient." Some medical diagnoses and treatments can be provided through electronic means. However, some individuals believe "cybermedicine alters the core relationship between physician and patient by removing the once-constant element of physicality….The challenge for those who support new and innovative technologies…is to promote the benefits of such technologies in ways that are respectful of legitimate traditions and the values of both law and medicine." [16]

Proponents of telemedicine believe that telemedicine systems have demonstrated the capacity to:

- Improve access to all levels (primary, secondary and tertiary) of health care for a wide range of conditions– including, but not limited to, heart and cerebrovascular disease, endocrine disorders such as diabetes, cancer, psychiatric disorders and trauma; as well as services such as radiology, pathology and rehabilitation.
- Promote patient-centered care at lower cost and in local environments that also contributes to stabilizing local health care and economies.
- Enhance efficiency in clinical decision making, prescription ordering and mentoring.
- Increase effectiveness of chronic disease management in both long-term care facilities and in the home.
- Promote individual adoption of health lifestyles and self-care.[17]

Proponents believe that integrating telemedicine (physician centric) with electronic health records (administrative functions) is essential for realizing the full medical and economic benefits of both technologies. For providers, ready access to patients' presenting complaints and symptoms, medical history and results from diagnostic tests would minimize medical errors, duplication and unnecessary tests and procedures. Moreover, providers' ready access to expert second opinions and to authoritative sources of information relevant for the conditions under their care would help them deliver more competent care in their home communities. For patients, it represents an ideal situation whereby they can receive the most competent care from their usual primary care providers.[18]

Proponents also believe that a provision of telemedicine is insurance coverage for people who are under- or un-insured. However, health insurance does not guarantee appropriate access to health care that is not distributed equitably. Proponents consider telemedicine to be a cost and clinically effective solution. A basis of telemedicine development depends on the simultaneous requirement of parity in reimbursement between telemedicine and in-person care. Proponents view national health insurance reform [which includes telemedicine considerations and funding] as an ideal opportunity for the full-fledged integration of telemedicine in the health system with far reaching benefits for this and future generations.[19]

FINANCIAL IMPACT

Proponents indicate telemedicine lowers the cost of care both by providing early and timely diagnosis, improved triage, reduction in unnecessary transfers, and offering improved management of chronic diseases. More than 85% of patients seen via telemedicine remain in the local community environment, resulting in lower costs of care, and further enhancing the financial viability of the community hospital.[20]

In 2007, an independent organization examined several specific telemedicine applications and used a rigorous approach to define both costs and financial benefits to the nationwide implementation of each application. The organization found that the cost to equip all U.S. emergency rooms or departments with hybrid telehealth technologies could save money because the use of the technology would reduce the number of transfers between emergency rooms or departments. Generally, 2.2 million patients are transported each year between emergency departments at a cost of $1.39 billion in transportation costs. Hybrid technologies would avoid 850,000 transports with a cost savings of $537 million per year.[21]

Reimbursement for Medicaid covered services, including those with telemedicine applications, must satisfy federal requirements of efficiency, economy and quality of care. States may reimburse the physician or other licensed practitioner at the distant site and reimburse a facility fee to the originating site. States can also reimburse any additional costs such as technical support, transmission charges, and equipment. These add-on costs can be incorporated into fee-for-service rates or separately reimbursed as an administrative cost by the state. If they are separately billed and reimbursed, the costs must be linked to a covered Medicaid service. While telemedicine is not considered as a distinct Medicaid service, any state wishing to cover/reimburse for telemedicine services must submit a State Plan Amendment to the Centers for Medicare and Medicaid Services for approval.[22]

Proponents believe that sustainability is a key element of the various federal stimulus grant programs that include telemedicine and health IT (more than $5 billion will be available). Proponents believe sustainability includes integration of these technologies into mainstream health care and believe a mandate for reimbursement would demonstrate the Commonwealth's commitment to telehealth as mainstream health care (Rheuban, 2009). On May 18, 2009, Senator Warner hosted a conference at Virginia Commonwealth University to bring together stakeholders to learn how Virginia can access new federal funds and position the Commonwealth as a national leader on health information technology. Approximately 400 participants attended the conference with an additional 300 viewing online, including hospital and health care executives from across the state, as well as federal and state officials. The guidelines for distribution of federal funds were not conclusive. A main point of the conference encouraged cooperation between different health care providers to share information, which could lead to attracting government dollars.[23]

In correctional facilities, hybrid technologies could avoid almost 40,000 transports with a cost savings of $60.3 million per year by reducing the number of transports to emergency rooms or departments and to physician offices, and by avoiding the costs of the emergency department visit. Further, hybrid technologies could avoid visits to physician offices. From an annual baseline of 691,000 physician office visits at a cost of $302 million, hybrid technologies could avoid 543,000 inmate transports with a cost savings of $210 million. [24]

Telemedicine in nursing homes could reduce the number of residents transferred to emergency rooms or departments and physician offices, and thereby avoid or reduce costs of the emergency room or department visits. Hybrid technologies could avoid 387,000 transports at a cost savings of $327 million. In addition, of the 10.1 million physician office visits made annually from nursing facilities at a cost of $1.29 billion for in-person physician office visits and transportation, hybrid technologies could avoid 6.87 million transports at a cost savings of $479 million.[25]

Some other data reflecting the current state of telemedicine reimbursement in the United States is inconclusive. To date, reimbursement for telemedicine is limited and is somewhat haphazard. Private and public payers have been reluctant to reimburse telemedicine services equal to face-to-face services.[26] Partial Medicare reimbursement for telehealth services was authorized in the Balanced Budget Act (BBA) of 1997. The scope of this reimbursement prompted efforts towards expansion and revision of the Medicare reimbursement regulations. The Benefits Improvement and Protection Act of 2000 (BIPA) included amendments to the Social Security Act and removed some of the prior constraints, yet maintained substantial limitations related to geographic location, originating sites, and eligible telehealth services.[27]

The ATA's position is that most of the peer-reviewed research about the cost effectiveness of telemedicine is based on large sample sizes and follows sound scientific rigor. The studies are relatively new, many completed as recent as two years ago. These studies are consistent in finding that telemedicine saves the patients, providers and payers money when compared with traditional approaches to providing care. Many of these studies assess the cost effectiveness of specific telemedicine applications.[28]

In a study conducted in 2000, lack of reimbursement for telemedicine services was a significant factor in past evaluations of telemedicine. Future evaluation efforts (e.g., demonstration projects) should seek to establish comparable reimbursement for telemedicine and could positively impact reimbursements whenever differences in reimbursement might is a key factor. Additional observations included 1) Inequitable reimbursement conditions for telemedicine vs. face-to-face care may skew findings about clinician or hospital acceptance, access, utilization, health outcomes (if dependent on utilization), and other evaluation measures; 2) Reimbursement differences might not affect certain telemedicine evaluations, e.g., of the technical performance of a system, ease of use, or operating costs; 3) The administrative process for reimbursement should be the same as it is for usual care; that is, there should not be

an added administrative burden or less convenience for securing reimbursement for telemedicine services; 4) Non-existent or separate billing procedures for telemedicine constitute further departure from the health care mainstream. Reimbursement inequities pose disincentives that contribute to underutilization of telemedicine services, including initial and follow-up encounters, which in turn affect determinations of their cost-effectiveness; 5) Lack of conventional reimbursement procedures (e.g., capturing services data via CPT codes) can hinder data collection and evaluation.[29]

In 2005, an investigation was conducted to capture a current picture of private reimbursement for telemedicine services in the United States. This investigation was a follow-up to a 2003 survey conducted by the American Telemedicine Association (ATA) and AMD Telemedicine. Representatives from 116 telemedicine programs were contacted between September and November 2005 via telephone and/or e-mail to participate in this survey. Of those contacted, 64 organizations responded (a 55% response rate). Responding organizations who provide potentially billable telemedicine services receiving private reimbursement increased to 58% (up 5% from 2003). Eighty-one percent of those who receive private pay reported no differences between reimbursement for telemedicine services as compared to traditional face-to-face consults.[30]

In addition to Medicare and Medicaid payments for telemedicine, nationally, several Blue Cross/Blue Shield plans, as well as other private insurers, pay for telemedicine services. The telehealth market operates on the assumption that private payers do not pay for telemedicine and will resist any kind of claims if asked. However, AMD Telemedicine conducted a survey that found that there is a critical mass for private payer reimbursement. According to their findings, 38 telemedicine programs in 25 states currently receive reimbursements from private payers. Three programs receive reimbursement for store and forward, and seven programs receive reimbursement for facility fees. While the market assumption is that private payers do *not* reimburse for telemedicine, in reality over 100 private payers currently reimburse for telemedicine across the country.[31]

Of those who receive private pay, data indicated that telemedicine programs are submitting on average approximately 40% of consults for private reimbursement. While this investigation does suggest that telemedicine is making small improvements in private payer reimbursement, the change appears to lag behind a pace needed to optimize telemedicine deployment.[32]

MEDICAL EFFICACY

The available evidence to date suggests that the appropriate deployment of integrated telemedicine systems throughout the country would have the potential to address the problems of access, cost and quality simultaneously. However, its success would ultimately depend on the ability to build and support local, regional and national telemedicine networks, the removal of financial and technical barriers to the use of

telemedicine by the mainstream and the implementation of electronic health records as part of these systems.[33]

Dr. Rheuban writes the following about the impact of clinical services delivered through technology:

> Clinical services delivered via telehealth technologies span the entire spectrum of health care, and across the continuum from prenatal care to geriatric care, with applicability to more than 50 clinical specialties and subspecialties." Telecardiology, teledermatology, teleophthalmology, acute stroke intervention, pulmonary medicine, teleradiology, e-ICU^{R}, home telehealth, tele-mental health, and tele-pathology are but a few of the many applications in general use. Teleradiology, telepathology and Cardiology Picture Archiving and Communication Systems (PACS) applications allow for remote interpretation of digitally acquired images. Screening for diabetic retinopathy using a non-mydriatric retinoscope allows remotely located healthcare providers to capture digital retinal images and transfer those images to an ophthalmologist for determination of risk for diabetic retinopathy, and the need for intervention.[34]

Clinical telemedicine is applied in almost all clinical areas of medicine and may be performed by a number of clinicians in diverse medical specialties and backgrounds. However, the stages of development and maturity of each clinical application has been reviewed in terms of performance attributes to include technical feasibility, diagnostic accuracy, sensitivity, specificity, clinical outcome and cost effectiveness. The reasons that teleradiology and telepathology represent the most mature and well-established clinical specialties within telemedicine are that 1) they both rely heavily on imaging, rather than direct patient contact to make diagnosis or identify medical conditions; 2) both diagnostic services are reimbursable under government rules; 3) there is wide acceptance and recognition of the benefits of teleradiology and telepathology which have led to explicit standards for quality assurance.[35]

The chart below indicates selected clinical applications of telemedicine by level of maturity:

Mature	**Maturing**	**Emerging**
Radiology	Dermatology	Surgery
Pathology	Cardiology	Pediatrics
Psychiatry	Opthamology	Emergency medicine
		Rare Diseases

[36]*Clinical Applications in Telemedicine/Telehealth.* Telemedicine Journal and e-Health. Volume 8, No.1, 2002© Mary Ann Liebert, Inc.

Proponents cite studies indicating that telemedicine is most beneficial when patients who do not have access to a specialist can have proper medical care in a

timely fashion. Individuals can avoid a misdiagnosis or delayed medical care which could lead to poor prognosis or negative outcomes. Research studies show that appropriate medial care delivered within an appropriate window could increase patient outcomes in the areas of high risk pregnancy, developmental delays in infant children or cardiac care patients and stroke patients. Patients who do not receive appropriate care within a timely manner may have costlier medical issues.[37]

Advanced technologies and new applications are making these services an integral part of daily health care practice. The use of telecommunication technologies for medical diagnosis, care and education has traditionally involved the use of interactive video for synchronous delivery of care. The quality of the interactions depends on the equipment and transmission speeds employed. Some specialty applications use asynchronous or store-and-forward solution.[38]

The American Telemedicine Association (ATA) provided evidence of scientific studies indicating that the use of telemedicine for such applications as monitoring of chronic care patients or allowing specialists to provide care to patients over a large region have resulted in significantly improved care. For most telemedicine applications, studies have shown that there is no difference in the ability of the provider to obtain clinical information, make an accurate diagnosis, and develop a treatment plan that produces the same desired clinical outcomes as compared to in-person care when used appropriately.[39]

Although there are fully established clinical standards for teleradiology and telepathology, there are no agreed upon, scientifically-tested standards to support real-time video and audio services. Moreover, there are no clear guidelines for seamless integration, communication, and interoperability for integrating different vendor-based systems.[40]

Static-image telepathology in certain instances may not deliver the required level of diagnostic accuracy to be acceptable in routine clinical practice. It may be difficult for the remote provider/sender to choose the precise set of static images out of all possible images (e.g., slides and magnifications) to send to the consulting pathologist. Using dynamic-robotic systems, pathologists achieved substantially higher levels of diagnostic accuracy when they were able to control image fields and depths. Teleradiology and telepathology clinicians are concerned with detection and classification of small, subtle features and the added complication of compression effects on image colors. If subtle shade changes are important for diagnosis and if compression blurs the boundaries between subtle color changes, then the ability to diagnose accurately might be adversely affected.[41]

Delivery	Applications
Synchronous	Real-time videoconferencing; Real-time examination of patient data (e.g. ultrasounds, heart and breath sounds, ECGs); Computers and medical peripheral devices capable of transmitting real-

	time data; Data deposits into electronic records; Real-time patient or health provider education
Asynchronous	Store-and-forward examination of patient (e.g. radiologic images, dermatologic images pathology slides); A store-and-forward system eliminates the need for the patient and the clinician to be available at either the same time or place; Storage of patient data in electronic medical records; Development of databases to strategically elevate patient data; Software tools to facilitate delivery of health services (e.g. scheduling software); Online health information

[42]**Kuwahara, E. and Whitten, P., *Telemedicine from the Payer Perspective: Considerations for Reimbursement Decisions.* Disease Management and Health Outcomes; May 2003, Vol. 11 Issue 5, p291-298, 8p 2 charts.**

Between 2000 and 2004, the efficacy of telemedicine for the Medicare population was studied, and results were reported. The published peer-reviewed literature indicated the best evidence (or measure) for the effectiveness of telemedicine is in medical specialties for which verbal interactions are a key component of the patient assessment, such as psychiatry and neurology. Various psychiatric and neurological assessments can be administered effectively via interactive videoconferencing. Furthermore, treatments administered in these specialties via telemedicine appear to achieve comparability with face-to-face care. The review stated "it can probably be concluded that medical care administered via interactive videoconferencing can achieve results that are comparable to their in-person counterparts."[43]

Another body of evidence, which includes five research studies, indicates that store-and-forward techniques, when used in conjunction with specialty consultations of patients followed by general practitioners or primary care clinicians, have had only a small impact on reducing the need for subsequent face-to-face clinical evaluations by specialists. The benefit of store-and-forward telemedicine systems appears to be in triaging patients referred for consultation. The Agency for Healthcare Research and Quality reported the quality of these studies was low, but in totality, they showed that store-and-forward systems did not improve access to care or had a negative influence on access to care.[44] Well-controlled empirical studies confirm the diagnostic accuracy is equivalent, in most cases, in conventional and digital display environments. In those instances where this is not the case, the remedy was available in a higher order technology. However, almost all research concludes that clinical telemedicine applications vary widely in focus and technological requirement. Analyses are being considered to determine which specific clinical specialties are suited to telemedicine, and to what degree.[45]

The Commonwealth of Virginia defines the practice of medicine as "the prevention, diagnosis and treatment of human physical or mental ailments, conditions, diseases, pain or infirmities by any means or methods." Although many state laws governing medical practice are broad in nature, research indicates that several states have enacted specific laws pertaining to different aspects of telemedicine. The focus of many telemedicine laws concerns the licensure of out-of-state physicians or other

medical professionals who provide medical care via electronic means from other states or jurisdictions. What is at issue about laws governing telemedicine is that they provide an explicit, or inherent, recognition that telemedicine constitutes the practice of medicine. Some research studies suggest that assessing online activities fit the statutory descriptors of medicine found in a given state's medical practice act, telemedicine law, or relevant statutory interpretations of administrative and common law..[46]

The Commonwealth of Virginia does not definitively address telemedicine in its licensure regulations. The Virginia Board of Medicine stated that providers practicing telehealth must be licensed and under the jurisdiction of the Board. The Board also follows guidelines established by the Federation of State Medical Boards within a document entitled, *Model Guidelines for the Appropriate Use of the Internet in Medical Practice (2002).* The guidelines clearly establish that a physician-patient relationship has begun; the physician then agrees to undertake diagnosis and treatment of the patient and the patient agrees, whether or not there has been a personal encounter between the physician (or other supervised health care practitioner) and patient. Also, the guidelines state that treatment and consultation recommendations made in an online setting, including issuing a prescription via electronic means, will be held to the same standards of appropriate practice as those in traditional (face-to-face) settings. Treatment, including issuing a prescription, based solely on an online questionnaire or consultation does not constitute an acceptable standard of care.[47]

Several research studies attest that telemedicine is a viable alternative for health care treatment. These studies found telemedicine to be a reasonable substitute for an on-site patient-physician encounter in terms of patient-physician satisfaction and ability to transmit information and diagnoses. However, there are several studies that indicate one barrier to telemedicine delivery is the issue of licensure, credentialing and certification. The Office for the Advancement of Telemedicine (OAT) utilizes the following definitions:

Licensure: The legal authority to practice.

Certification: A procedural requirement typically requiring some specialized training and culminating in the award of a document acknowledging the holder's competency to ensure that health care professionals meet defined standards for the specified practice. Examples of commonly measured certification levels include:

Tasks – e.g., Intravenous therapy
Bodies of Knowledge (specialty) - e.g., Informatics
Expert Practice - Medical Specialty Board

Credentialing: Documentation that supports professional education, training and experiences.

Privileging: The right to practice in a specific work environment with identified constraints (Admitting privileges; Clinical privileges).[48]

About 27 states have adopted laws requiring full licensure for physicians to practice telemedicine across state borders. In Florida, for instance, a physician not licensed in Florida engages in the unauthorized practice of medicine if he or she reviews medical tests of a Florida patient that have not first been reviewed by a Florida-licensed physician. Only a Florida-licensed physician may order telemedicine services for patients in Florida. The Florida Board of Medicine reported that while telemedicine can lower costs and improve medical service, it also has the potential for: "…more sloppy medicine by emphasizing quantity over quality, cheaper over fair fees for services, and by creating excessive competition for referrals." [49]

Other states (e.g., Arizona) create exceptions to licensure requirements for episodic or infrequent teleconsultations. In some states, the teleconsultation exception is limited to requests from physicians licensed in the state. In some states, this locally licensed physician must practice the same medical specialty as the telecare provider. Other states (Alabama, Colorado, Montana and Oregon) recognize for telemedicine only a license that a practitioner holds in another jurisdiction.[50] Another alternate licensure paradigm is found in California. There, the Medical Board maintains a "registration system" under which out-of-state physicians who practice telemedicine there can register with the state. Reciprocity is a paradigm also relevant to this issue. Under reciprocity, states recognize licenses from other states, allowing the applicant to become licensed in the locality without the necessity of repeating the National Medical Board Exam.[51]

Medical staff standards related to telemedicine include a narrowly defined subset of services. The focus is solely on licensed independent practitioners who have either total or shared responsibility for patient care, treatment, and services due to the fact that they have authority to write orders and direct or provide care, treatment and service through a telemedicine link. Practitioners who write orders and direct or provide care, treatment and service through a telemedicine link are required to be credentialed and privileged for relevant services at the site where the patient is located (originating site). The rationale is that the originating site retains responsibility for overseeing the safety and quality of services offered to its patients. Also, the practitioner may be privileged at the originating site using credentialing information from the distant site (the site where the practitioner providing the professional service is located) if the distant site is a Joint Commission accredited organization.[52]

Two major groups fall outside the scope of medical staff. They are practitioners who provide interpretive services and those who provide consultations. Interpretive services are those in which a licensed independent practitioner provides official readings of images, tracings, or specimens through a telemedicine link. Usually these services are obtained under contract, and as such, the credentialing and privileging of these practitioners is addressed under the contracted services. "Consultation" is defined

as a service provided by practitioners for the sole purpose of offering an expert opinion to and advising the treatment practitioner but not directing the patient's care.[53]

Under special circumstances, the originating site is allowed to accept the credentialing and privileging decision when three requirements are met:

1. The distant site is Joint Commission accredited;
2. The practitioner is privileged at the distant site for those services to be provided at the originating site; and
3. The originating site has evidence of an internal review of the practitioner's performance of these privileges and sends to the distant site information that is useful to assess the practitioner's quality of care, treatment and services for use in privileging and performance improvements. At a minimum, this information includes all related sentinel events considered reviewable by the Joint Commission which result from the telemedicine services provided and complaints about the distant site's licensed independent practitioners, or staff at the originating site.

Opponents argue that this legislation may be broad enough to allow coverage of services not typically covered by health insurance. House Bill 2191 and Senate Bill 1458 include coverage for "the use of electronic media for consultation relating to the health care diagnosis or treatment of the patient, transfer of medical data, and medical education. " Medical education and transfer of medical data might be interpreted as a means of including those activities that are not clinical in nature, thereby extending the scope of services covered by the mandate.[54]

INSURANCE COVERAGE

The State Corporation Commission Bureau of Insurance (BOI) recently surveyed 50 of the top writers of accident and sickness insurance in Virginia regarding each of the bills to be reviewed by the Advisory Commission this year. Thirty-nine companies responded by June 16, 2009. Three companies indicated that they have little or no applicable health insurance business in force in Virginia and, therefore could not provide the information requested. Of the 36 respondents that completed the survey, 7 insurers indicated that they currently provide the coverage required in their standard benefit package. Twenty-nine insurers indicated they did not provide coverage under their standard benefit package. However, 2 of the 29 insurers indicated that although they do not provide coverage in their standard benefits package, they do provide the required coverage on an optional basis.

Although seven insurers indicated they provide coverage for telemedicine as required in House Bill 2191 and Senate Bill 1458, only one insurer specified coverage in 3 key sub-types (real time, store & forward, and home health care). Carrier responses also indicate that available coverage varied, and is not conclusively equivalent to House Bill 2191 and Senate Bill 1458. Some insurer responses indicated coverage equal to

coverage provided under the Medicare program. The seven carriers did not report any discrepancies in coverage based on patient diagnosis, procedure, or location of the patient.

Nine companies provided premium cost estimates for House Bill 2191 and Senate Bill 1458. Companies provided estimates ranging from $.00 to $1.00 per month for standard coverage for an individual policy and from $1.00 to $3.00 per month for optional coverage for an individual policy. Companies provided estimates from $.00 to $1.00 per month to include coverage in a group contract and from $.00 to $2.00 to provide the coverage on an optional basis in group contracts. Companies that provided estimates on a per member per month basis provided responses of from $.30 to $3.78 for standard group coverage. The responses for optional group coverage ranged from $.75 to $2.52 per member per month.

LEGISLATION IN OTHER STATES

Several states reimburse for medical services based on policy or on a case-by-case basis rather than by codified state laws. The information in the accompanying charts is based solely on the state telemedicine reimbursement laws that have been enacted or legislation affecting reimbursement. The CMS website offers a list of states where Medicaid reimbursement of services utilizing telemedicine is available. However, according to CMS, this listing has not been updated in approximately three years.

Several states have enacted telemedicine reimbursement laws, and incorporated them into their respective state codes. However, ten states mandate telehealth/telemedicine health insurance benefits as indicated below:

State Year Enacted	Covered Benefit	Coverage Limitations	Other Provisions
California, 1996	Does not require face-to-face contact for services appropriately provided through telemedicine	Coverage is not required for consultation provided by telephone or fax	
Colorado, 2001	In a county with less than 150,000 residents, face-to-face contact for services may not be required for services appropriately provided through telemedicine	Coverage not required for consultation provided by telephone or fax	Any benefits provided through telemedicine shall meet the same standard of care as for in-person care.
Georgia, 2005	Payment must be provided for services that are covered under the health benefit policy and appropriately provided through	Standard telephone, fax, unsecured electronic mail, or a combination thereof do no constitute telemedicine	

	telemedicine		
Hawaii, 1999, 2009	Shall not require face-to-face contact between a health care provider and a patient for services appropriately provided through telehealth.	Standard telephone, fax, or email text, in combination or by itself, does not constitute telehealth.	Treatment recommendations made via telemedicine shall be held to the same standards of appropriateness as those in traditional physician-patient settings that do not include a face-to-face visit but in which prescribing is appropriate, including on-call telephone encounters. Physician must have a Hawaii license to use telemedicine to establish a physician-patient relationship. Once relationship is established, the patient or physician may use telemedicine for any purpose, including consultation with an out-of-state provider.
Kentucky, 2000	Shall not exclude a service from coverage solely because the service is provided through telehealth and not provided through a face-to-face consultation if the consultation is provided through the telehealth network established by the state Telehealth Board.	A telehealth consultation shall not be reimbursable if it is provided through the use of an audio-only telephone, fax or electronic mail.	Deductibles, co-payments, or coinsurance for services provided through telehealth shall not exceed those required by the health benefit plan for the same services provided through face-to-face consultation.
Louisiana, 1995	Whenever reimbursement is provided for any health care service and such health care service is performed via transmitted electronic imaging or		Reimbursement to the physician at the originating facility shall not be less than 75% of the payment which that licensed physician receives for an intermediate visit.

	telemedicine, reimbursement shall not be denied to a licensed physician conducting or participating in the transmission at the originating health care facility who is physically present with the patient and is contemporaneously communicating and interacting with a licensed physician at the receiving terminus of the transmission.		Any health care service performed via transmitted electronic imaging or telemedicine shall be subject to the applicable utilization review criteria and requirements of the insurer. Terminology in a policy that either discriminates against or prohibits transmitted electronic imaging or telemedicine shall be against the public policy of providing the highest quality health care to the citizens of the state.
Maine, 2009	Must provide coverage for health care services provided through telemedicine if the service would be covered were it provided through in-person consultation between the covered person and a health care provider.	Telemedicine does not include the use of audio-only telephone, fax or e-mail.	Insurers may limit coverage to those health care providers in a telemedicine network approved by the insurer. Contracts may contain a deductible, co-payment or co-insurance for services provided through telemedicine as long as it does not exceed the deductible, co-payment or co-insurance applicable to an in-person consultation.
Oklahoma, 1997	For services that a health care practitioner determines to be appropriately provided by means of telemedicine, shall not require person-to-	Telemedicine is not a consultation provided by telephone or fax.	Telemedicine means the practice of health care delivery, diagnosis, consultation, treatment, transfer of medical data, or

	person contact between a health care practitioner and a patient shall not be required.		exchange of medial education information. The health care practitioner in physical contact with the patient shall have authority over the care of the patient and shall obtain informed consent for telemedicine from the patient.
Oregon, 2009	Must provide coverage of telemedical health services if: (a) the plan provided coverage of the service when provided in person; (b) the service is medically necessary and supported by evidence-based medical criteria; and (c) the service does not duplicate or supplant a health service that is available to the patient in person.		Health plans may not distinguish between originating sites that are rural and urban in providing coverage. Plans may subject coverage of telemedical services to all terms of the plan, including but not limited to deductible, co-payment or co-insurance requirements that are applicable to coverage of a comparable service provided in person.
Texas, 2003	May not exclude a telemedicine medical service or a telehealth service from coverage under the plan solely because the service is not provided through a face-to-face consultation.		Any deductible, co-payment, or co-insurance for telemedicine or telehealth services may not exceed that which is required for a comparable medical service provided through a face-to-face consultation.

[55] JLARC. "Evaluation of the Proposed Mandated Health Insurance Benefits: House Bill 2191 and Senate Bill 1458, Mandated Coverage of Telehealth Services." June, 2009. http://jlarc.state.va.us.

REVIEW CRITERIA

SOCIAL IMPACT

a. The extent to which the treatment or service is generally utilized by a significant portion of the population.

The University of Virginia (UVA), Office of Telemedicine indicates that from 1995 through May 2009, 14,948 clinical encounters (including 30,000+ teleradiology readings) were facilitated from 53 sites across the Commonwealth in approximately 35 specialty areas. The Virginia Commonwealth Health System (VCUHS) indicates that from 2003 to 2008, it facilitated 10,769 clinical encounters.[56]

The Virginia Department of Medical Assistance Services (DMAS) reported 458 telemedicine encounters in 2008. Two hundred and eighty claims were reported with a primary diagnosis within a mental health category. The five highest number of claims were specifically identified as 1) attention deficit disorder child with hyperactivity (56); 2) episodic mood disorders–not otherwise specified (36); 3) hyperkinetic syndrome-not otherwise specified (26); 4) post-traumatic stress disorder (26); and 5) depressive disorder-not elsewhere classified (25). Of the 280 claims, 215 represented claims for recipients under age 21.[57]

Although utilization of telemedicine in rural areas is a high priority, DMAS indicates there is a possibility that some claims are under reported or are not reported for a number of reasons. In some cases, telemedicine claims are not submitted because of a complex diagnosis for which no telemedicine code exists, there are few telemedicine claims in a certain geographical region, or a telemedicine claim could be considered an infringement of HIPAA regulations. [58]

The VCU Telemedicine networks regularly provide services to the inmates of the Department of Corrections. Some benefits of the telemedicine programs are: enhanced access to quality health care for the prisoners; reduced cost and improved security for correctional facilities;, increased efficiency through block scheduling of clinical services;, and increased effectiveness of patient record tracking.

b. The extent to which insurance coverage for the treatment or service is already available.

The State Corporation Commission Bureau of Insurance (BOI) surveyed 50 of the top writers of accident and sickness insurance in Virginia regarding each of the bills to be reviewed by the Advisory Commission in 2009. Thirty-nine companies responded by June 16, 2009. Three companies indicated that they have little or no applicable health insurance business in force in Virginia and, therefore could not provide the information requested. Of the 36 respondents that completed the survey, 7 insurers

indicated that they currently provide the coverage required in their standard benefit package. Twenty-nine insurers indicated they did not provide the coverage under their standard benefit package. However, 2 of the 29 insurers indicated that although they do not provide the coverage in their standard benefits package, they do provide the required coverage on an optional basis.

Although seven insurers indicate they provide coverage for telemedicine as required in House Bill 2191 and Senate Bill 1458, only one insurer specified coverage in 3 key sub-types (real time, store & forward, and home health care). Carrier responses also indicate that available coverage varied, and is not conclusively equivalent to House Bill 2191/Senate Bill 1458. Some insurer responses indicated coverage equal to coverage provided under the Medicare program. The seven carriers did not report any discrepancies in coverage based on patient diagnosis, procedure, or location of the patient.

For those Virginians without insurance who live in rural or sparsely populated areas, a possibility for coverage is participation in telemedicine pilot programs funded by Anthem Blue Cross/Blue Shield coordinated with University of Virginia or Virginia Commonwealth University. Medicare and Medicaid cover telemedicine service on a limited basis.

The Bureau of Insurance contacted five employers included in the top fifty employers in the Commonwealth to determine the availability and utilization for telemedicine services and rate of coverage for telemedicine services by large employers. Of the five, three employers were actually based in Virginia and reported that they did not provide coverage or reimbursement for telemedicine services.[59]

Follow-up with the plan administrator for two of the three employers that did not provide coverage indicated that an organization's plan document would determine specific coverage for all covered services. Further inquiry into the matter determined that the plan administrator did not process any claims coded as telehealth services for the two employers based in Virginia. The representative indicated that if a claim had been submitted for telehealth services, it probably would not be paid or would be flagged and questioned.

The VAHP testified at the public hearing that approximately 25% of health plans provide coverage for telemedicine.

c. If coverage is not generally available, the extent to which the lack of coverage results in persons being unable to obtain necessary health care treatments.

Proponents cite studies indicating that telemedicine is most beneficial when patients who do not have access to a specialist can have proper medical care in a timely fashion. Individuals can avoid a misdiagnosis or delayed medical care which could lead to poor prognosis or negative outcomes. Research studies show that appropriate medial care delivered within an appropriate window could increase patient

outcomes in the areas of high risk pregnancy, developmental delays in infant children or cardiac care patients and stroke patients. Patients who do not receive appropriate care within a timely manner may have costlier medical issues.[60] Telemedicine will serve those areas where the emergency room hospitals and short-term hospitals are lacking.[61]

Lack of access to health care/telemedicine in rural areas is exacerbated by the limited numbers of specialists who practice in rural communities and the limited resources generally available in those communities and the trend that the aging population has created increased demand for specialty healthcare services to address both acute and chronic disease in the elderly. Such a demand, in the face of anticipated provider shortages, requires a fundamental shift from the model of physician centered care to one focused on patient centered care using interdisciplinary teams, evidence based medicine, the use of informatics in decision support and telehealth technologies where specialty care services are either not locally available or used for other consultative needs. Home telehealth and remote monitoring in the arena of chronic disease management improves care and prevents hospital readmissions.[62]

For those Virginians without insurance who live in rural or sparsely populated areas, a possibility of access to coverage is participation in telemedicine pilot programs funded by Anthem Blue Cross/Blue Shield coordinated with University of Virginia or Virginia Commonwealth University. These two programs provide clinical services and equipment enhancements assistance in developing a Rural Outreach Telemedicine Project which would increase telemedicine access tin rural areas. [63]

A representative of the Virginia Community Healthcare Association cited a medical case of flesh eating strep indicating that if the diagnosis is too late, the mortality rate could be very high for this condition. Another example highlighted the extreme affects of a child in an emotional crisis waiting 6 to 8 weeks or longer to see a child psychiatrist emphasizing the point that patients who do not receive appropriate care within a timely manner may have subsequent costlier medical issues.[64]

Dr. Rheuban testified that there are more than fifteen telemedicine networks in the Commonwealth with more than two hundred end user sites that provide care in more than thirty different specialty and subspecialty areas.

d. If the coverage is not generally available, the extent to which the lack of coverage results in unreasonable financial hardship on those persons needing treatment.

House Bill 2191 and Senate Bill 1458 do not specify which services would be covered. However, the University of Virginia (UVA), Office of Telemedicine indicates that from 1995 through May 2009 the highest number of encounters and consultations occurred in the areas of psychiatry (4,407), pediatric echocardiography (3,380), Hepatology (2,015), Dematology (1,392), and Neurology (379).[65] The individual financial

hardship may depend on the type of telemedicine service required and the frequency with which the individual may require it.

The 2009 Medicare Physician Fee Schedule estimates the reimbursement levels for three services in Virginia as follows:

- $30 - $220 for consultations, depending on the length and type of consultation
- $55 - $145 for individual psychotherapy, depending on the length and type of psychotherapy session
- $45 - $55 for medication management

Most payers, including Medicare and Medicaid, provide the same reimbursement to specialists for telemedicine services as when they are provided in face-to-face encounters. While the costs for these services would not typically create a financial hardship for most people on a one-time basis, treatment that requires multiple visits could increase the total costs, thus creating a financial hardship for the patient and the family. Also, some facilities may require the patient to pay a fee for use of the facility and some telemedicine services, such as telesurgery, may be more expensive than more routine telemedicine encounters.

Proponents testified that local telemedicine services decrease costs associated with employee time away from work and travel expenditures. Wellness literature supports the testimony, particularly when the condition or illness is long-term, and lost wages and lost production due to employee travel are considerations.

e. The level of public demand for the treatment or service.

The level of public demand is difficult to estimate because of the variances in patient services rendered via telemedicine. Reimbursement for telemedicine facilitated care in the Commonwealth primarily follows the public payer models to include services provided to rural Medicare beneficiaries, for services provided to all Medicaid beneficiaries, but also in contracted models with the Department of Corrections and hospital systems where third party payers do not reimburse for services. Some private payers reimburse for services, but large numbers of insured citizens of the Commonwealth (including state employees) cannot access locally unavailable health care services because their health plans do not cover telemedicine facilitated care.[66]

Medicare coverage for telemedicine is limited to rural settings. To receive coverage through Medicare, beneficiaries must reside in or utilize a telemedicine system in a federally designated rural Health Professional Shortage area in a county that is not included in a Metropolitan Statistical Area (MSA), or they must receive services from an entity that participates in a federal telemedicine demonstration project. Medicare requires that the patient be present and the encounter involve interactive audio and video telecommunications that provide real-time communication between the provider and the beneficiary.[67]

Community Health Centers are designed to be located in medically underserved areas and in health professional shortage areas. Southwest Virginia, particularly, meets both criteria. In Virginia, 105 health care centers have provided services to over 240,000 citizens. A representative of the Southwest Virginia Health Authority testified that residents in rural areas suffer an unequal burden of health disparities because of their inability to access specialty care and the shortage of physicians. He reported Virginians in southwest Virginia have significant higher rates of obesity, hypertension, and high cholesterol, which lead to higher rates of premature mortality from heart disease, diabetes, and cancer. These mortality rates are 26% higher than the rest of the Commonwealth.[68]

Proponents testified that telemedicine services are beneficial in the treatment of heart disease, diabetes, cancer and stroke in the following ways: in an acute situation, the patient will experience less wait time to see a pulmonary specialist because the primary care physician would have completed most of the preliminary paperwork, history and physical, thereby, reducing the number of unnecessary visits a sub-specialist might require; the American Journal on Managed Care concluded that telemedicine (as a part of diabetes disease management) assists in lowering hemoglobin A1C, which is associated with vascular complications; timely and proper consultation for pathology readings can change on cancer diagnosis; people get to care quicker; integrated care is completed, carried out and promulgated back home rather than persistent trips to another cancer specialist or locality); and stroke patients can receive increased access to clot dissolution therapy which can reduce permanent brain damage and stoke by ten percent.[69]

The Virginia Association of Health Plans (VAHP) indicated in its comments that mandating coverage for telemedicine in Virginia is not an effective means for expanding telemedicine service. The VAHP also argued that the language in House Bill 2191 and Senate Bill 1458 is overly broad and will not likely result in an orderly and effective expansion of contracted payment for telemedicine.[70] Opponents point out that the bill could be construed to require coverage of services that are not typically covered by health insurance.

f. The level of public demand and the level of demand from providers for individual and group insurance coverage of the treatment or service.

Although the level of public demand is difficult to estimate, proponents believe that integrating telemedicine (physician centric) with electronic health records (administrative functions) is essential for realizing the full medical and economic benefits of both technologies. According to proponents, having health insurance does not guarantee appropriate access to health care that is not distributed equitably. Proponents believe that telemedicine is a cost and clinically effective solution. A basis of telemedicine development depends on the simultaneous requirement of parity in reimbursement between telemedicine and in-person care. Proponents view national health insurance reform (including e telemedicine considerations and funding), as an

ideal opportunity for the full-fledged integration of telemedicine in the health system.[71] Proponents indicated that their thrust is not to require insurers to increase the scope of medical services or providers that they cover, but to ensure that coverage cannot be denied for those services and providers that are already covered solely because services are provided through telemedicine.[72]

The major telemedicine providers in Virginia are 1) The Office of Telemedicine of the University of Virginia Health System, which regularly facilitates linkages between remotely located patients and health professionals throughout the Commonwealth of Virginia; 2) The Southwest Virginia Community Health Systems which facilitates telemedicine for patients in Saltville, Troutdale and the Twin City Medical Center; 3) The VCU Health System Clinical Telemedicine program, which serves the Northern Neck, Middle Peninsula and other areas of eastern Virginia; 4) the Northern Neck Middle Peninsula Telehealth Consortium, a rural community-based organization focused on increasing the overall health and well-being in the 10 county region of Northeastern Virginia.

JLARC reports the top three specialties utilizing telemedicine are radiology, dermatology and psychiatry. Radiology and dermatology are prominent means of providing services because these services are visual. Telepsychiatry is effectively carried out through videoconferencing. Other specialty fields in which telemedicine are effectively utilized is cardiology, ophthalmology, and critical care settings, such as stroke care or pre-natal care. [73]

For providers, ready access to patients' complaints and symptoms, medical history and results from diagnostic tests would minimize medical errors, duplication and unnecessary tests and procedures. Moreover, providers' ready access to expert second opinions and to authoritative sources of information relevant for the conditions under their care would help them deliver more competent care in their home communities. For patients, it represents an ideal situation whereby they can receive the most competent care from their usual primary care providers.[74]

Generally, telemedicine include three applications: real-time, store and forward (asynchronous) and home health. Consultative services and ongoing care are readily provided via live interactive videoconferencing or store and forward technologies, supported by high resolution peripheral devices, electronic stethoscopes, teleradiology, health information exchange and high speed communications networks. Remote monitoring and home telehealth have been proven to reduce hospital readmissions.[75]

The Department of Human Resource Management (DHRM) reported that there would be no pricing impact to the State Employees Health Insurance Plan associated with covering telehealth services based on their analysis of how CMS currently covers telemedicine services under Medicare. The administrator of the State Employees Health Insurance Plan indicated it would apply coverage under the mandate based upon the same coverage and restrictions utilized by CMS.[76]

g. The level of interest of collective bargaining organizations in negotiating privately for inclusion of this coverage in group contracts.

No information was received from collective bargaining organizations addressing potential interest in negotiating privately for inclusion of this coverage in group contracts.

h. Any relevant findings of the state health planning agency or the appropriate health system agency relating to the social impact of the mandated benefit.

Several legislative studies have been conducted since the 1995 Session of the General Assembly, and the VDH has also studied the issue of telehealth and telemedicine. The "Report of the Joint Commission on Health Care, Study of Reimbursement and Quality of Care Issues Regarding Telemedicine Pursuant to HJR 210, House Document No. 48, 1999," found that reimbursement was one barrier to growth of telemedicine in the Commonwealth.

Pursuant to the 1999 Virginia Acts of Assembly Chapter 935, Item 355, the "Virginia Department of Medical Assistance Services (DMAS) Telemedicine Report, Study of Reimbursement and Quality of Care Issues Regarding Telemedicine Pursuant to JFR 210, House Document No. 48, 1999" required DMAS to evaluate current Medicaid reimbursement for telehealth, to develop protocols for telehealth services and to identify additional services appropriate for telehealth reimbursement. DMAS concluded that telehealth had significant potential to improve access to services, but changes in reimbursement should be approached cautiously pending further evaluation.

The "Report of the Secretary of Technology: A Joint Study to Establish Guidelines for Ensuring Compatibility among Telemedicine Equipment, House Document No. 18, 2000" was agreed to by the Virginia General Assembly through House Joint Resolution 683 (HJR 683) in February 1999. In addition to the charge of HJR 683, the Study Team addressed other topics. Based on the consensus of those at the organizational meeting, the topics to be covered were to be of a wider scope than the original charge of HJR 683 and were included in the Study Report. The additional topics included:

- The need to develop guidelines that would ensure compatibility among telehealth equipment operated by state agencies and other affected entities;

- The need for a "catalog" of telehealth projects or programs throughout the Commonwealth;

- The need for a greatly improved communication mechanism for dialogs among practitioners of, and parties interested in, telehealth projects;

- The need to establish and maintain a listing of existing technical standards in telehealth telecommunications, with related hardware and software standards;

- The need to determine telehealth functional standards, i.e., which bandwidth is best suited for a particular service or mode of operation; and

- The need to reduce redundant or overlapping telehealth efforts. Many agencies and departments are pursuing the same or similar objectives. Statewide contracts for telehealth related hardware and software were also a priority, with inter-operability of such hardware and software being an essential requirement.

After reviewing the use of technology to support telehealth, it was determined that existing standards were sufficient to support telehealth initiatives. Improvements in application standards for specific applications were recommended. One of the study's recommendations suggested a comprehensive analysis be made of telehealth costs and benefits in order to quantify the benefits of telehealth programs in the Commonwealth.

The "Virginia Department of Health Telemedicine Study Pursuant to Senate Bill 1214 (1999) and Budget Item 333 j, October 1999, Senate Document No. 18, 2000," was the first report of the Telemedicine Study (Senate Document 18, 2000) which summarized telehealth initiatives in the Commonwealth, recommended evaluative strategies for the study and presented the preliminary findings. A comprehensive study on telehealth initiatives was conducted by the VDH. The "Report of the Virginia Department of Health: Report on Telemedicine Initiatives, Senate Document No. 28, 2001," was a consensus of the money committees and the Joint Commission on Health Care (JCHC) to combine the language and intentions of both Senate Bill 1214 and Item 333 j of the 1999 Appropriation Act. The study focused primarily on clinical applications of telehealth rather than video conferencing and distance learning. Four primary barriers that confront telehealth programs in Virginia were identified as (1) Lack of adequate reimbursement and financing; (2) Technology integration needs; (3) Operational design; and (4) Physician acceptance of telemedicine.[77]

FINANCIAL IMPACT

a. The extent to which the proposed insurance coverage would increase or decrease the cost of treatment or service over the next five years.

JLARC reported that this mandate is not likely to have a significant impact on the cost of treatments provided via telemedicine, indicating that premiums may increase by approximately $.80. Also, the reimbursement rate is low. JLARC also noted that the mandate could cause a small cost increase for utilization of a specific procedure or the accrual of a facility fee. Generally, the reimbursement to local providers will range between $10 and $20 per encounter.[78]

Depending on the payer source and the location of the patient, telemedicine offers a range of potential opportunities for cost savings and increased access. With regard to correctional health care, the opportunities for cost savings in telemedicine are greatest because telemedicine potentially allows the payer (for example, the state Department of Corrections) to avoid both transportation costs and security costs associated with moving inmates with medical care needs from a correctional facility to a distant site such as an academic health sciences center (for example an, inmate from Powhatan Correctional Center might be transported for treatment at the VCU-MCV in Richmond).[79]

With respect to Medicaid, telemedicine offers potential cost savings, because the Medicaid program pays for patient transportation. Telemedicine potentially can reduce or eliminate transportation costs associated with a Medicaid recipient traveling from home to a distant health care provider (for example a Medicaid recipient from Norton, Virginia traveling to be treated in an outpatient specialty clinic at the University of Virginia Health Sciences Center in Charlottesville). The potential for health care payer cost savings related to telemedicine is less certain with patients who have third party insurance coverage. [80]

Unlike Medicaid, third party insurance payers typically do not pay for patient transportation costs. Therefore, the cost savings associated with reduced transportation costs would accrue to the patient, not the payer, because the patient is responsible for transportation expenses in the first place. However, for the very reason that patients typically incur the costs of transportation (including lost wages and dependent care expenses), telemedicine has the potential to increase access to health care services for residents of medically underserved areas.[81]

The ATA indicated that the Council for Affordable Health Insurance (CAHI) issued reports in 2007 and in 2008 reviewed statistics from other states with mandated benefits, and the CAHI estimated the total impact of mandated telemedicine at less than 1% of the costs. Currently eleven states have adopted mandates for the coverage of telemedicine (New Hampshire adopted mandated coverage during the review of the mandate).[82]

The Department of Human Resource Management (DHRM) reported that there would be no pricing impact to the State Employees Health Insurance Plan associated with covering telehealth services based on their analysis of how CMS currently covers telemedicine services under Medicare. The administrator of the State Employees Health Insurance Plan indicated it would apply coverage under the mandate based the same coverage and restrictions utilized by CMS. [83]

VAHP, through written comment, emphasized that mandated benefits should not prescribe how much will be paid for health care services by payers. VAHP believes that contracted payment for telemedicine should not be addressed via a mandate but rather through negotiation in the marketplace. Further, VAHP noted that in most contracts, the

payer, not the insurer, recognizes external savings (i.e., security, transportation and discounted access to pharmaceuticals) that would otherwise be paid by the payer.[84]

b. The extent to which the proposed insurance coverage might increase the appropriate or inappropriate use of the treatment or service.

One of the largest barriers to increased use of telemedicine is that many specialists and local practitioners are unwilling or not interested in telemedicine. Generally, specialists are busy with the normal caseload, and many are not available to devote additional time to the commitment of telemedicine. Also, local providers may be unwilling to refer patients for care outside the area as opposed to relying on local specialists. [85]

Technology can be a barrier in terms of equipment costs and slow data transmission in rural area. The VTN reported that a rural clinic can be configured to provide high resolution videoteleconferencing services supported by a number of peripheral devices (electronic stethoscope, high resolution digital camera, document camera) for an approximately $20,000 capital investment or more when other peripheral devices and functionalities are added. Such technologies include a retinoscope for screening for diabetic retinopathy, an oral camera, and other devices. In addition, the installation of a mini-PACS server for transfer of DICOM compliant medical images costs approximately $30,000. The monthly cost of broadband connectivity (1.54 mb) approaches $800 per month, but that connectivity may be offset by the Rural Healthcare Support Mechanism of the FCC which underwrites the broadband for not for profit health providers that meet certain statutory definitions.[86]

Passage of House Bill 2024 (Del. Marshall) and Senate Bill 1411 (Sen. Watkins) in 2009, which allow health insurers to offer and sell group health insurance policies or contracts that do not include all state mandated health insurance benefits to employers with 50 or fewer employees to provide coverage for employees means that perhaps less than 30% of Virginia's population would have the opportunity for coverage of telemedicine services through a mandate. It is possible that a small segment of the population may not be enough to impact utilization rates.

There are several studies that indicate a barrier to telemedicine delivery is the issue of licensure, credentialing and certification. Medical staff standards related to telemedicine include a narrowly defined subset of services. The focus is solely on licensed independent practitioners who have either total or shared responsibility for patient care, treatment, and services due to the fact that they have authority to write orders and direct or provide care, treatment and service through a telemedicine link. Practitioners who write orders and direct or provide care, treatment and service through a telemedicine link are required to be credentialed and privileged for relevant services at the site where the patient is located (originating site). The rationale is that the originating site retains responsibility for overseeing the safety and quality of services offered to its patients. Also, the practitioner may be privileged at the originating site using credentialing information from the distant site (the site where the practitioner

providing the professional service is located) if the distant site is a Joint Commission accredited organization.[87]

Two major groups fall outside the scope of medical staff. They are practitioners who provide interpretive services and those who provide consultations. Interpretive services are those in which a licensed independent practitioner provides official readings of images, tracings, or specimens through a telemedicine link. Usually these services are obtained under contract, and as such, the credentialing and privileging of these practitioners is addressed under the contracted services. "Consultation" is defined as a service provided by practitioners for the sole purpose of offering an expert opinion to and advising the treatment practitioner but not directing the patient's care.[88]

Under special circumstances, the originating site is allowed to accept the credentialing and privileging decision when three requirements are met:

1. The distant site is Joint Commission accredited;
2. The practitioner is privileged at the distant site for those services to be provided at the originating site; and
3. The originating site has evidence of an internal review of the practitioner's performance of these privileges and sends to the distant site information that is useful to assess the practitioner's quality of care, treatment and services for use in privileging and performance improvements. At a minimum, this information includes all related sentinel events considered reviewable by the Joint Commission which result from the telemedicine services provided and complaints about the distant site's license independent practitioners, or staff at the originating site.

Therefore, proponents believe there will not be an increase in inappropriate care.

Opponents argue that this legislation may be broad enough to allow coverage of services not typically covered by health insurance. House Bill 2191 and andSenate Bill 1458 include coverage for "the use of electronic media for consultation relating to the health care diagnosis or treatment of the patient, transfer of medical data, and medical education. " Medical education and transfer of medical data might be interpreted as a means of including those activities that are not clinical in nature, thereby extending the scope of services covered by the mandate.[89]

c. The extent to which the mandated treatment or service might serve as an alternative for more expensive or less expensive treatment or service.

Dr. Rheuban testified that telemedicine lowers the cost of care in several specialty areas by providing early and timely diagnosis, improved triage, a reduction in unnecessary transfers and, offers improved management of chronic diseases. Savings are reported when individuals can remain in the local community. More than 85% of patients seen via telemedicine remain in the local community environment, resulting in

lower costs of care, and further enhancing the financial viability of the community hospital, by ensuring the revenue stream remains in the local community. [90]

Dr. Rheuban cited a recent a recent publication in the New England Journal of Medicine which reported that nearly 20% of Medicare beneficiaries discharged from a hospital in 2003-2004 required readmission within thirty days, and 34% required readmission within ninety days. These readmissions cost Medicare $17.4 billion dollars. Many of these admissions were preventable, and it has been reported by the Medicare Payment Advisory Commission that unnecessary and potentially preventable readmissions cost an average $7200 per admission. She believes telehealth, home telehealth and remote monitoring are invaluable tools to address these challenges.[91]

d. The extent to which the insurance coverage may affect the number and types of providers of the mandated treatment or service over the next five years.

Several research studies attest that telemedicine is a viable alternative for health care treatment. These studies found telemedicine to be a reasonable substitute for an on-site patient-physician encounter in terms of patient-physician satisfaction and ability to transmit information and diagnoses. However, there are several studies that indicate one barrier to telemedicine delivery is the issue of licensure, credentialing and certification. The Office for the Advancement of Telemedicine (OAT) utilizes the following definitions:

Licensure: The legal authority to practice.

Certification: A procedural requirement typically requiring some specialized training and culminating in the award of a document acknowledging the holder's competency to ensure that health care professionals meet defined standards for the specified practice. Examples of commonly measured certification levels include:

Tasks – e.g., Intravenous therapy
Bodies of Knowledge (specialty) - e.g., Informatics
Expert Practice - Medical Specialty Board

Credentialing: Documentation that supports professional education, training and experiences.

Privileging: The right to practice in a specific work environment with identified constraints (Admitting privileges; Clinical privileges).[92]

Approximately 27 states have adopted laws requiring full licensure for physicians to practice telemedicine across state borders. In Florida, for instance, a physician not licensed in Florida engages in the unauthorized practice of medicine if he or she reviews medical tests of a Florida patient that have not first been reviewed by a Florida-licensed physician. Only a Florida-licensed physician may order telemedicine services

for patients in Florida. The Florida Board of Medicine reported that while telemedicine can lower costs and improve medical service, it also has the potential for: "…more sloppy medicine by emphasizing quantity over quality, cheaper over fair fees for services, and by creating excessive competition for referrals." [93]

Other states (e.g., Arizona) create exceptions to licensure requirements for episodic or infrequent teleconsultations. In some states, the teleconsultation exception is limited to requests from physicians licensed in the state. In some states, this locally licensed physician must practice the same medical specialty as the telecare provider. Other states (Alabama, Colorado, Montana and Oregon) recognize for telemedicine only a license that a practitioner holds in another jurisdiction.[94] Another alternate licensure paradigm is found in California. There, the Medical Board maintains a "registration system" under which out-of-state physicians who practice telemedicine there can register with the state. Reciprocity is a paradigm also relevant to this issue. Under reciprocity, states recognize licenses from other states, allowing the applicant to become licensed in the locality without the necessity of repeating the National Medical Board Exam.[95]

Medical staff standards related to telemedicine include a narrowly defined subset of services. The focus is solely on licensed independent practitioners who have either total or shared responsibility for patient care, treatment, and services due to the fact that they have authority to write orders and direct or provide care, treatment and service through a telemedicine link. Practitioners who write orders and direct or provide care, treatment and service through a telemedicine link are required to be credentialed and privileged for relevant services at the site where the patient is located (originating site). The rationale is that the originating site retains responsibility for overseeing the safety and quality of services offered to its patients. Also, the practitioner may be privileged at the originating site using credentialing information from the distant site (the site where the practitioner providing the professional service is located) if the distant site is a Joint Commission accredited organization.[96]

e. The extent to which insurance coverage might be expected to increase or decrease the administrative expenses of insurance companies and the premium and administrative expenses of policyholders.

Nine companies provided premium cost estimates for House Bill 2191 and Senate Bill 1458. Companies provided estimates ranging from $.00 to $1.00 per month for standard coverage for an individual policy and from $1.00 to $3.00 per month for optional coverage for an individual policy. Companies provided estimates from $.00 to $1.00 per month to include coverage in a group contract and from $.00 to $2.00 to provide the coverage on an optional basis in group contracts. Companies that provided estimates on a per member per month basis provided responses of from $.30 to $3.78 for standard group coverage. The responses for optional group coverage ranged from $.75 to $2.52 per member per month.

JLARC reported that this mandate is not likely to have a significant impact on the cost of treatments provided via telemedicine. Premiums may increase approximately $.80. In most situations, the reimbursed amount is very low. There may be a small increase in cost for utilization of a specific procedure or the accrual of a facility fee, but the typical reimbursement to local providers ranges between $10 and $20 per encounter. [97]

f. The impact of coverage on the total cost of health care.

Proponents believe telemedicine lowers the cost of care both by providing early and timely diagnosis, improved triage, reduction in unnecessary transfers, and offering improved management of chronic diseases. More than 85% of patients seen via telemedicine remain in the local community environment, resulting in lower costs of care, and further enhancing the financial viability of the community hospital.[98]

Telemedicine's potential effects on health system efficiency derive mostly from providing effective substitutions in site of care, provider, and setting. In addition, clinicians would be equipped with clinical decision support systems, and multi-site networks would be given effective tools for integration. In an ideal situation, patients would be able to receive the appropriate type and level of care they need, in proximity to their homes, from the appropriate provider, and in the appropriate setting. An optimal and well-managed health system should not aim only to reduce use of service through pricing or other control procedures. It should focus on encouraging appropriate use of care while discouraging frivolous or inappropriate use. There is wide consensus that routine and self-limiting medical problems can be handled effectively by nurse practitioners or primary care providers, and the use of a specialist in most of these instances would be inappropriate. However, telemedicine has yet to develop explicit protocols for triaging patients to the appropriate sources of care from the outset, and for coordinating the process of care as indicated by professional standards and patient needs.[99]

A body of evidence, which includes five research studies, indicates that store-and-forward techniques, when used in conjunction with specialty consultations of patients followed by general practitioners or primary care clinicians, have had only a small impact on reducing the need for subsequent face-to-face clinical evaluations by specialists. The benefit of store-and-forward telemedicine systems appears to be in triaging patients referred for consultation. The Agency for Healthcare Research and Quality reported the quality of these studies was low, but in totality, they showed that store-and-forward systems did not improve access to care or had a negative influence on access to care.[42] Well-controlled empirical studies confirm the diagnostic accuracy is equivalent, in most cases, in conventional and digital display environments. In those instances where this is not the case, the remedy was available in a higher order technology. However, almost all research concludes that clinical telemedicine applications vary widely in focus and technological requirement. Analyses are being considered to determine which specific clinical specialties are suited to telemedicine, and to what degree.[100]

MEDICAL EFFICACY

a. The contribution of the benefit to the quality of patient care and the health status of the population, including the results of any research demonstrating the medical efficacy of the treatment or service compared to alternatives or not providing the treatment or service.

The ATA highlights the case for telemedicine by focusing on a single disease entity, such as diabetes. The consideration is that if other areas making use of telemedicine (i.e., psychiatry, pediatric echocardiography, hepatology, dermatology or neurology), yield the benefit as illustedtrated with diabetes, then, telemedicine, as it relates to other chronic health problems, including asthma, hypertension, lung disease, heart failure, pulmonary disease or stroke, confirm its medical efficacy.

Current research indicates that diabetes is the 6th leading cause of death in the United States. The direct costs for the treatment of diabetes in 2007 were estimated at $116 billion, and the total direct and indirect costs were estimated at $174 billion. Over the last several decades, concern for diabetes has extended to young children (under five years of age – Type I) and adolescents (6 to 17 years of age – Type II). Diabetes is one of the more important health issues facing this segment of the population today, marking a major shift in the epidemiology of childhood diseases. The American Diabetes Association recommends that diabetic children should be cared for by a pediatric endocrinologist (PE) as part of a diabetes management team.[101]

A state level study of the geographic distribution of PEs revealed a 19-fold difference in observed ratios of obese children to PEs. For example, Montana and Wyoming had no pediatric endocrinologists. In Massachusetts, the ratio of children to PE was lowest at 5,312:1 while in Mississippi it was 99,984:1. Using Massachusetts as a reference (gold standard), an estimated 1500 additional PEs would be required and would need to be geographically distributed proportionately across the states to assure equitable access to their services. The study contend that training adult diabetes providers to care for adolescents with Type II diabetes is one option but a "reassessment of the current system of health care delivery for obese children is needed, along with the creation of sustainable models of care which can effectively improve health outcomes for the large numbers of obese children at risk for development of chronic diseases in childhood."[102]

It is improbable that the requisite numbers and distribution of pediatric and adult endocrinologists will be forthcoming. In all likelihood, the current clustering of these specialties in major medical centers and large cities will not change significantly, leaving millions of children and adolescents at risk in medically underserved areas and among medically underserved populations. Even in Massachusetts, of the 37 PEs in the state, 28 (76%) are located in Boston, 4 (11%) in Worcester, and 3 (8%) in Springfield. The critical significance of this mal-distribution is reflected in the higher prevalence of obesity in rural than in urban counties, and among African-Americans, American Indians and

Alaska Natives. In this situation and those similar, the effective development of telemedicine can help to redress the inequitable distribution of specialists necessary to diagnose, treat and manage diabetes and other related chronic diseases.[103]

Evidence for telemedicine's potential in this regard comes from a number of sources. For example, a randomized control trial of Medicare recipients with diabetes (6) found that telemedicine case management using data capture from home monitoring devices improved glycemic control, blood pressure levels, and total and LDL cholesterol levels at one year of follow-up (all of which are essential in the control of diabetes). In another study, diabetes education via telemedicine was equally effective as in person education in improving glycemic control, and both methods were well accepted by patients. Additionally, reduced diabetes-related stress was observed in both groups). These studies demonstrate that telemedicine can be successfully used to provide diabetes education to patients.

In addition, a pilot study of telemedicine technology to implement diabetes self-management education (DSME) for people with diabetes in underserved rural communities in Arkansas determined that a significantly greater proportion of participants demonstrated improved knowledge, endorsed greater self-efficacy and reported more frequent self-care practices to manage their diabetes at the conclusion of the study period. This example is applicable to a host of other chronic health problems, including asthma, heart failure, pulmonary disease and others.

The observed link between obesity and both Types I and II diabetes for children and adolescents (as well as the latter for adults) points to the promise of telemedicine by contributing to prevention through health behavior education as well as provision of accessible diagnostic, treatment and health maintenance services for those with diabetes in medically underserved areas.

The VTN submitted evidence of sufficient data regarding Telehealth from numerous networks and the VA health system. As an example, to address high infant mortality, the state of Arkansas developed a statewide high risk obstetrics telemedicine program which includes urban and rural sites. Recent data have proven effectiveness, and the project has reduced Arkansas' neonatal mortality rates from 4.5 to 3.3 deaths/1000 births. Virginia's neonatal death rate during the same timeframe has worsened to 5.14/1000 births, higher than the national average of 4.54/1000 births. Telehealth can positively impact our infant mortality and reduce expensive care following premature delivery.[104]

The Department of Veterans Affairs has demonstrated a greater than 20% reduction in hospitalizations of veterans managed with telehealth tools. The American Heart Association and the American Stroke Association, and the Virginia Stroke System of Care Task Force have endorsed telehealth as a proven tool to increase utilization of thrombolytic brain saving therapies.[105]

b. If the legislation seeks to mandate coverage of an additional class of practitioners:

1) The results of any professionally acceptable research demonstrating the medical results achieved by the additional class of practitioners relative to those already covered.

Not applicable.

2) The methods of the appropriate professional organization that assure clinical proficiency.

Not applicable.

EFFECTS OF BALANCING THE SOCIAL, FINANCIAL AND MEDICAL EFFICACY CONSIDERATIONS

a. The extent to which the benefit addresses a medical or a broader social need and whether it is consistent with the role of health insurance.

The American Telemedicine Association (ATN) states that the benefits of telemedicine accrue to providers, clients and society at large, indicating that the technology is consistent with the role of health insurance. For instance, telemedicine enables remote primary care providers to have ready access to expert colleagues at tertiary care centers. Specialist providers at tertiary care centers can serve more effectively a geographically dispersed patient population. Patients can receive an appropriate level of care nearest to their homes. Society benefits from more rational shared decision making by consumers; effective substitutions among sites of care; rational triaging of patients to appropriate sources of care; and avoidance of unnecessary duplication and waste in diagnostic services and clinical procedures.[106]

Patients presenting with a variety of symptoms and problems can be triaged to the appropriate provider, at the appropriate time and place. Rural hospitals can be stabilized by their professional links to medical centers, thereby contributing to the economic stability of rural communities. Physicians in various practice locations can have ready access to efficient tools for clinical decision-making and to evidence-based medicine. Chronically ill patients can be monitored in their home environments and given the tools necessary for their maintenance and self-management. Average citizens can be given access to the tools and educational resources for adopting and maintaining healthy life styles. And, large comprehensive medical centers would be able to integrate their services across multiple delivery sites and facilities.[107]

Proponents acknowledge that It is important to recognize that the health status of an individual and of a population cannot be attributed solely to medical intervention. Individual health status is the product of genetics/biology, lifestyle, environmental quality, and medical intervention. While it is difficult to ascertain the precise contribution of each of these factors to health status, the role of medical intervention in terms of

enhancing preventive behavior as well as providing diagnostic, therapeutic and support functions is central. Moreover, a truly effective plan for comprehensive health care reform must incorporate the major determinants of health status that may be amenable to change, especially when this can be accomplished at a reasonable cost. An optimal health policy would use these determinants as a rational basis for informed policy-making in resource allocation and accountability. [108]

Opponents argue that this legislation may be broad enough to allow coverage of services not typically covered by health insurance. The House Bill 2191/Senate Bill 1458 includes coverage for "the use of electronic media for consultation relating to the health care diagnosis or treatment of the patient, transfer of medical data, and medical education." Medical education and transfer of medical data might be interpreted as a means of including those activities that are not clinical in nature, thereby extending the scope of services covered by the mandate.[109]

The VAHP wrote that mandated benefits affect employers with 50 or more employees. The representative cited passage of the House Bill 2024 (Del. Marshall) and Senate Bill 1411 (Sen. Watkins) which allows health insurers to offer and sell group health insurance policies or contracts that do not include state mandated health insurance benefits to employers with 50 or fewer employees to provide coverage for employees. Therefore, it believes it is inappropriate to mandate benefits that would impact a small segment of the residents of the Commonwealth. [110]

Telemedicine can provide significant positive health impacts by increasing access to medical services in rural and under served areas. However, without access to appropriate specialty care, patients may receive delayed or incorrect diagnoses resulting in inappropriate treatments; and in some cases, may require emergency treatment.

b. The extent to which the need for coverage outweighs the costs of mandating the benefit for all policyholders.

There is a clear health priority need for the telemedicine concept in certain critical focal populations including rural areas, areas of socio-economic decline and beneficiaries of the state correctional system. Yet, the positive cost/benefit analysis must take into account other confounding variables which include the cost of technology, sustainability and infrastructure, and organizational licensing of the physician, allied health professionals and the respective organization.

c. The extent to which the need for coverage may be solved by mandating the availability of the coverage as an option for policyholders.

In the case of group coverage, the decision whether to select the optional coverage or not would lie with the master contract holder and not the individual insureds.

RECOMMENDATION

On November 17, 2009, the Advisory Commission voted unanimously (10 – 0) to defer House Bill 2191 and Senate Bill 1458 until 2010.

CONCLUSION

Delegate Philips presented amended language that would emphasize telemedicine services and asked the Advisory Commission to defer the bill and review the revised language in 2010. Specifically, the substitute language would narrow the scope of the proposed mandate. A telemedicine service may apply to more specialized applications that usually involve a medical team or other medical professionals. Telehealth services consist of a broad range of various applications and practices.

The Advisory Commission deliberated the significance of the impact of telemedicine on certain populations; some would benefit from access to medical specialists and treatments; some would benefit from a decrease in distance traveled necessary to visit a medical professional; and some individuals would benefit from less loss of time from work as a result of one's inability to access medical care in an appropriate time frame. The Advisory Commission believed it is essential that interested parties have the opportunity to review and discuss the substitute language, and agreed to defer House Bill 2191and Senate Bill 1458 until 2010.

EndNotes

1. Report of the Joint Commission Health Care. Study of Telemedicine Pursuant to HJR 455 of 1995. House Document No. 6; 1996.
2. Report of the Joint Commission Health Care. Study of Telemedicine Pursuant to HJR 455 of 1995. House Document No. 6; 1996
3. *The Virginia Telehealth Network Strategic Plan, Improving Access to Quality Health Care in Virginia through Information and Communication Technology: A Strategic Plan for the Development of a Telehealth Infrastructure in the Commonwealth* (2005). Submitted to Virginia Department of Health January 17, 2006.
4. Federal Register: April 29, 2009 (Volume 74, Number 81) [Page 19561-19562]; From the Federal Register Online via GPO Access [wais.access.gpo.gov]; [DOCID:fr29ap09-81]
5. Virginia Telehealth Network, Copyright © 2008, URL: http://ehealthvirginia.org/whatistelehealth2.html. Retrieved May 1, 2009.
6. The American Telemedicine Association. Linkous, J.D., Testimony before the House Committee on Veterans Affairs, Health Subcommittee, May 18, 2005. Retrieved May 11, 2009. http://veterans.house.gov/hearings/schedule109/may05/5-18-05/jlinkous.pdf.
7. Kinsella, A., *The Home Telehealth Primer, Telemedicine Information Exchange,* July, 2008, http://tie.telemed.org/articles/article.asp?path=homehealth&article=homeTelehealthPrimer_ak_tie08.xml, Retrieved May 4, 2009.
8. The Lewin Group for the Office of the Assistant Secretary for Planning and Evaluation, Department of Health and Human Services, Contract Number HHS-10-97-0012. Assessment of Approaches to Evaluating Telemedicine: Final Report . 2000.
9. Telemedicine Overview. Centers for Medicare and Medicaid Services. URL: http://www.cms.hhs.gov/Telemedicine/. Retrieved May 28, 2009.
10. Telemedicine Overview. Centers for Medicare and Medicaid Services. URL: http://www.cms.hhs.gov/Telemedicine/. Retrieved May 28, 2009.
11. DMAS. 2008 Telemedicine Data. Personal Correspondence dated June 2, 2008.
12. DMAS. 2008 Telemedicine Data. Personal Correspondence dated June 2, 2008.
13. University of Virginia, Office of Telemedicine, May 20, 2009
14. Virginia Commonwealth University Health Systems. Telemedicine demonstration. May 18, 2009.
15. American Telemedicine Association. Telemedicine's Impact on Healthcare Cost and Quality Research Outcomes. Written testimony submitted by Karen S. Rheuban M.D., Professor of Pediatrics, Senior Associate Dean for CME and External Affairs Medical Director, Office of Telemedicine, University of Virginia Health System. May 5, 2009
16. Blum, JD. Internet *Medicine and the Evolving Legal Status of the Physician-Patient Relationship*. Journal of Legal Medicine. Dec2003, Vol. 24, Issue 4, p413-455, 43p

17. American Telemedicine Association. Telemedicine's Impact on Healthcare Cost and Quality Research Outcomes. Written testimony submitted by Karen S. Rheuban M.D., Professor of Pediatrics, Senior Associate Dean for CME and External Affairs Medical Director, Office of Telemedicine, University of Virginia Health System. May 5, 2009
18. White Paper. American Telemedicine Association. *National Telemedicine Initiatives and Health Care Reform*. May 19, 2009
19. JLARC. "Evaluation of the Proposed Mandated Health Insurance Benefits: House Bill 2191 and Senate Bill 1458, Mandated Coverage of Telehealth Services." June, 2009. http://jlarc.state.va.us. Rheuban, K. Written Testimony, June 4, 2009.
20. Linkous, J.D., Testimony before the House Committee on Veterans Affairs, Health Subcommittee, The American Telemedicine Association. May 18, 2005. Retrieved May 11, 2009. http://veterans.house.gov/hearings/schedule109/may05/5-18-05/jlinkous.pdf)
21. Telemedicine Overview. Centers for Medicare and Medicaid Services. URL: http://www.cms.hhs.gov/Telemedicine/. Retrieved May 28, 2009).
22. Legislative Update. VCU Government Relations. Chronological Archives. May 22, 2009. URL: http://www.govrel.vcu.edu/highlights-chronological.shtml
23. Linkous, J.D., Testimony before the House Committee on Veterans Affairs, Health Subcommittee, The American Telemedicine Association. May 18, 2005. Retrieved May 11, 2009. http://veterans.house.gov/hearings/schedule109/may05/5-18-05/jlinkous.pdf)
24. Linkous, J.D., Testimony before the House Committee on Veterans Affairs, Health Subcommittee, The American Telemedicine Association. May 18, 2005. Retrieved May 11, 2009. http://veterans.house.gov/hearings/schedule109/may05/5-18-05/jlinkous.pdf)
25. Kuwahara, E. and Whitten, P., Telemedicine from the Payor Perspective: Considerations for Reimbursement Decisions. Disease Management and Health Outcomes; May 2003, Vol. 11 Issue 5, p291-298, 8p 2 charts.
26. Center for Telehealth & E-Health Law. Center for Telemedicine Law. Reimbursement Main Page. URL: http://www.telehealthlawcenter.org/?c=117
27. American Telemedicine Association.
28. The Lewin Group for the Office of the Assistant Secretary for Planning and Evaluation, Department of Health and Human Services, Contract Number HHS-10-97-0012. Assessment of Approaches to Evaluating Telemedicine: Final Report . 2000.
29. Whitten, P., and Buis, L., Telemedicine and e-Health. February 2007, 13(1): 15-24. doi:10.1089/tmj.2006.0028.
30. The Center for Telemedicine Law With the support from the Office for the Advancement of Telehealth. October 2003. Retrieved May 29, 2009 from URL: http://www.hrsa.gov/telehealth/pubs/reimbursement.htm
31. Whitten, P., and Buis, L., Telemedicine and e-Health. February 2007, 13(1): 15-24. doi:10.1089/tmj.2006.0028.

32. White Paper. American Telemedicine Association. *National Telemedicine Initiatives and Health Care Reform*. May 19, 2009
34-35 Rheuban, K. Written Testimony, June 4, 2009.
36, 38 Clinical Applications in Telemedicine/Telehealth. Telemedicine Journal and e-Health. Volume 8, No.1, 2002© Mary Ann Liebert, Inc.
37. Rheuban, K. Written Testimony, June 4, 2009.
39. American Telemedicine Association. Telemedicine's Impact on Healthcare Cost and Quality Research Outcomes. Written testimony submitted by Karen S. Rheuban M.D., Professor of Pediatrics, Senior Associate Dean for CME and External Affairs Medical Director, Office of Telemedicine, University of Virginia Health System. May 5, 2009.
40. Lau C., Cabral, JE, Haynor, DR., Kim Y. Telemedicine. In:Kim Y, Horri SC, eds. *Handbook of medical imaging:Display and PACS.* Bellingham, WA:SPIE Press, 2000:305-331).
41. *Clinical Applications in Telemedicine/Telehealth.* Telemedicine Journal and e-Health. Volume 8, No.1, 2002© Mary Ann Liebert, Inc.
42 Kuwahara, E. and Whitten, P., *Telemedicine from the Payer Perspective: Considerations for Reimbursement Decisions.* Disease Management and Health Outcomes; May 2003, Vol. 11 Issue 5, p291-298, 8p 2 charts
43. Hersh W. Telemedicine for the Medicare population. Evidence Report Technology Assessment No. 24. Rockville, MD: U.S. Department of Health and Human Services, Agency for Health Care Policy and Research; 2001. AHRQ Publication No. 01-E102.
44. Telemedicine for the Medicare Population. Summary, Evidence Report/Technology Assessment: Number 24. AHRQ Publication Number 01-E011, February 2001. Agency for Healthcare Research and Quality, Rockville, MD. http://www.ahrq.gov/clinic/epcsums/telemedsum.htm.
45-46. Blum, JD. Internet *Medicine and the Evolving Legal Status of the Physician-Patient Relationship*. Journal of Legal Medicine. Dec2003, Vol. 24, Issue 4, p413-455, 43p.
47. Model Guidelines for the Appropriate Use of the Internet in Medial Practice. Federation of State Medical Boards. 2002. URL: http://www.telehealthlawcenter.org/?c=155&a=1107. Retrieved June 4, 2009.
48-51 Telemedicine in Michigan: A Policy Report Addressing Legal and Regulatory Barriers. Whitten, P. and Michigan State University (n.d.). URL: http://www.ippsr.msu.edu/publications/ARTelemedicine.pdf.
52-53 Joint Commission on Accreditation of Healthcare Organizations. Joint Commission Resources, Inc. (2004, p.53). The medical staff handbook: A guide to joint commission standards. Oakbrook Terrace, Ill: Joint Commission Resources.
54. Virginia Association of Health Plans. Written Testimony. June 18, 2009
55. JLARC. "Evaluation of the Proposed Mandated Health Insurance Benefits: House Bill 2191 and Senate Bill 1458, Mandated Coverage of Telehealth Services." June, 2009. http://jlarc.state.va.us.

56. Virginia Commonwealth University Health Systems. Telemedicine demonstration. May 18, 2009.
57. DMAS. 2008 Telemedicine Data. Personal Correspondence dated June 2, 2008.
58. DMAS. 2008 Telemedicine Data. Personal Correspondence dated June 2, 2008.
59. Richmond Times Dispatch. "Fifty top employers in Virginia." May 4, 2009.
60. Rheuban, K. Written Testimony, June 4, 2009.
61. Nina Solenski, Director, Stroke Telemedicine Program at UVA). Testimony before the Special Advisory Commission on Mandated Health Insurance Benefits. June 3, 2009
62. Karen S. Rheuban MD, President, American Telemedicine Association, Testimony before the Special Advisory Commission on Mandated Health Insurance Benefits. June 3, 2009.
63. Rheuban, K. Written Testimony, June 4, 2009.
64. Rick Shinn, Director of Public Affairs, Virginia Community Healthcare Association. Testimony before the Special Advisory Commission on Mandated Health Insurance Benefits. June 3, 2009.
65. University of Virginia, Office of Telemedicine, May 20, 2009
66. Karen S. Rheuban MD, President, American Telemedicine Association, Testimony before the Special Advisory Commission on Mandated Health Insurance Benefits. June 3, 2009.
67. JLARC. “Evaluation of the Proposed Mandated Health Insurance Benefits: House Bill 2191 and Senate Bill 1458, Mandated Coverage of Telehealth Services.” June, 2009. http://jlarc.state.va.us.

68. David Cattell-Gordon, Director, Rural Network Development. Testimony before the Special Advisory Commission on Mandated Health Insurance Benefits. June 3, 2009.
69. Dr. Jim Mathers. Testimony before the Special Advisory Commission on Mandated Health Insurance Benefits. June 3, 2009.
70. Virginia Association of Health Plans. Written Testimony. June 18, 2009.
71. White Paper. American Telemedicine Association. *National Telemedicine Initiatives and Health Care Reform*. May 19, 2009
72-73 JLARC. “Evaluation of the Proposed Mandated Health Insurance Benefits: House Bill 2191 and Senate Bill 1458, Mandated Coverage of Telehealth Services.” June, 2009. http://jlarc.state.va.us.
74. American Telemedicine Association. Telemedicine's Impact on Healthcare Cost and Quality Research Outcomes. Written testimony submitted by Karen S. Rheuban M.D., Professor of Pediatrics, Senior Associate Dean for CME and External Affairs Medical Director, Office of Telemedicine, University of Virginia Health System. May 5, 2009.
75. Karen S. Rheuban MD, President, American Telemedicine Association, Testimony before the Special Advisory Commission on Mandated Health Insurance Benefits. June 3, 2009.
76. Virginia Department of Human Resource Management (DHRM). September 1, 2009.

77. The Virginia Telehealth Network Strategic Plan, Improving Access to Quality Health Care in Virginia through Information and Communication Technology: A Strategic Plan for the Development of a Telehealth Infrastructure in the Commonwealth (2005). Submitted to Virginia Department of Health January 17, 2006.
78. JLARC. "Evaluation of the Proposed Mandated Health Insurance Benefits: House Bill 2191 and Senate Bill 1458, Mandated Coverage of Telehealth Services." June, 2009. http://jlarc.state.va.us.
79-81 Report of the Joint Commission on Health Care, Study of Reimbursement and Quality of Care Issues Regarding Telemedicine Pursuant to HJR 210, House Document No. 48, 1999).
82. American Telemedicine Association. Written Testimony, June 23, 2009.
83. Virginia Department of Human Resource Management (DHRM). September 1, 2009.
84. Virginia Association of Health Plans. Written Testimony. June 18, 2009.
85. JLARC. "Evaluation of the Proposed Mandated Health Insurance Benefits: House Bill 2191 and Senate Bill 1458, Mandated Coverage of Telehealth Services." June, 2009. http://jlarc.state.va.us.
86. Virginia Telemedicine Network. Written comments. June 30, 2009.
87-88. Telemedicine in Michigan: A Policy Report Addressing Legal and Regulatory Barriers. Whitten, P. and Michigan State University (n.d.). URL: http://www.ippsr.msu.edu/publications/ARTelemedicine.pdf.
89. Joint Commission on Accreditation of Healthcare Organizations. Joint Commission Resources, Inc. (2004, p.53). The medical staff handbook: A guide to joint commission standards. Oakbrook Terrace, Ill: Joint Commission Resources.
90-91. Karen S. Rheuban MD, President, American Telemedicine Association, Testimony before the Special Advisory Commission on Mandated Health Insurance Benefits. June 3, 2009.
92. Blum, JD. Internet *Medicine and the Evolving Legal Status of the Physician-Patient Relationship*. Journal of Legal Medicine. Dec2003, Vol. 24, Issue 4, p413-455, 43p.
93. Model Guidelines for the Appropriate Use of the Internet in Medial Practice. Federation of State Medical Boards. 2002. URL: http://www.telehealthlawcenter.org/?c=155&a=1107. Retrieved June 4, 2009.
94-96 Telemedicine in Michigan: A Policy Report Addressing Legal and Regulatory Barriers. Whitten, P. and Michigan State University (n.d.). URL: http://www.ippsr.msu.edu/publications/ARTelemedicine.pdf.
97. JLARC. "Evaluation of the Proposed Mandated Health Insurance Benefits: House Bill 2191 and Senate Bill 1458, Mandated Coverage of Telehealth Services." June, 2009. http://jlarc.state.va.us.
98. JLARC. "Evaluation of the Proposed Mandated Health Insurance Benefits: House Bill 2191 and Senate Bill 1458, Mandated Coverage of Telehealth Services." June, 2009. http://jlarc.state.va.us.
98, 101 White Paper. American Telemedicine Association. *National Telemedicine Initiatives and Health Care Reform*. May 19, 2009.
100. Hersh W. Telemedicine for the Medicare population. Evidence Report Technology Assessment No. 24. Rockville, MD: U.S. Department of Health and Human

Services, Agency for Health Care Policy and Research; 2001. AHRQ Publication No. 01-E102.
102-103 White Paper. American Telemedicine Association. *National Telemedicine Initiatives and Health Care Reform*. May 19, 2009.
104-105 Virginia Telemedicine Network. Written comments. June 30, 2009.
106-108 White Paper. American Telemedicine Association. *National Telemedicine Initiatives and Health Care Reform*. May 19, 2009.
109-110.Virginia Association of Health Plans. Written Testimony. June 18, 2009.