

University of Maryland School of Medicine



**Required Under SB 728 (2006)  
“Telemedicine-Use and  
Reimbursement Study”**

Report on Policies Regarding Use and Reimbursement for  
Telemedicine Services in Maryland and Other States

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## Executive Summary

During the 2006 legislative session, the Maryland General Assembly passed Senate Bill 728 “Telemedicine –Use and Reimbursement -Study” (Chapter 266 of the Laws of Maryland) requiring the University of Maryland School of Medicine, in consultation with the University of Maryland School of Nursing and other stakeholders, to conduct a study of telemedicine and report to the Senate Finance Committee and House Health and Government Operations Committee on or before January 1, 2007(See Appendix A). This study on the use of and reimbursement for telemedicine is required to include the following:

- (i) The use of and reimbursement for telemedicine in other states;
- (ii) The current use of telemedicine in the State;
- (iii) The potential for telemedicine to improve access to health care in underserved areas of the State;
- (iv) How any reimbursement for telemedicine in other states has increased access to health care in those states; and
- (v) Any current barriers in the State to reimbursement for telemedicine.

This report is intended to fulfill the requirements of the study. The report is organized into five chapters to address the topics specified in the legislation.

The American Telemedicine Association (ATA), a nonprofit association that is a leading resource on telemedicine issues, defines telemedicine as “the use of medical information exchanged from one site to another via electronic communications to improve patients’ health.<sup>1</sup>” The term “telehealth” is an alternative term used in a broader sense to define health care or health information/education delivered remotely that does not always involve clinical services. Continuing medical education, remote monitoring of patients’ vital signs, videoconferencing for patient consultation, transmission of radiology and other images, e-health portals for patient education and nursing call centers are all part of telehealth.<sup>2</sup>

Our research and interviews indicate Maryland relies less on telemedicine to provide clinical care than many other states. This could be related to a lack of reimbursement for clinical telemedicine services through the state Medicaid program and private payers, as evidenced by a lack of claims data with modifiers indicating the service was provided via telemedicine. Moreover, Medicare reimbursement for clinical services provided through telemedicine in Maryland is limited due to federal policies that narrow the availability of Medicare reimbursement to *rural* Health Professional Shortage Areas (HPSAs) and non-Metropolitan Statistical Areas (MSAs). This means that Medicare does not cover clinical services provided by way of telemedicine for beneficiaries in much of the state.

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<sup>1</sup> The American Telemedicine Association Website at [www-atmedia.org](http://www-atmedia.org)

<sup>2</sup> IBID

The state's two major academic medical centers (University of Maryland School of Medicine and Johns Hopkins School of Medicine and their affiliated hospitals) have telemedicine activities underway in a number of clinical specialties. Some of these services are provided nationally or internationally. Most of these are supported by grants from federal agencies or non-profit foundations, not from traditional sources of third party payment.

To date, Maryland patients commute to major academic centers from rural areas for specialty clinical care although this can lead to delaying or foregoing care and adds additional transportation costs. This is mainly due to a lack of specialty physicians located in remote areas. In addition there are 13 counties or parts of counties and Baltimore City that are identified by the federal government as HPSAs for primary care providers, dentists or mental health providers in the state. People in these areas, which may be urban, must also travel distances to get the appropriate care. For some of them, accessing transportation may also be a barrier.

There are several developments that make the issue of reimbursement for telemedicine/telehealth services in Maryland more relevant in the future. These are:

1. The Maryland Rural Broadband Cooperative is expected to make the infrastructure improvements needed to convey images clearly and efficiently by telecommunications thus improving the feasibility of telemedicine services in Western and Southern Maryland and on the Eastern Shore;
2. In addition to traditional specialty clinical care and consultations, emerging issues for telemedicine such as managing chronic disease and home monitoring of patients are increasing in popularity and may increase favorable patient outcomes while controlling health care expenditures;
3. Providing emergency medical care including monitoring and responding to bioterrorism, especially in remote areas, is a prominent issue since "9/11"; and
4. Telemedicine/Telehealth is being used to educate providers through continuing medical education (CME) and to inform consumers in the local communities where they reside to improve the quality of care in all regions of the state and reduce health disparities. Agreements such as the one between the University of Maryland Statewide Health Network (UMSHN) and the Mid-Atlantic Association of Community Health Centers (CHCs), as well as rural hospitals, show promise in improving the quality of care for uninsured, underserved and remote populations who receive care in these facilities.

### **Barriers**

In general, barriers to the growth of telemedicine in Maryland are the same as those identified nationally. These include financial and quality issues, infrastructure, legal and regulatory barriers, as follows:

- Lack of telemedicine /telehealth reimbursement (i.e., through Medicaid, Medicare) is a deterrent to health care provider participation. Moreover, stable

sources of third party payment are essential to the sustainability of telemedicine services. This is particularly true for telemedicine with its high fixed costs for entry which require an investment in equipment, training and infrastructure. Further these fixed costs can only be recouped over a long period of time.

- Medicare's geographic and service policies are restrictive. The definition for reimbursable telehealth services includes the word "interactive" which excludes reimbursement for store and forward health services.<sup>3</sup> Moreover, reimbursement is limited to rural HPSAs and non-MSAs as originating sites. This rules out coverage for underserved and uninsured in urban areas. In addition, current Medicare policy does not include a residence as an "originating site" for telemedicine ruling out the use of telemedicine to monitor chronic conditions as a reimbursable service.
- According to the Centers for Medicare and Medicaid Services (CMS) and the Agency for Health Care Research and Quality (AHRQ), there is a lack of quality clinical efficacy and cost-benefit research that supports telehealth services.<sup>4</sup> HRSA's Office for the Advancement of Telehealth (OAT) has many pilot projects to demonstrate the usefulness of telehealth underway in states. Also, the Department of Veterans Affairs (VA) has been a leader in demonstrating the effectiveness of telemedicine in several clinical specialties, including retinal screenings and dermatology, with a promising demonstration project for managing disease at home with conclusive findings expected next year.
- Lack of uniformity exists among the states. No two states share the same policy, coverage or even definition of telemedicine.<sup>5</sup>
- Liability is a relevant issue for telemedicine. Providers may not be paid for consultation or monitoring via telemedicine but may still be sued.
- Licensure requirements for providers of telemedicine services vary among the states. Health care practitioners are licensed in the state in which they practice; telemedicine/telehealth may extend the practice into a different jurisdiction. State licensing boards may prohibit, permit or decline to take a position on telemedicine.<sup>6</sup>
- Providers may be slow or reluctant to adopt new technologies, although evidence of this concern varies.<sup>7</sup>

Based on the numerous barriers identified, it is understandable that telemedicine has been slow to develop in Maryland and many other states. However, it may be speculated that as issues of equipment availability, provider training and infrastructure, including improved connectivity, evolve more attention will be focused on reimbursement provided by Medicare, Medicaid, and private payers in Maryland. The State government may also look to employing telemedicine to reduce the cost of providing specialty clinical care in remote areas or containing employee health care costs through better management of chronic disease, as is being studied in the

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<sup>3</sup> David Brantly et al, *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, Feb. 2004, pg. 73.

<sup>4</sup> Ibid. pg. 79.

<sup>5</sup> Ibid. pg. 82.

<sup>6</sup> Ibid. pg. 84.

<sup>7</sup> Ibid. pg. 89.

Department of Veterans Affairs. Hopefully, this report has shed some light on the current status of telemedicine and telehealth in Maryland and other states and will be useful in making future policy decisions in this area.

## **Acknowledgements**

The University of Maryland School Of Medicine would like to thank the many individuals and organizations who contributed to the preparation of this report. We are particularly grateful for the insights provided by Dena Puskin, ScD., Director of the Office for the Advancement of Telehealth, Health Research and Services Administration, U.S. Dept. Health and Human Services, Jacob Frego, Executive Director, Eastern Shore AHEC, and President of the Maryland Rural Health Association, and John Peters, Office of Coordination of Care, Department of Veterans Affairs. We also appreciate the cooperation of the University of Maryland School of Nursing, Maryland Department of Health and Mental Hygiene, Maryland Health Care Commission, Mid-Atlantic Association of Community Health Centers and the many payers and providers who contributed to the information in this report. A special thanks to Barbara McLean, MA , Senior Policy Fellow in the Office of Policy and Planning, Meseret Bezuneh, M.S.Ed., Deputy Director for Strategic Initiatives in the Office of Policy and Planning, and many other staff who worked hard putting together this report .

## I. Introduction

During the 2006 legislative session, the Maryland General Assembly passed Senate Bill 728 “Telemedicine-Use and Reimbursement Study” (Chapter 266 of the Laws of Maryland) requiring the University of Maryland School of Medicine, in consultation with the University of Maryland School of Nursing and other stakeholders, to conduct a study of telemedicine use and reimbursement and report the results to the Senate Finance Committee and House Health and Government Operations Committee on or before January 2007 (See Appendix A). As detailed in the legislation, the study must include the following:

- (i) The use of and reimbursement for telemedicine in other states;
- (ii) The current use of telemedicine in the State;
- (iii) The potential for telemedicine to improve access to health care in underserved areas of the State;
- (iv) How any reimbursement for telemedicine in other states has increased access to health care in those states; and
- (v) Any current barriers in the State to reimbursement for telemedicine.

This report is intended to fulfill the requirements of this legislation. The report is organized into five chapters. The first chapter provides an introduction and overview. Chapters two through five address the specific topics enumerated in the legislation. The last chapter identifies barriers to the use of telemedicine and telehealth services in Maryland.

### **Background**

Historically concerns for access to health care have driven the development and interest in telemedicine. Originally developed to provide access to specialty and primary care for very remote, frontier areas, with the passage of time, and the improvements in telecommunications infrastructure, new uses for telemedicine have emerged.

Telemedicine can be defined in a number of ways. In the Institute of Medicine’s (IOM) report, telemedicine is the use of information and telecommunication technologies to provide and support health care when distance separates the participants.<sup>1</sup> Similarly, telemedicine has been defined as “the use of medical information exchanged from one site to another via electronic communications to improve patients’ health.”<sup>2</sup>

Another term “telehealth” is closely associated with telemedicine and is used in the broader sense to define health care or health information/education delivered remotely that does not always involve clinical services. Distance continuing medical education (CME), remote monitoring of patients in home, ambulance or hospital, videoconferencing between providers for clinical consultations to discuss patients,

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<sup>1</sup> Institute of Medicine (US): Committee on Evaluating Clinical Applications of Telemedicine. Telemedicine: A Guide to Assessing Telecommunications in Health Care. Marilyn J. Field, Editor. National Academy Press, Washington, D.C. 1996.

<sup>2</sup> The American Telemedicine Association. Available at <http://www.atmeda.org/>

transmission of images, e-health portals for patient education, and nursing call centers are all part of telehealth.<sup>3</sup> Both terms emphasize “remote” location of either the patient or provider.

Reimbursement fee structures do not always distinguish between services provided on site and those provided remotely. Some carriers use the modifier “TM” or “tm” for the Current Procedural Technology (CPT) codes for billing to distinguish the means of providing the service.

There are a variety of applications for telemedicine and telehealth including those listed below:

- a) Clinical services (may be primary care or specialty referral services);
- b) Administrative uses;
- c) Educational such as continuing education for health professionals;
- d) Clinical consultations to discuss patient care between two or more clinicians;
- e) Remote patient monitoring; and
- f) Consumer medical and health information.

Specialty referrals generally involve a physician specialist at a remote location assisting another health professional often a primary care physician or other specialist with a diagnosis real-time, remote consultation, or the transmission of patient data and images to a specialist for review at a later time. Radiology, dermatology, psychiatry, as well as ophthalmology, cardiology and pathology are examples of established telemedicine applications. In addition, applications are being used for remote patient monitoring in the home or in an ambulance remotely collecting and transferring data to a monitoring station for interpretation. Increasingly, home telehealth applications are being used for chronic disease management for patients with congestive heart failure (CHF), diabetes mellitus (DM), post-stroke, and other conditions. Home telemanagement of patients often are used to supplement care provided by visiting nurses.

Videoconferencing may be used to provide continuing education to health professionals in remote locations. Finally, advanced telecommunication technologies are used to provide specialized health information and on-line discussion and support groups. While all of the above are growing uses of telehealth, the focus of this study is confined primarily to telemedicine where clinical services, including consultations, are provided to patients remotely. These types of clinical services would usually be reimbursable, if provided through live and direct contact between a physician and patient.

A report by the United States Department of Health and Human Services (US DHHS) on telemedicine for the Medicare population classifies telemedicine services slightly differently.<sup>4</sup> This report assessed telemedicine services with a focus on those that would substitute for face-to-face medical diagnosis and treatment of the Medicare

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<sup>3</sup> Ibid.

<sup>4</sup> W. Hersh, JA Wallace, PK Patterson, et al., *Telemedicine for the Medicare Population*, Agency for Healthcare Research and Quality, US Department of Health and Human Services, July 2001.

population (adults with disabilities and those ages 65 and older) and identified health care services that could be provided through telemedicine. The US DHHS report organized telemedicine into three areas:

1. Store and forward: collects clinical data, stores it, then forwards it for interpretation later; the physician and patient need not be together at the same time (non-interactive);
2. Self-monitoring / testing (home based): physicians and health care providers can monitor physiological measurements, test results, images, and sounds collected in a patient's residence or care facility; this is beneficial to patients that have problems with mobility or where travel is costly and may allow better care due to early detection of problems and possible reduction of health care costs because of early intervention; and
3. Clinician-interactive (office/hospital based): real time interactions, such as online office visits, consultations, hospital visits and home visits, specialized exams and procedures.

For the purpose of reimbursement, the Centers for Medicare & Medicaid Services (CMS) define telemedicine as “professional services given to a patient through an *interactive* telecommunications system by a practitioner at a distant site.”<sup>5</sup> Because this definition includes the term *interactive*, reimbursement is limited to telemedicine activities that occur real-time while the patient and practitioner are interacting. However, CMS demonstration projects in Alaska and Hawaii have been granted authority to submit for reimbursement for store and forward activities.<sup>6</sup> Store and forward activities are not interactive. Instead, these activities involve the collection of data at one point in time, storage of that data, and then forwarding of the data to a physician to be interpreted later.

Additionally, CMS has unique reimbursement policies for the originating site and the distant site. The originating site is defined as “the location of an eligible Medicare beneficiary at the time the service being furnished via a telecommunications system occurs.”<sup>7</sup> Reimbursement to the originating site is the “lesser of 80% of the actual charge or the originating site facility fee of \$20.”<sup>8</sup> This amount is set by statute, but is updated annually according to the Medicare Economic Index.<sup>9</sup>

Beneficiaries are eligible for Medicare services delivered via telemedicine only at originating sites (where the enrollee presents) located in a *rural* Health Professional Shortage Areas (HPSAs) or in counties in a non-metropolitan statistical area (MSA). The Medicare Benefit Policy Manual is included in the Appendix (Appendix B).

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<sup>5</sup> Medicare.gov, searchable glossary. Available at <http://www.medicare.gov/Glossary/search.asp?SelectAlphabet=T&Language=English#Content> Accessed December 4, 2006.

<sup>6</sup> David Brantly, K Laney-Cummings, R Spivack, *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, Feb 2004.

<sup>7</sup> CMS Internet Only Manual 100-02, Medicare Benefit Policy Manual, Chapter 15 Covered Medical and Other Health Services, Sections 270-275.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

“The Centers for Medicare and Medicaid (CMS) has not formally defined telemedicine for the Medicaid program and Medicaid law does not recognize telemedicine as a distinct service.”<sup>10</sup> However, states, at their option, are permitted to reimburse for telemedicine services. At least 36 state Medicaid programs do reimburse for some telemedicine activities (see Chapter II for detailed information).

Telemedicine can be viewed from two perspectives as either 1) facilitating geographic access, (which seems to be the focus of federal programs) or 2) facilitating access to care and efficiency in delivery of care, especially for the elderly and underserved. Telemedicine allows community and rural hospitals to offer more advanced care by providing access to clinical specialties and subspecialties that would not otherwise be available locally. This can help some patients avoid being transferred to a major medical center which can save health care costs and keep the patient closer to family and friends. Currently under Medicare, only designated *rural* HPSAs, counties, non-MSAs, and approved Federal demonstration projects are eligible for coverage of telemedicine services.

The Department of Veterans Affairs (VA) has been a leader in use and advancement of telemedicine services. In addition to the traditional clinical uses, the VA recently initiated use of telecommunication equipment to home-monitor the conditions of 22,000 chronically ill patients nationwide.<sup>11</sup> Complete data from this initiative, due in about a year, is likely to provide the most conclusive evidence to date of the efficacy of telemedicine in this area. Unlike other payer programs in the federal government, the VA provides services directly to eligible persons through its own facilities; the VA is both payer and provider (See Chapter II and IV).

One other source of federal funding for telemedicine is the Office for the Advancement of Telehealth (OAT) in the Health Resources and Services Administration (HRSA). HRSA defines “telehealth” broadly as “use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration”. Dr. Dena Puskin, an internationally recognized leader, heads this office. HRSA works to increase and improve the use of telehealth to meet the needs of the underserved, including those living in remote and rural areas with low incomes and who are uninsured or enrolled in Medicaid<sup>12</sup> (See Appendix C for a list of OAT-HRSA Awardees). Other federal agencies that fund telehealth programs include: the Department of Defense (DOD), the National Aeronautic and Space Agency (NASA), the National Institutes of Health (NIH), and the Agency for Healthcare Research and Quality (AHRQ).

The efficacy of telehealth and telemedicine services continues to be assessed. Telehealth was applied to high risk pregnancies in one study, which showed significant reduction in premature births.<sup>13</sup> In Tennessee, another study showed hospital

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<sup>10</sup> CMS, Medicaid & Telemedicine, Overview. Updated 12/14/05, Available at [http://www.cms.hhs.gov/Telemedicine/01\\_Overview.asp#TopOfPage](http://www.cms.hhs.gov/Telemedicine/01_Overview.asp#TopOfPage) (Accessed August 10, 2006)

<sup>11</sup> <http://www.hopkinsmedicine.org/medialII/enevs/picture.html>

<sup>12</sup> <http://www.hrsa.gov/telehealth>

<sup>13</sup> John Morrison, et al., (2001) “Telemedicine Cost Effective Management of High Risk Pregnancy” *Managed Care*.

readmission rates for congestive heart failure were lower after a sustained program of telehome care monitoring and patient education.<sup>14</sup> Whitten et al. observes “Preliminary research well documents the fact that telemedicine is a feasible alternative to traditional healthcare.”<sup>15</sup> Studies demonstrate that patients have reported good acceptance rates and satisfaction with technologies and treatment via telemedicine and care has been shown to be efficacious.<sup>16,17,18</sup> However, some studies have yielded contradictory conclusions.<sup>19</sup> Studies of the efficacy of the use of telemedicine services and telehealth have been limited. Part of the limitation on research is due to a lack of a critical mass of programs to make an assessment. An Aetna “evidence review” funded by the Agency for Healthcare Research and Quality (AHRQ) in 2001 to determine the efficacy of certain telehealth specialties suggested the quality of efficacy studies was insufficient to reimburse any telehomecare application.<sup>20</sup>

It is important to emphasize again the difference between telehealth and telemedicine. Telehealth can encompass a wide variety of applications while telemedicine is essentially a clinical service or consultation that occurs via telecommunications instead of in person. Studies of telehomehealth fall under telehealth services which are new and still under review. Clinical applications of telemedicine are more conclusive in their efficacy.

### **Barriers to Use of Telemedicine**

The number of telemedicine programs has grown rapidly since the 1990’s. However, telemedicine is still viewed as not being widely used for consultations and clinical care. Telehealth is used even less for quality improvement activities, such as continuing medical education.

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<sup>14</sup> S. Burgess, et al., (2001) “Costal Care Reductions Using Telehealth: A Comparative Analyst” Paper presented at American Telemedicine Association Annual meeting

<sup>15</sup> Pamela Whitten, et al., (2006) “Private Payer Reimbursement for Telemedicine Services in the United States” Department of Telecommunication, Michigan State University

<sup>16</sup> J. Finkelstein, et al.’ (2003) “Home Automated Telemanagement (H.A.T.) System to facilitate Self-Care of Patients with Chronic Diseases.” *Journal of Systemics, Cybernetics and Informatics*, 1(3) e5.

<sup>17</sup> S. S. Gustke, et al., (2000). “Patient Satisfaction with Telemedicine,” *Telemedicine Journal* 6(1), 5-13.

<sup>18</sup> Woods, K.F. et al., (1999). “Sickle Cell Telemedicine and Standard Clinical Encounters. A comparison of Patient Satisfaction.” *Telemedicine Journal*, 5(4), 349-356.

<sup>19</sup> <http://archfami.ama-assn.org/issues/v9n1/fful/foc8072>

<sup>20</sup> David Brantly, K Laney-Cummings, R. Spivack. *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, February 2004, pg 82-83.

Three main barriers to the advancement of telemedicine/telehealth can be identified:

1. Cost of the equipment and cost of line charges (for ISDN lines);
2. Access to and cost of the infrastructure required for connectivity; and
3. Practitioner reimbursement.<sup>21</sup>

Today, the cost of telemedicine/telehealth equipment is decreasing. At the same time, broadband infrastructure, which had previously only been available in urban areas for high quality video streaming necessary for conferencing and to adequately treat patients, is becoming more available in rural areas.

In Maryland, legislation was enacted in the 2006 legislative session (Chapter 269 of the Laws of Maryland sponsored by Senator Pipkin, and Delegate Jameson) to establish a rural broadband cooperative office in the Maryland Department of Business and Economic Development for the establishment of rural broadband telecommunications services. The State has committed \$10 million to the building of this Network between 2007 and 2010. Senator Mikulski added to the project by securing federal funds to build a fiber optic loop between NASA's Wallops Island Space Facility to the Patuxent River Naval Air Station River in St. Mary's county<sup>22</sup>. W.L. Gore and Associates will share fiber optic resources in the Elkton area. This Network will give the Maryland Broadband Cooperative an immediate presence in all rural regions of Maryland. The formation of a Rural Broadband Cooperative was recently announced at the annual Rural Health Summit. This Cooperative will give broadband internet service to all seeking residential or business applications, including telemedicine. The Cooperative will be owned by the rate payers much like an electric cooperative.

### **Reimbursement for Telemedicine**

Reimbursement for telemedicine services is a barrier to widespread use. A survey of states that do not require reimbursement for telemedicine services was conducted by the ATA and AMD Medicine, a supplier of medical devices used in telemedicine, and indicated the following reasons for not providing reimbursement though the Medicaid program:<sup>23</sup>

- Lack of compelling evidence of efficacy and cost/benefit needed in order to consider reimbursement (Alabama, DC, Florida, Idaho, New York);
- Transportation costs are not a major cost factor to Medicaid (Alabama, Connecticut, Maryland, Rhode Island);
- Budget concerns/limitations (Idaho, Mississippi);
- Geography – all citizens are close to medical facilities (Delaware);
- Fear of over utilization, fraud and abuse (Idaho); and
- No requests for reimbursement have been submitted (New Hampshire, Rhode Island).

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<sup>21</sup> Carrie Vaughan (2006) "Is Telemedicine in your Strategic Plan." *Health Leaders*, Available at [http://www.healthleadersmedia.com/crhlc/view\\_news.cfm?Content\\_id=81764](http://www.healthleadersmedia.com/crhlc/view_news.cfm?Content_id=81764).

<sup>22</sup> E-mail – J. Dillman III, Executive Director, Upper Shore Regional Council to Dr. Claudia Baquet, 10.24.06

<sup>23</sup> *Telemedicine Reimbursement Report*, Center for Telemedicine Law, October 2003, pg. 39-44.

It should be noted that several states did express interest in moving forward (Pennsylvania, Florida, and Idaho) with providing reimbursement through the Medicaid program.<sup>24</sup>

### **Policy Issues**

There are also broader policy issues to be considered. According to the American Telemedicine Association (ATA), “Nonpayment of telemedicine services that are reimbursed if provided in person creates a disparity and inequity for remote based populations, and often times, is in direct conflict with legislated language”(to facilitate access).<sup>25</sup> According to one article, “Most states are carrying the burden of transportation costs, which are simply eliminated when telemedicine technologies are employed to provide access to care for which the patient otherwise would have to travel long distances.”<sup>26</sup>

On the positive side, according to the ATA, the “rationale for payment of services is “Care delivered by the right practitioner at the right time results in:

1. Reduction in cost of care and improved clinical outcomes;
2. Reduction of transportation costs to the Medicaid agency with budgetary constraints; and
3. Reduction in the utilization of emergency care for chronic care or primary care.”<sup>27</sup>

This report discusses the applicability of the identified barriers to Maryland and ways to overcome these barriers and expand access to telehealth and telemedicine. Areas of variability among the states include Medicaid reimbursement, state licensure requirements for practicing medicine via telemedicine, state mandates for reimbursement and scope of reimbursement and the presence of third party payers willing to reimburse for telemedicine services. It is also important to obtain buy-in from medical practitioners and their staff in remote areas, provide training to facilitators at the originating sites.

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<sup>24</sup> *Ibid.*

<sup>25</sup> *Telemedicine Reimbursement Report*, pg. 9.

<sup>26</sup> N. M. Antoniotti, J Linkous, S. Speedie, et. al., *Medical Assistance and Telehealth: An Evolving Partnership*, American Telemedicine Association, Available at [http://atmeda.org/new/policy\\_issues](http://atmeda.org/new/policy_issues), Accessed on August 18, 2006.

<sup>27</sup> *Ibid.* pg. v.

## II. Overview of Reimbursement Policies for Telemedicine

The lack of consistent and comprehensive reimbursement policies remains one of the biggest obstacles to the integration of telemedicine/telehealth into health care in the United States. Currently, both the public payer (Medicare and Medicaid) and the private payers have not addressed the prospect of universal reimbursement (for telemedicine services).<sup>1</sup> Despite this, many states are embracing the health care opportunities presented by telemedicine and are taking various steps for public and private payer reimbursement of telemedicine services. This section presents an overview of reimbursement policies for Federal, state and private payers for telemedicine.

### **Medicare**

Medicare is the federal health insurance program that covers approximately 43 million elderly and disabled Americans. Medicare has traditionally paid for some of the telemedicine services that do not require face-to-face interactions with patients, such as teleradiology and telepathology, as long as they occur in real time.<sup>2</sup>

In 1997, Congress passed the Balanced Budget Act (BBA) which authorized Medicare payments for specific telemedicine services, effective January 1, 1999, and for the funding of telemedicine demonstration projects.<sup>3</sup> The BBA provided for very limited reimbursable telemedicine services, limited providers who could be reimbursed and required fees to be split between the distant and originating sites. Many of these constraints were removed by the Benefits Improvement and Protection Act of 2000 (BIPA) which expanded coverage for telehealth services, loosened presenter requirements at the originating site to allow a non-medical person to present a patient and revised payment policy. Still, Medicare maintains substantial limitations regarding rural geographic location of originating sites, and eligible telehealth services.<sup>4</sup> After the passage of BIPA, the American Telemedicine Association estimates that Medicare payments for telemedicine services rose from \$20,000 in the year 2000 to \$1.5 million in the year 2005.<sup>5</sup>

As noted in Chapter 1, the Centers for Medicare & Medicaid Services (CMS) define telemedicine as “professional services given to a patient through an *interactive* telecommunications system by a practitioner at a distant site.”<sup>6</sup> Because this definition includes the term “interactive,” reimbursement is limited to telemedicine activities that occur while the patient and practitioner are interacting. However, CMS demonstration

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<sup>1</sup> Pamela S. Whitten. *Telemedicine in Indiana Policy Report*, Purdue University. March 2006.

<sup>2</sup> Ibid.

<sup>3</sup> *Telemedicine Reimbursement Report*. The Center for Telemedicine Law. October 2003. Available at <http://www.hrsa.gov/telehealth/pubs/reimbursement.htm>.

<sup>4</sup> Ibid.

<sup>5</sup> Pamela Whitten, 2006.

<sup>6</sup> Medicare.gov, searchable glossary. Available at <http://www.medicare.gov/Glossary/search.asp?SelectAlphabet=T&Language=English#Content>. Accessed December 04, 2006.

projects in Alaska and Hawaii have been granted authority to submit for reimbursement for store and forward activities.<sup>7</sup>

CMS has unique reimbursement policies for the originating site and the distant site. The originating site is defined as “the location of an eligible Medicare beneficiary at the time the service being furnished via a telecommunications system occurs.”<sup>8</sup> Reimbursement to the originating site is the “lesser of 80 percent of the actual charge or the originating site facility fee of \$20.”<sup>9</sup> This amount is set by statute, but is updated annually according to the Medicare Economic Index.<sup>10</sup>

The distant site is defined as “the site where the physician or practitioner providing the professional service is located at the time the service is provided” and reimbursement is equal to the current fee schedule for the service provided.<sup>11</sup> Beneficiaries are eligible for Medicare services delivered via telemedicine only at originating sites (where the enrollee presents) located in a *rural* Health Professional Shortage Areas (HPSAs) or in counties in non-metropolitan statistical areas (MSAs).

Facilities eligible to receive reimbursement as the originating site include<sup>12</sup>:

- Office of physician or practitioner
- Hospital
- Critical access hospital
- Rural health clinic
- Federally qualified health center (FQHC)

The following services are eligible for reimbursement (excluding the demonstration projects):<sup>13</sup>

- Consultations
- Office or outpatient visits
- Individual psychotherapy
- Pharmacologic management
- Psychiatric diagnostic interview examination
- End state renal disease related services
- Individual medical nutrition therapy

Providers eligible for reimbursement include:<sup>14</sup>

- Physician
- Nurse practitioner

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<sup>7</sup> David Brantly, et al. *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, Feb 2004.

<sup>8</sup> CMS Internet Only Manual 100-02, *Medicare Benefit Policy Manual*, Chapter 15, Covered Medical and Other Health Services, Sections 270-275.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> CMS Internet Only Manual 100-02.

- Physician assistant
- Nurse midwife
- Clinical nurse specialist
- Clinical psychologist
- Clinical social worker
- Registered dietitian or nutrition professional

With the exception of demonstration projects, Medicare reimbursement for telemedicine services appears consistent between the states. However, because Medicare essentially authorizes reimbursement only in designated rural areas, policy favors more extensive coverage in rural states. The Medicare Benefit Policy Manual is included in the Appendix (Appendix B).

### **Medicaid**

Since its enactment in 1965, the Medicaid program has been the nation's major public health insurance program for low-income Americans. Medicaid is jointly financed by federal and state government and each state administers the program within broad federal guidelines. Each state may establish its own eligibility standards; determine the type, amount, duration, and scope of services; set the rate of payment for services; and administer its own program."<sup>15</sup>

However, state Medicaid programs must follow several mandatory requirements for federal matching funds to be received. For example, each state's Medicaid program is required to provide specific basic services to the categorically needy populations, such as: "inpatient hospital services, outpatient hospital services, prenatal care, vaccines for children, physician services, nursing facility services for persons aged 21 or older, family planning services and supplies, rural health clinic services, home health care for persons eligible for skilled-nursing services, laboratory and x-ray services, pediatric and family nurse practitioner services, nurse-midwife services, FQHC services, ambulatory services of an FQHC that would be available otherwise, and early periodic screening, diagnostic, and treatment services for children under age 21."<sup>16</sup>

CMS has not formally defined telemedicine for the Medicaid program and Medicaid law does not recognize telemedicine as a distinct service.<sup>17</sup> However, CMS does recognize that telemedicine has the potential to reduce Medicaid expenditures and has encouraged states to "create innovative payment methodologies for services that incorporate telemedicine services."<sup>18</sup> Thus, states are permitted, at their option, to reimburse for telemedicine activities.

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<sup>15</sup> *Telemedicine Reimbursement Report*.

<sup>16</sup> *Ibid.*

<sup>17</sup> CMS, Medicaid & Telemedicine, Overview. Available at [http://www.cms.hhs.gov/Telemedicine/01\\_Overview.asp#TopOfPage](http://www.cms.hhs.gov/Telemedicine/01_Overview.asp#TopOfPage) . Accessed August 10, 2006.

<sup>18</sup> Available at [http://www.cms.hhs.gov/Telemedicine/02\\_Considerations.asp#TopOfPage](http://www.cms.hhs.gov/Telemedicine/02_Considerations.asp#TopOfPage), Accessed December 14, 2006.

Since 2002, there have been several studies and surveys published that describe Medicaid reimbursement for telemedicine. The studies include: 2002 Survey of State Medicaid Directors,<sup>19</sup> 2003 Survey of State Medicaid Offices,<sup>20</sup> 2003 Telemedicine Reimbursement Report<sup>21</sup>, 2004 Innovation, Demand and Investment in Telehealth (US Department of Commerce)<sup>22</sup>, and 2006 State Medicaid and Private Payer Reimbursement for Telemedicine: An Overview.<sup>23</sup> Additionally, there are three national data sources that publish information about Medicaid reimbursement for telemedicine: CMS Medicaid Telemedicine “State Profiles”<sup>24</sup>, Association of Telehealth Providers – The State of Medicaid Reimbursement in the U.S.,<sup>25</sup> and National Conference of State Legislatures.<sup>26</sup> Unfortunately, these data are not updated regularly. In fact, the data on the CMS website only describes 17 of the 36 known Medicaid reimbursement policies.

Our research indicates 36 states, as of 2005, have Medicaid programs that have formally begun using telemedicine services and are currently reimbursing for some telemedicine activities. Of those 36 states, at least 20 have Medicaid reimbursement policies as a result of legislation (TIE and other sources). These states include: Arkansas, California, Colorado, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Minnesota, Montana, Nebraska, North Carolina, North Dakota, Oklahoma, South Dakota, Texas, Utah, and West Virginia (See Table 1.). However, due to the challenges involved with telemedicine reimbursement, these state Medicaid programs vary in terms of what and who are covered, which sites are reimbursed and whether the service is live or a store-and-forward consultation.<sup>27</sup> The following is a brief overview of a few state Medicaid programs.

### **State Medicaid Programs Reimbursing for Telemedicine**

In Arkansas, physician consultations using interactive video teleconferencing can be reimbursed. Although payments are only to physicians, Arkansas does reimburse facilities (community health centers) for certain services provided by qualified mental health professionals via telemedicine. In this instance, Arkansas does not reimburse the mental health professionals, as they are non-physicians, but instead

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<sup>19</sup> S Palsbo. “Medicaid payment for telerehabilitation.” *Arch Phys Med Rehabil* 2004, 85:1188-91.

<sup>20</sup> G. Gray. *Exploratory study of telemedicine Medicaid reimbursement status: participating and non-participating states and its impact on Idaho’s policy-making process* (in press).

<sup>21</sup> *Telemedicine Reimbursement Report*.

<sup>22</sup> David Brantly, et al. *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, February 2004.

<sup>23</sup> Nancy A. Brown, “State Medicaid and private payer reimbursement for telemedicine: an overview.” *Journal of Telemedicine and Telecare*, 2006; 12 (Suppl. 2): S2:32-39.

<sup>24</sup> CMS, Medicaid & Telemedicine, State Profiles. Available at [http://www.cms.hhs.gov/Telemedicine/03\\_StateProfiles.asp](http://www.cms.hhs.gov/Telemedicine/03_StateProfiles.asp), Accessed August 10, 2006.

<sup>25</sup> Telemedicine and Telehealth Database, Association of Telehealth Providers. Available at <http://tie.telemed.org/professional/state.asp>, Accessed December 5, 2006.

<sup>26</sup> Telemedicine Legislation, National Conference of State Legislatures, September 2005. Available: <http://www.ncsl.org/programs/health/teleleg.htm>, Accessed December 11, 2006.

<sup>27</sup> Lise Youngblade, et al. *Telemedicine for CSHCN: A State-by-State Comparison of Medicaid Reimbursement Policies and Title V Activities*, July 2005. Institute for Child Health Policy, Univ. of FL.

reimburses the community mental health facilities where those professionals work.<sup>28</sup> Hospital outpatient departments and ambulatory surgical centers may be reimbursed for services that are, by definition “telemedicine,” but the state currently has no means by which to track payments.

The California Medicaid program reimburses for physician consultations (medical and mental health) using interactive video teleconferencing. In addition, any provider that can bill for traditional services provided face-to-face may bill for telemedicine services. Telemedicine is billed no differently than face-to-face at both the distant (hub) site and the originating (spoke) site are reimbursed. If provider is out-of-state, a valid license from the state of origin is required.

In Louisiana, physician consultations using interactive video teleconferencing are reimbursable through Medicaid; however, the Mental Health program will reimburse only live consultations (no store and forward). Tertiary care facilities do provide telemedicine services and bill as if face to face. Registered nurses and other allied health professionals, as well as physician assistants, are allowed to perform the service using telemedicine if they are authorized by a primary physician.

The Nebraska Medicaid program will reimburse most Medicaid services when using interactive video teleconferencing. These services are generally covered provided a comparable service is not available within a 30-mile radius of the patient’s home. Payments can be made to non-physicians, certified nurse practitioners, physician assistants, mental health providers, dentists, and ancillary services/therapists. The provider of service must comply with the licensure requirements of the state where the procedure is occurs.

To illustrate the Medicaid reimbursement policies throughout the United States are summarized and presented Table 1.

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<sup>28</sup> Youngblade, p.10.

**Table 1. State Medicaid Programs - Reimbursement for Telemedicine**

	State	Interactive	Store and Forward	Reimburse Hub site (consulting)	Reimburse Spoke site (originating)	Other
1.	Alabama					Pilot project to transmit vital signs from patient's homes to medical personnel.
2.	Alaska	X	X	X	X	
3.	Arizona	X	X	X	X	Non-emergency transportation to and from the spoke site
4.	Arkansas*	X		X	X	
5.	California*	X		X	X	Medical and mental health
6.	Colorado*	X	X			
7.	Georgia*	X		X	X	
8.	Hawaii	X	X			
9.	Illinois*	X	Limited	X	X	
10.	Indiana	X		X	X	
11.	Iowa*	X		X	X	
12.	Kansas*	X		X	No	
13.	Kentucky*	X				
14.	Louisiana*	X	No	X	X	
15.	Maine*	X				
16.	Michigan	X				Only in the upper peninsula, other regions to do not reimburse through Medicaid
17.	Minnesota*	X	X	X	X	
18.	Missouri	X	No			
19.	Montana*	X		X	X	
20.	Nebraska*	X	X	X	X	Available to patients who cannot access comparable service within 30 miles of their home
21.	Nevada	X				
22.	New York	X	X	No	No	
23.	North Carolina*	X	No	75%	25%	
24.	North Dakota*	X	No	X	Only if a medical service is provided	
25.	Oklahoma*	X	X	X	X	
26.	Oregon	X		X	X	
27.	South Carolina	X	No	X	X	
28.	South Dakota*	X	X limited to "near real-time" such as email, phone and fax.	X	X	
29.	Tennessee	X				
30.	Texas*	X	X (imaging services)	X	X	

31.	Utah*	X		X (mental health covered)	X (mental health excluded)	
32.	Virginia	X		X	X	
33.	Washington	X				
34.	West Virginia*	X		X	X	
35.	Wisconsin	X				
36.	Wyoming	X				

Medicaid reimbursement enacted by law or legislation.

Source: Office of Policy and Planning, University of Maryland School of Medicine, December, 2006

Note: An empty cell does not necessarily mean the item is not reimbursable, although that assumption is highly likely, it may also be that the published reports did not state one way or another if these items were eligible for reimbursement.

In summary, all of the 36 states that reimburse through their Medicaid programs cover interactive services except for Alabama, which has a pilot project. Ten states specifically provide for reimbursement using store and forward technology. Almost all states reimbursing specify reimbursing the distant site where professional services are provided; fewer specify reimbursing the originating site. States vary as to whether mental health services are covered. The remaining 14 states do not appear to have Medicaid reimbursement policies:

- 1) Connecticut
- 2) Delaware
- 3) Florida
- 4) Idaho
- 5) Maryland
- 6) Massachusetts
- 7) Mississippi
- 8) New Hampshire
- 9) New Jersey
- 10) New Mexico (Reimbursement program is tentative, based on a verbal agreement, but there have been no reimbursements made to date)<sup>29</sup>
- 11) Ohio
- 12) Pennsylvania
- 13) Rhode Island
- 14) Vermont

The report “Medical Assistance and Telehealth: An Evolving Partnership”<sup>30</sup> describes several strategies for gaining Medicaid reimbursement via telehealth. These include: encouraging the Medicaid agency to make an internal determination for payment, an executive order to Medicaid to reimburse for telemedicine services, legislation or regulation mandating payment for services, working with the Office of the Insurance Commissioner for a regulatory decree barring discrimination in payment for services delivered via telehealth technologies, and authorizing reimbursement on a program by program basis for SCHIP, waiver programs or Medicaid, as determined by each program through contracts with providers. The authors suggest an analysis of

<sup>29</sup> Brown, S2:32-39.

<sup>30</sup> Nina M Antoniotti et al. *Medicaid Handbook - Medical Assistance and Telehealth: An Evolving Partnership*. June 2006. Available at [www.americantelemed.org/news/policy\\_issues/2006\\_medicaid\\_handbook2.pdf](http://www.americantelemed.org/news/policy_issues/2006_medicaid_handbook2.pdf).

how previous amendments were made to Medicaid policy, Medicaid coverage of transportation costs and costs of treating the chronically ill to determine appropriate action.

### **Department of Veterans Affairs**

The Department of Veterans Affairs (VA), a closed medical system for veterans (as noted in chapters I and III), has been a leader in the use of telemedicine services for clinical care. The first recorded use of telemedicine in VA occurred in 1977, for a telemental health project in Nebraska. Twenty years later, the VA began its major systematic implementation of telemedicine in 1997. By 1999, the VA was performing 300,000 telemedicine service episodes per year.

There are over 32 different clinical specialties and home telehealth services for chronically ill and/or disease management. The telemedicine activities are constantly evolving and new activities are being reported to the national office. Services are organized as follows:

- A) Home Telehealth: programs exist in all 21 designated regions for the delivery of care, that provide home telehealth monitoring of chronically ill patients and those needing disease management (i.e. diabetes, chronic heart failure, chronic obstructive pulmonary disease, post traumatic stress disorder, depression, and spinal cord injury).
- B) General Telehealth: videoconferencing technologies with supportive peripheral devices between clinics and hospitals and other hospitals. Services include telemental health, teleradiology, teleendocrinology and telesurgery (specialist consultations).
- C) Store and Forward: primary care based program that assesses veterans with diabetes for retinopathy using teleretinal imaging that expedites referral for treatment and provides health information.

Of an estimated 25 million veterans, 5.5 million receive health services through the United States Department of Veterans Affairs. In Fiscal Year 2006, approximately 22,000 veterans were monitored through home telehealth services, and another 38,000 received general telehealth services, and over 17,000 received store and forward services (e.g., 7,500 received teleretinal screenings). It is important to note that these numbers represent the number of veterans served and not the number of telemedicine episodes per year.

According to Telehealth Program Analyst, Office of Care Coordination, Department of Veterans Affairs (VA), although the VA does not have definitive research, there is anecdotal evidence to date that suggests that telemedicine has increased access health care to the veterans.<sup>31</sup> The VA is about one year away from publishing studies that will most likely support that telemedicine has increased access. Past studies have shown that telemedicine can help with patient compliance, that patients find telemedicine more convenient, and that some activities increase efficiencies (i.e. teleretinal screenings usually take 30 minutes in the office, but through store and forward, a

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<sup>31</sup> John Peters, Telehealth Program Analyst, Office of Coordination of Care, VA, Personal communication: December 22, 2006.

nurse can review data form 100 patients a day, then schedule appointments with the ones who need to see the ophthalmologist).

### **Payers**

With over 68% of Americans insured through private or employer-sponsored health plans,<sup>32</sup> private payers are a substantial force in the health care market. Current data regarding private payer reimbursement policies are difficult to obtain. The results reported here were obtained from a 2003 survey conducted by the American Telemedicine Association and AMD Telemedicine<sup>33</sup> and from articles gathered through researching legislation.<sup>34</sup>

Because Medicare and Medicaid reimbursement for telemedicine has been limited, many private payers have been reluctant to reimburse telemedicine services at the same level as face-to-face services. The concerns expressed by private payers are similar to the public payers and included fear of duplication of services, concerns about quality of images, tort liability and stimulating inappropriate demand or fraud and abuse.<sup>35</sup>

Based upon the available data, private payers are reimbursing for telemedicine in 29 states, as displayed in Table 2. All of these states also reimburse for telemedicine through their Medicaid program. Eight of these states (California, Colorado, Georgia, Hawaii, Kentucky, Louisiana, Oklahoma, and Texas) have legislation prohibiting private insurance payers from excluding coverage of medical services provided by telehealth.<sup>36</sup> The following is a description of the legislation regarding telemedicine reimbursement for a sampling of these states.<sup>37</sup>

The **California** law (SB 1665) approved in 1996 prohibits insurers from requiring face-to-face contact between a clinician and patient for services appropriately provided through telemedicine, subject to the terms of the contract.

In **Colorado** (Chapter 300 of the Laws of Colorado 2001) the legislation limits the applicability of the mandate for coverage of telemedicine services to health plans insuring a person residing in a county with 150,000 or less residents.

**Georgia** law (HB291) states that every policy shall include payment for services provided through telemedicine.

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<sup>32</sup> Pamela Whitten and L. Buis. *Private Payer Reimbursement for Telemedicine Services in the United States*. Michigan State University. November 2006. Available at

<http://www.amricantelemed.org/news/Whitepapers/2006%20Private%20Payer%20Report.pdf>.

<sup>33</sup> AMD Telemedicine. Private payer reimbursement information directory. Available at [http://www.amdtelemedicine.com/private\\_payer/index.cfm](http://www.amdtelemedicine.com/private_payer/index.cfm).

<sup>34</sup> Brown, pg. S2:32-39.

<sup>35</sup> Kirsten R. Smolensky. "Telemedicine Reimbursement: Raising the Iron Triangle to a New Plateau." *Health Matrix: Journal of Law Medicine* 2003, 13(2): 371-413.

<sup>36</sup> Available at [www.amdtelemedicine.com](http://www.amdtelemedicine.com).

<sup>37</sup> Note: State mandates even differ in how they require coverage. While some are direct in requiring coverage, others are indirect prohibiting discrimination in coverage by how the service is provided. Others include qualifiers such as provider distance or county size.

Approved in 2000, **Kentucky** law (HB177) prohibits Medicaid and private insurers from excluding coverage for services provided through telemedicine.

Approved in 1995, **Louisiana** law (SB 773) states that a health care provider participating at the originating terminus of a telemedicine transmission shall be reimbursed at a rate of not less than 75% of the amount of reimbursement for an office visit. The bill prohibits provisions in health and accident policies that discriminate against services provided by telemedicine.

Approved in 1997, **Oklahoma** law (SB 48) provides that health care plans cannot deny coverage for services provided through audio, video, or data communications. This allows compensation for patient consultations and diagnoses and the transfer of medical information through telecommunication technology. The law excludes telephone and fax communications from the term “telemedicine.”

Approved in 1997, **Texas** law (HB 2033) prohibits certain health benefit plans from excluding a medical service solely because the service is provided through telemedicine. Telemedicine services may be subject to deductible, copayment or coinsurance requirements not to exceed requirement for the same face-to-face services.

The majority of the bills state that no health care service plan may require face to face or person to person contact for the medical service to be considered reimbursable; however most bills also exclude standard telephone, facsimile transmission and unsecured email from reimbursable telemedicine activities. See Table below. Copies of the state statutes are included as Appendix D.

**Table 2. States with Private Payer reimbursement for telemedicine**

	State	Private Payer
1	Alaska	BCBS
2	Arizona	BCBS, Mailhandlers, FHP, Aetna, Cigna, United Partners, Pacificare, Premier Healthcare, Health Net Intergroup, First Health Group
3	Arkansas	Aetna
4	California*	All
5	Colorado*	Unknown
6	Georgia*	59 payers
7	Hawaii*	Unknown
8	Indiana	Anthem, Commercial, Sagamore
9	Kansas	BCBS
10	Kentucky*	All
11	Louisiana*	All
12	Maine	Guardian, NYL, Aetna, Maine Health Plan, Cigna, BCBS
13	Michigan	Upper Peninsula Health Plan, BCBS, United Health Care, Preferred Provider
14	Minnesota	Medica, Preferred One, BCBS
15	Missouri	HealthNet, Alliance BCBS, FirstHealth, United Health Care, Health Link
16	Montana	BCBS, Cigna
17	New York	Blue Shield of NE NY
18	North Carolina	Medcost, Tricare, HealthChoice, BCBC
19	North Dakota	BCBS
20	Oklahoma*	All
21	Oregon	Lifewise, Regence BCBS, Providence Health System, Greater Oregon Behavioral Health, Oregon Health Plan Fee For Service
22	South Dakota	Avera Health Plans, Cigna, Dakota Care, Wellmark BCBS, Sioux Valley Health Plan

23	Tennessee	Cariten Pref, Cigna, Dvocare, Tricare, BCBS, Blucare
24	Texas*	All
25	Utah	United Health Care
26	Virginia	Trigon BCBS
27	Washington	Champ, Cigna, Mutual of Omaha, Regence BCBS, Premera Blue Cross, Tricare, Basic Health Plan
28	West Virginia	BCBS
29	Wisconsin	Wausau, Wisconsin Physician Services, WEA Insurance Trust, Group Health

\*Reimbursement required by enacted law.

Source: Private Payer Reimbursement Information Directory:

[http://www.amdtelemedicine.com/private\\_payer/searchform\\_private.cfm](http://www.amdtelemedicine.com/private_payer/searchform_private.cfm)

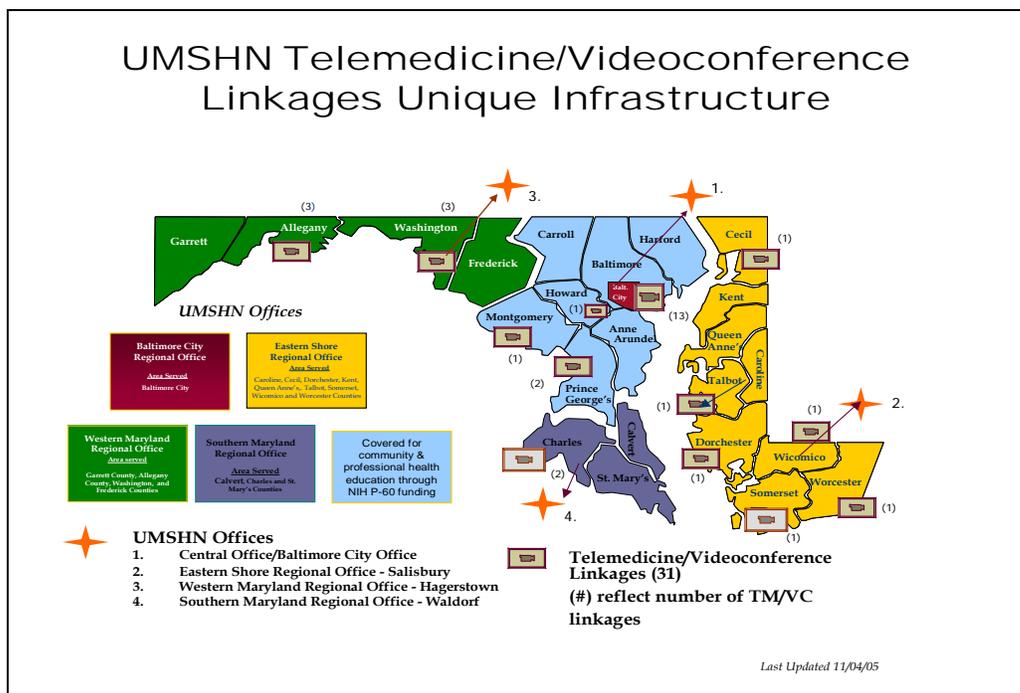
### III. Reimbursement for Telemedicine Services in Maryland

This section provides an overview of the current status of telemedicine/telehealth in Maryland: telemedicine programs, reimbursement for services by Medicare, Medicaid and private payers, utilization of telemedicine services and licensure requirements for practitioners who provide telemedicine services in Maryland and outside the state. The information provided here is based on national surveys, telemedicine data exchanges, and personal interviews conducted with key informants in the state including providers of clinical telemedicine services, health insurance carriers, and state officials at the Maryland Department of Health and Mental Hygiene.

#### Telemedicine Programs in Maryland

The use of telemedicine for clinical services in place of a direct practitioner/patient encounter or for consultation usually involves a center where specialists are located (the hub or distant site) and designated sites in outlying rural areas or in underserved areas of the state (the spokes or originating site) near where the patient resides.

Surveys were sent to 25 of the statewide telemedicine sites of the University of Maryland Statewide Health Network (UMSHN) and to selected physicians in departments where telemedicine is likely to be employed for delivering clinical care by faculty in the University of Maryland School of Medicine and the University of Maryland Medical System (UMMS). Interviews were also conducted with the administrator for the Mid-Atlantic Association of Community Health Centers, where the University of Maryland School of Medicine, through its formal telemedicine partnership through the UMSHN, has provided telemedicine equipment and training.



Key informants from these organizations were asked to respond to a brief questionnaire (by telephone, in person, or via email). Respondents were asked to report whether they were offering clinical telemedicine or telehealth services, the type of service being offered, whether the service was being billed to a third party payer and what payers were being billed. Respondents were also asked about whether lack of insurance coverage (i.e. reimbursement) was an issue in the delivery of services via telemedicine and perceived barriers to reimbursement (see interview schedule in Appendix E).

In general, the results of the survey indicate that two academic medical centers use telemedicine to offer clinical services in Maryland. Additional sources for locating telemedicine programs in the state were also examined, including the Telemedicine Information Exchange (TIE), the Association of Telemedicine Service Providers (ATSP) and the 2004 report of the Telemedicine Research Center (TRC). The TIE lists only two programs in Maryland: the Maryland Brain Attack Center at the University of Maryland Medical Center and the Global Access Program at Johns Hopkins Medicine.<sup>1</sup> Although the ATSP has a membership of 140 individuals and seven organizations, a representative from the ATSP confirmed that there are no organizational members and only two individual members from Maryland, as noted above (telephone interview conducted December 13, 2006). The TRC report, in collaboration with the TIE (which reports results of an online survey of telemedicine networks) confirms this information as well.<sup>2</sup> It should be noted that while these national reports and associations only report two programs in Maryland, other medical departments and associated offices of these two medical centers are employing telemedicine for clinical care although they have not registered with the national association of providers of telemedicine. Some of this telemedicine activity may be supported by specific grants.

All of the responses to the University of Maryland School of Medicine (UMSOM) survey were received from the University of Maryland Medical System (UMMS) or the University of Maryland Statewide Health Network (UMSHN) and its affiliates. Three responses were received from community health centers, four from clinical departments, and one from a community hospital. Of the eight respondents to the survey, more than half (n=5) were offering clinical telemedicine services. However, none of the respondents were billing for these services. Examples of the types of clinical services provided included stroke assessment case conferences with child psychiatrists, direct clinical care for mental health in selected school systems in the state. The Maryland Brain Attack Center has an innovative pilot study on the use of telemedicine for accelerated pre-hospital evaluation of stroke to reduce time to treatment for better patient outcome.

Five providers said they considered lack of insurance coverage/reimbursement for clinical telemedicine services to be a problem; however, providers differed as to the nature of the problem. In general, providers agreed on a lack of understanding about the use of telemedicine services among both insurers and providers. Some felt

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<sup>1</sup> Available at <http://tie.telemed.org/programs-t2/showprogram-t2.asp?item=2642>.

<sup>2</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity. Civic Research Institute, Kingston, NJ, 2004.

providers were unaware of how to code billing for telemedicine services, others felt the billing rates for these services would be too low. Still, others felt that insurers would resist billing for other than face-to-face encounters because they feared an escalation of their costs. Several suggested the need for better outcome measurement tools and the need to establish consensus among providers and insurers on the economic value of telemedicine/telehealth services.

In addition to clinical services provided via telemedicine, the University of Maryland Statewide Health Network (UMSHN), in collaboration with the various clinical departments, offers ongoing continuing medical education (CME) courses for physicians and other health care professionals using its telehealth/videoconferencing linkages throughout the state. The continuing education programs include surgery grand rounds, tumor boards, and case conferences on disease management and prevention as well as lectures on specific diseases as requested by community health centers (CHCs) and community hospitals in the state.

Providing access to education on advances in prevention, current guidelines for treatment, disease management and patient care, serves an important role in keeping providers of underserved patients abreast of advances in a convenient way while not having to take off work to travel to a University for educational credits. The 2006 CME series included the following programs: Smoking Cessation in May (2006); Chronic Kidney Disease in June (2006); Cardiovascular Disease - Management of Heart Failure in October (2006); New Therapies for the Management of Diabetes in January (2007) and a program on Pediatric Obesity and Diabetes is planned for February (2007). Additional programs are being planned for Spring 2007 on Mental Health and Health Disparities. Community Health Center physicians and other health care professionals - nurse practitioners, physician assistants, pharmacists, nurses and dentists at Total Health Care (THC); Greater Baden Medical Services, Inc.; Park West Health System; and South Baltimore Family Health Centers have participated to date, as well as physicians and other clinical staff at University Care at Edmondson Village; and physicians in Southern Maryland meeting at the UMSHN regional office in Waldorf.

According to Miguel McInnis, MPH, Chief Executive Office (CEO) of the Regional Primary Care Association: "In partnership with the UMSHN, the Mid-Atlantic Association of Community Health Centers now has the ability to develop telemedicine clinical education training centers throughout the region which provide clinicians in rural and underserved areas the ability to receive access to critical training remotely and improve the quality of care to patients who are economically disadvantaged, uninsured and underinsured."<sup>3</sup> The CME program of UMSHN is supported by the Maryland Cigarette Restitution Fund Program. Topics for the series were solicited from the community health centers (CHCs).

Also, the Psychiatry department at the University of Maryland School of Medicine has successfully piloted educational programming to the Worcester County mental health

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<sup>3</sup> Center for Health Disparities, *Partners*, Volume 1, Number 7, December 2006.

center staff and has with Hopkins psychiatry department initiated best practice conferences with seven sites across the state.<sup>4</sup>

A number of attempts were made to reach a representative of Johns Hopkins Medicine; however, information was obtained from the Johns Hopkins International website. While Johns Hopkins has developed an extensive network for consultation with its specialists, most of the consultations are either in other states or outside of the United States according to Alexander Nason, PhD (Johns Hopkins International Senior Manager of Business Development and Chair of the newly formed Committee on Telemedicine at Johns Hopkins Medicine).<sup>5</sup> The Committee on Telemedicine is designated to coordinate the many growing telemedicine programs at Johns Hopkins Medicine, including the Johns Hopkins Global Access Lecture Series, which allows overseas physicians to participate in live presentations by Hopkins specialists. The Emergency Access program at Johns Hopkins is working with the International SOS to provide air-to-ground medical consultations. Johns Hopkins also collaborates with Medical Missions for Children, a non-profit group that peer reviews complex medical cases in developing nations.

Locally, Hopkins works with the Maryland Department of Corrections to provide some clinical services remotely to prisoners in the state system. The Wilmer Eye Institute also has a project that allows community physicians to digitally transmit retinal images to specialists for evaluation. Other pioneering projects use robotics with telemedicine technology for post-operative evaluation of patients and for monitoring of surgical intensive care patients.<sup>6</sup>

Dr. Nason cited connecting physicians to technology and program opportunities as one of the challenges to advancing telemedicine. In addition, he added that funding is also an issue and most of the funding for seed grant projects has been targeted to rural areas limiting the efforts to put together telemedicine projects for Baltimore City, such as a two-way video-based health screening.<sup>7</sup>

Activities of the Department of Veterans Affairs (VA) in Maryland should also be noted. As stated earlier, the VA has been a national leader in the use of telemedicine services for clinical care and the management of chronic disease (see Chapter II). In 1993, the Baltimore VA Medical Center (VAMC) implemented through faculty of the University of Maryland School of Medicine, the first completely film-less radiology department in the United States which uses digital radiology systems (PACS) for teleradiology. Dermatologists at the Baltimore VAMC have used teledermatology and store and forward imaging to assess skin conditions<sup>8</sup> and psychiatrists have assessed the use of telepsychiatry to treat depression.<sup>9</sup>

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<sup>4</sup> Rob White, *Telepsychiatry White Paper*, University of Maryland School of Medicine, January 17, 2007.

<sup>5</sup> Available at <http://www.jhintl.net/JHI/English/Doctors/Publications/IPU-Nov02-Videoconferencing>.

<sup>6</sup> Available at <http://www.hopkinsmedicine.org/mediaII/enews/picture.html>.

<sup>7</sup> Available at <http://www.hopkinsmedicine.org/mediaII/enews/picture.html>.

<sup>8</sup> VA, *HSR&D Management Brief*, Nov. 1999, Available at [http://www1.va.gov/resdev/resources/pubs/docs/mb12\\_telemed.pdf](http://www1.va.gov/resdev/resources/pubs/docs/mb12_telemed.pdf).

<sup>9</sup> Paul E Ruskin, et al, "Treatment Outcomes in Depression: Comparison of Remote Treatment Through Telepsychiatry to In-Person Treatment." *American Journal of Psychiatry*. 161(8) (2004): p 1471.

## **Utilization of Clinical Telemedicine Services**

One method of assessing clinical telemedicine activity in Maryland would be to look at billable services. The Maryland Medical Care Database of the Maryland Health Care Commission (MHCC) is based on claims data, indicating activity for which providers are seeking reimbursement. The MHCC database shows little evidence of claims filed through private and public payers for services provided through telemedicine in the state. No claims with a modifier “TM or tm” were reported for 2004 and only two claims coded in this way were filed by private payers in 2005-2006 (as compiled). One claim was filed by Optimum Choice and one by CareFirst. (See payer section).<sup>10</sup> While Optimum Choice, a subsidiary of United Healthcare does cover telemedicine, CareFirst of Maryland does not. Results may indicate miscoding or lack of understanding of payment policy.

The Telemedicine Research Center (TRC) is the only central source of information on volume of telemedicine services in the United States. The TRC surveyed 88 organizations offering services by way of telemedicine connections in 2003. Findings in the 2004 report of the Telemedicine Research Center indicate 48,194 teleconsultations, excluding radiology, took place in 2003 in 46 states.<sup>11</sup> The two Maryland networks, identified previously as the Maryland Brain Attack Center and the Johns Hopkins Global Access Lectures, responded to this survey but did not respond to questions concerning volume of activity. While the report indicates the number of teleconsultations is growing, consultations via this medium still represent a small amount of all consultations.

Among the 88 telemedicine networks responding to the TRC survey, the most common clinical specialties were mental health, cardiology, pediatrics, dermatology, neurology, and orthopedics.<sup>12</sup> The five states with the most telemedicine programs and the greatest number of sites were California, Florida, Hawaii, New York and Texas. California, Hawaii, Kansas, New York, Tennessee, Texas and Florida had the greatest amount of reported activity.<sup>13</sup>

## **Payers**

As noted earlier, Medicare reimburses for certain interactive, “live” clinical services and consultations provided in designated *rural* Health Professional Shortage Areas (HPSA) and in counties in non-metropolitan services areas (non-MSAs). The originating sites (spokes) in Maryland eligible for reimbursement are: the office of a practitioner, a hospital, a rural health clinic and a federally qualified health center (FQHC). Reimbursable services include consultations (including radiology), outpatient visits, individual psychotherapy, pharmacologic management, psychiatric diagnostic interview

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<sup>10</sup> Maryland Health Care Commission, Email communication: January 2, 2007.

<sup>11</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity. Civic Research Institute, Kingston, NJ, 2004.

<sup>12</sup> Ibid. pg. 9.

<sup>13</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity, pg. 8.

examination, end-stage renal disease related services, and individual medical nutrition therapy.<sup>14</sup>

Applying these reimbursement requirements to Maryland, Medicare beneficiaries are eligible for telemedicine services only if they present from a rural Health Professional Shortage Area (HPSA) or a non-metropolitan service area (MSA) county as the originating (spoke) site for service. According to the Director of the Federal Office for the Advancement of Telehealth, there are seven designated counties that are non-MSAs in Maryland that receive Medicare reimbursement. Five counties are on the Eastern Shore (Caroline, Dorchester, Kent, Talbot and Worcester), one is in Southern Maryland (St. Mary's), and one is in Western Maryland (Garrett).<sup>15</sup> Some of these counties are also rural HPSAs. There are other federally designated HPSAs located through out the state, even in Baltimore City. However, because they are not designated "rural", they do not qualify for reimbursement. To further complicate the situation, Medicare has ruled that a beneficiary can be reimbursed if the beneficiary resides in the qualifying rural area even if the originating site, where the beneficiary presents for service, is outside the area. (See Appendix F for HRSA explanation of reimbursement under Medicare in rural areas).<sup>16</sup>

While reimbursement by Medicare is usually a driver for reimbursement in other payer markets, the narrow geographic focus of Medicare reimbursement for telemedicine services does not encourage the policies of reimbursement in other markets.

Further while the distant site, where the specialist is located, receives reimbursement equal to what Medicare would have paid for a face to face encounter, the originating site, where the patient is, only receives the lesser of 80% of the payment for the services or \$20 as a facility fee, leaving little incentive for a local provider to refer. It should be noted, however, that changes in Medicare reimbursement policy in 2000 make it less burdensome for a local practitioner to refer a patient for telemedicine. Unless medically necessary, a non-medical staff person may be present with the patient at the originating site so the cost of services, in terms of medical manpower required, is minimal.

It is understandable that without a core base of Medicare eligible patients, other providers have been reluctant to invest in telemedicine equipment and other payers have declined to reimburse for these services. Information from Medicaid and several large commercial insurers in Maryland confirms policies of non-reimbursement for clinical medical services provided via telemedicine that was reported by practitioners above. As noted earlier in Chapter I, the federal Medicaid program does not require or prohibit reimbursement for services delivered by means of telemedicine and leaves the decision on reimbursement to the states. The Maryland Medicaid program does not have a policy of reimbursement for telemedicine in its fee for service population or

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<sup>14</sup> CMS, Medicare Policy Manual #100-02, Chapter 15, Covered Medical and Other Health Services, Available at <http://www.cms.hhs.gov/Manuals/IOM/list.asp>

<sup>15</sup> Dena Puskin, Sc. D., Director of the Office for the Advancement of Telehealth, Health Research and Services Administration (HRSA), US Department of Health and Human Services, Telephone interview and e-mail communication: December 20, 2006.

<sup>16</sup> Available at <http://www.hrsa.gov/telehealth/pubs/reimb.htm>.

capitulated MCO population.<sup>17</sup> At least thirty-six states do reimburse for some telemedicine or telehealth services through Medicaid programs (See Chapter II for a complete discussion of states that reimburse for telemedicine under their Medicaid program and types of covered services).

Studies by national organizations indicate several states mandate coverage for telemedicine services in the private market (see Chapter II) and, furthermore, that even when coverage is not mandated, some carriers provide coverage or, at least, do not exclude coverage for telemedicine services.<sup>18</sup> Two major carriers in Maryland were interviewed. CareFirst does not cover services delivered via telemedicine in the private payer market. CareFirst also does not cover transportation unless medically necessary such as ambulance transport.<sup>19</sup> A spokesperson for Optimum Choice and Mid-Atlantic Medical Services, LLC (MAMSI), subsidiaries of UnitedHealth Group, indicated United Healthcare covers telemedicine in accordance with Medicare policy as established by CMS<sup>20</sup>.

Given that the Maryland Health Care Commission's medical care database did not show any other claims activity among private payers for telemedicine, as noted above, we did not conduct interviews with other private payers in Maryland.

### **Maryland Licensure Requirements for Practitioners who use Telemedicine to Provide Clinical Care or Consultations**

The issue of lack of uniformity of state licensure laws plays a role in limiting the national market for telemedicine and is thought to be a factor in slowing the adoption of telemedicine technologies.<sup>21</sup> Ironically, it is easier for a U.S. physician to practice telemedicine in some foreign countries where there are few regulatory restrictions than in the United States where each state has its own licensure requirements.

In general, physicians are subject to licensure laws in the state where they practice medicine. Licensure laws are designed to protect the citizens of the state. In the case of telemedicine, the situation may arise where practitioners who are licensed in their home state where their practice is located, care for patients in another state. Therefore, they are required to be licensed to practice medicine in the patient's state as well. The issue of state licensure has become even more complicated with the use of the Internet to give medical advice, especially when the advice is given for a fee. The Center for Telemedicine Law (CTL) surveyed the 50 states to identify laws, policies, and practices related to licensure. According to the CTL survey, 33 states require a license to practice telehealth and three other states have regulations. Twenty-four states require full licensure for out-of-state physicians who practice telemedicine while seven have a special purpose license for those who consult on an irregular basis. Maryland is one of

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<sup>17</sup> Susan Steinberg, Acting Deputy Secretary for Health Care Financing, Maryland Department of Health and Mental Hygiene, Personal Interview: December 18, 2006.

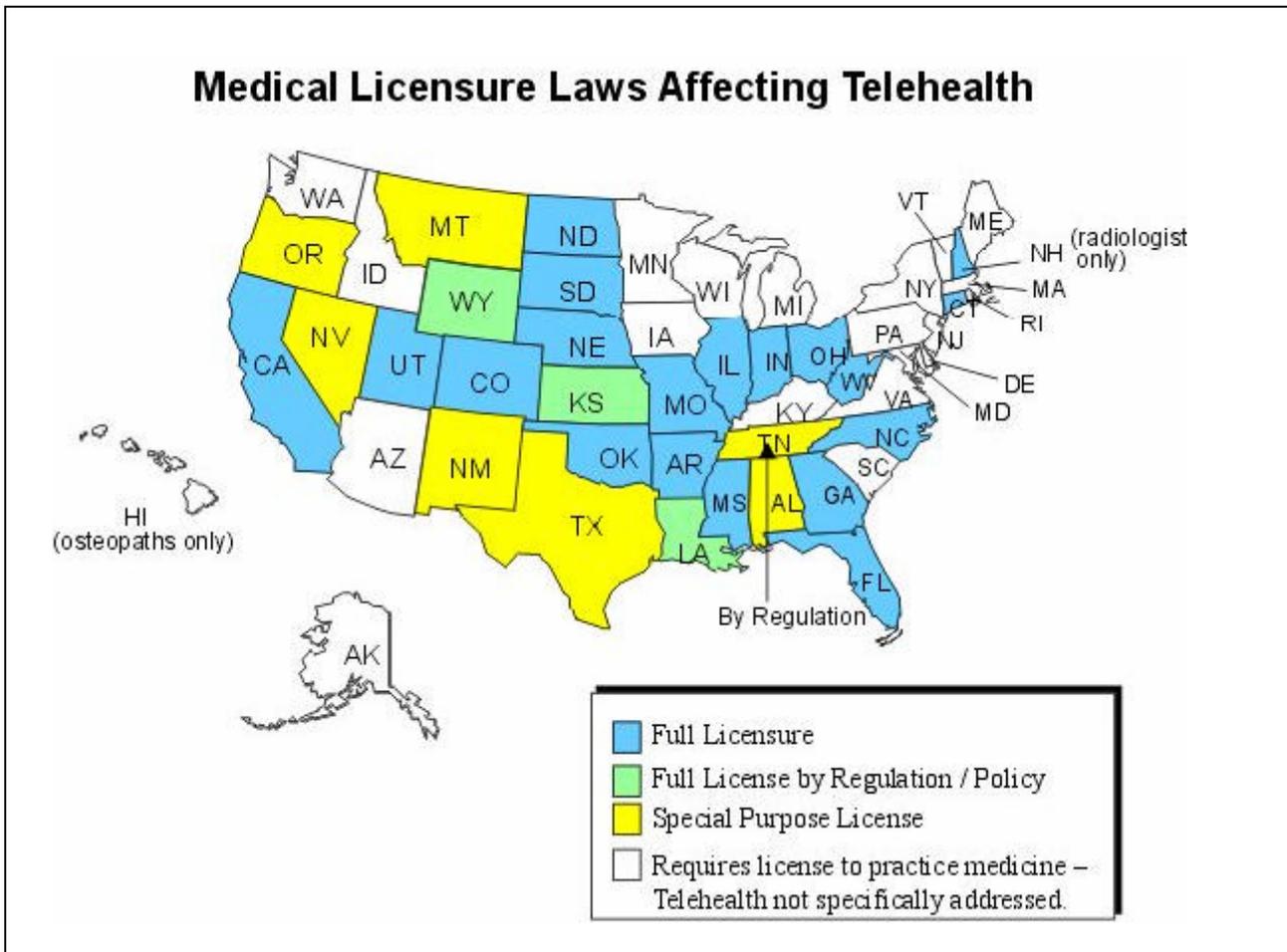
<sup>18</sup> HRSA, Center for Telemedicine Law, 2003.

<sup>19</sup> Patti Ciotti, Coordinator of Legislative Affairs, Carefirst Blue Cross Blue Shield, Personal interview: December 12, 2006.

<sup>20</sup> Beth Sammis, PhD., United Healthcare, Governmental Affairs, Mid-Atlantic Region, Personal Interview: January 3, 2007.

<sup>21</sup> David Brantley, K Laney-Cummings, R. Spivackl. *Innovation, Demand and Investment in Telehealth*. US Department of Commerce. February 2004.

17 states that does not have specific laws regarding telehealth or telemedicine. This means that physicians practicing telehealth or telemedicine are treated exactly the same as physicians with practices in state, therefore, all licensure requirements must be met and a license to practice medicine issued.<sup>22</sup> It is interesting to note that many of the states that have provisions for special purpose licensure are located west of the Mississippi River where states are larger and specialists may be at a greater distance (See Appendix G for a summary of state telemedicine licensure provisions<sup>23</sup>).



As noted above, Maryland has no special provisions for out-of state physicians wanting to practice telemedicine or telehealth in the State. Conversely, Maryland physicians wishing to practice telemedicine elsewhere must comply with relevant laws and regulations of the state where the patient being treated is located. According to Karen Wolfe, Policy Analyst at the Maryland Board of Physicians, the Board will issue new regulations in early January 2007 to clarify its position with regard to medical advice

<sup>22</sup> Brantley, February 2004.

<sup>23</sup> Ibid.

given via websites for compensation. The regulations will reiterate the need for a Maryland license.<sup>24</sup>

Maryland law does not require an out-of-state physician to have a Maryland license to consult with a Maryland physician if the Maryland physician is actually treating the patient [Health Occupations 14-302(2)]. Also, a physician who resides in another state or jurisdiction adjoining Maryland whose practice extends into this state but who does not have an office in this state does not need a license if the same privileges are extended to physicians of Maryland by the adjoining state or jurisdiction [Health Occupations 14-302(4)]. In practice, this means physicians in the District of Columbia do not need a Maryland license to practice in Maryland. There is also an exception from full Maryland licensure requirement for an “eminent physician” from outside the state. This usually refers to foreign physicians, according to Karen Wolfe. Some standards still apply (Health Occupations 14-319).<sup>25</sup>

There has been a movement toward greater uniformity in examination requirements for physicians in recent years. Physicians are licensed by a national examination and efforts are underway to promote less restrictive rules by the Federation of State Licensure Boards. Congress has also expressed interest in the topic. States differ in the number of failures of the licensure exam permitted, the exceptions process and the time allowed for completion of requirements. Also, credentialing is required for licensure in many states including Maryland which entails providing documentation of fulfillment of educational requirements on a state by state basis.

Other Maryland health professions who are eligible to receive reimbursement for telemedicine services under Medicare do not have special provisions in their licensure statute concerning telemedicine. Registered nurses and licensed practical nurses may be licensed through an endorsement process to practice in other states though an interstate compact among states that agree to similar licensing requirements. However, advanced practice nurses (nurse practitioners, nurse midwives) who are the only nurses eligible for Medicare reimbursement for telemedicine services must be certified by the state of Maryland to practice (Health Occupations 8-301d).<sup>26</sup> The Boards of Social Work<sup>27</sup>, Pharmacy<sup>28</sup>, and Dental Examiners<sup>29</sup> indicated their statutes did not refer to telemedicine or telehealth services.

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<sup>24</sup> Karen Wolfe, Maryland Board of Physicians, Personal communication and verbal interview: December 13, 2006.

<sup>25</sup> Ibid.

<sup>26</sup> Available at <http://www.mbon.org>.

<sup>27</sup> Gloria Hammel, Staff Social Worker, Board of Social Work Examiners, Personal communication: January 5, 2007.

<sup>28</sup> Shirley A. Costley, Licensing Program Manager, Board of Pharmacy, Communication by e-mail, January 5, 2007.

<sup>29</sup> Murray Sherman, Legal Assistant, Maryland Board of Dental Examiners, Personal communication: January 5, 2007.

#### IV. Telemedicine's Potential to Improve Health Care Access in Maryland

The advancement in telecommunications technology provides innovative methods of delivering healthcare. Telemedicine can successfully assist in providing medical services to Maryland's residents in underserved regions.

##### Maryland's Underserved Regions

Maryland is a mid-Atlantic state comprised of 23 counties and Baltimore City with a total land area of 9,774 square miles. According to the 2000 United States Census, the population ranges from nearly 900,000 in Montgomery County, to approximately 650,000 in Baltimore City, to 30,000 in more rural counties throughout the State. Maryland is 86% urban and 14% rural.<sup>1</sup> In 2000, the racial distribution of the State was 64% white, 27.9% African American, and the remainder Asian, Hispanic, and Native American. More recent projections (2005 estimated census) estimate the non-Caucasian population at close to 40%. Baltimore, the largest metropolitan area in the State, has a population that is 64% African American and has a poverty rate of approximately 22.9%.<sup>2</sup>

For many Americans, lack of insurance is a major barrier to health care access on a routine basis. *Care Without Coverage: Too Little, Too Late*, a 2002 report from the Institute of Medicine<sup>3</sup>, found that millions of working Americans would live longer and better if they obtained health insurance. Nearly 14.6% or 41.2 million people of the total US population of 282 million people lacked health coverage for the year 2000. In Maryland from 1996-2001, four areas exceeded a cumulative 15% health care non-coverage rate: Baltimore City (17.3%), Caroline County (20.9%), Somerset County (19.4%), and Garrett County (23.7%). Nine other counties, eight of which were either in Western Maryland or in the Eastern Shore region, had a health care non-coverage rate exceeding 10%. Reimbursement for telemedicine services by private payers and Medicaid will not directly benefit the uninsured population. However, for those uninsured in remote areas of the state who do have to pay for care out-of-pocket, the ability to access services via telemedicine might at least result in less lost productivity in terms of absence from work, travel time and transportation costs. There may also be some potential for expanding services to the uninsured through community health centers, which are resources for care, by using telemedicine to access specialists or consultants.

Telemedicine may also be a vehicle for providing access where a shortage of physicians and other practitioners exists. The United States Department of Health and Human Service's (DHHS) Health Research and Services Administration (HRSA) measures the availability of health care professionals overall and specifically primary care providers, mental health providers, and dentists by census tract. HRSA designates

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<sup>1</sup> US Census Bureau 2000.

<sup>2</sup> Ibid.

<sup>3</sup> Institute of Medicine, 2002.

health professional shortage areas (HPSAs) which can include entire counties or specific census tracts within a county. According to the HRSA website, there are HPSAs or shortage areas in 13 counties or parts of counties in Maryland and in areas of Baltimore City. Entire counties that are designated HPSAs are Calvert, Garrett, Kent, and St. Mary's counties.

It is important to note that for the purpose of reimbursement for telemedicine services, the Centers for Medicare and Medicaid Services (CMS) distinguishes between rural and urban HPSAs reimbursing only those HPSAs in designated rural areas and reimbursing non-MSAs. Current Medicare policies for telemedicine do not focus on practitioner manpower shortages and, instead, rely on rural designations as a proxy for lack of access. This results in some rural counties being allowed reimbursement for telemedicine under Medicare that are not designated shortage areas. The policy also downplays access issues experienced by urban uninsured populations. (See Chapters II and III)

The availability of primary care services has been shown to lead to greater continuity of care and earlier detection and prevention of disease. HRSA has designated several counties or census tracts within counties in Maryland as Health Professional Shortage Areas (HPSAs) for primary care. The criteria for (HPSA) designation includes having a shortage of primary medical care, special population groups or a shortage of medical or other public facilities such as community health centers.<sup>4</sup> Ten counties or parts of counties in Maryland are designated federal primary care HPSAs. Nine of the ten counties with primary care HPSA status are in Western Maryland (Allegany and Garrett counties) or on the Eastern Shore (Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, and Worcester counties), and one (Calvert county) is located in Southern Maryland. (See Appendix H for HPSA designations)

In addition to HPSAs there are federal designations for Medically Underserved Areas (MUA) or Populations (MUP) with inadequate access to primary health care services using several factors in addition to the availability of health care providers. These include infant mortality rates, poverty rates, percentages of population aged 65 or over, and the ratio of primary care physicians per 1,000 population for the area examined. Seven counties in Maryland are designated as federal MUA/MUP (five are located on the Eastern Shore in Caroline, Dorchester, Kent, Somerset, and Worcester counties; one is in Western Maryland in Garrett county; and one is in Southern Maryland in Calvert county).

While a shortage of physicians and practitioners in remote areas has been an obstacle to access in the past, the advancement of telecommunication technology makes use of telemedicine to improve access more feasible in the future. Currently, the Maryland Rural Broadband Cooperative is being established in order to offer broadband service to the Eastern Shore, Southern Maryland, and Western Maryland.<sup>5</sup> The implementation

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<sup>4</sup> Available at <http://bhpr.hrsa.gov/shortage/>.

<sup>5</sup> Rural Maryland Council Winter 2006 Newsletter, p 2.

of these infrastructure improvements will technologically enable Maryland's rural regions to efficiently integrate telemedicine services.

### **Efficacy of Telemedicine to Improve Cost, Quality and Access**

Current research on the efficacy of telemedicine services is mixed and varies with the application of the technology. The use of telemedicine to deliver health care services has the potential to result in "lower costs, particularly if telemedicine technology is used for an extended period of time, likely improves or maintains quality, and increases access."<sup>6</sup> This section will review the effect of various telemedicine applications on the cost, quality and access to healthcare.

In 2004, it was found that the two most commonly reported telemedicine clinical applications were management of patient condition and diagnostic exam interpretation.<sup>7</sup> Some of the most common clinical services include mental health, radiology, pediatrics and dermatology.<sup>8</sup>

### **Cost**

An important determinant to the implementation of telemedicine services is cost. The correct determination of the costs and benefits of telemedicine can be challenging and, as a result, there is some disagreement regarding the evidence for cost-effectiveness of telemedicine.<sup>9</sup> Some drawbacks of existing studies include small sample size, restricted geographic location, poor methodological design such as lack of a control group and restricted practice area. Also, most studies of cost effectiveness fail to take into account externalities such as transportation costs and loss of productivity and economies of scale. In 2001, an evidence review conducted by AETNA for AHRQ concluded there was not enough evidence to support reimbursement for telemedicine<sup>10</sup>. Since then, more definitive studies have been published. There is some convincing evidence that teleradiology is cost effective.<sup>11</sup> Studies of teledermatology show while the fixed costs were higher than for a conventional dermatology consultation, as the equipment costs go down with use, the cost effectiveness increases.<sup>12</sup>

Some studies and various on-going clinical telemedicine programs have reported on telemedicine's potential for cost-effectiveness. For example, a recent study conducted by the University of Maryland School of Medicine, found that telepsychiatry consultations had "comparable outcomes and equivalent levels of patient adherence,

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<sup>6</sup> Kirsten Rabe Smolensky. "Telemedicine Reimbursement: Raising the Iron Triangle to a New Plateau." *Health Matrix: Journal of Law Medicine* 2003, 13(2): 371-413.

<sup>7</sup> *2004 TRC Report*, p 19.

<sup>8</sup> *Ibid.* p 20.

<sup>9</sup> Smolensky, p 386.

<sup>10</sup> David Brantley, K Laney-Cummings, R. Spivackl. *Innovation, Demand and Investment in Telehealth*. US Department of Commerce. February 2004.

<sup>11</sup> *Ibid.*

<sup>12</sup> *Ibid.*

patient satisfaction, and health care cost” to in-person treatment.<sup>13</sup> Other studies have concluded that psychiatric services can be effectively offered to rural patients or to the underserved by way of telemedicine’s videoconferencing technology.<sup>14,15</sup> Still others have shown cost effectiveness of telemedicine in treatment of high risk pregnancy by reducing premature births<sup>16</sup> and in managing patients with congestive heart failure<sup>17</sup> by lowering hospital admission rates.

Studies conducted with the prison population have also documented the cost-effectiveness of telemedicine services in the correctional setting. A study conducted at the facilities of the Virginia Department of Corrections reported that a treatment program which consisted of conventional outpatient clinical and telemedicine settings achieved a “sharp decrease in viral load levels among HIV-positive inmates, treatment compliance has improved, and there has been a reduction in all HIV-related morbidities except malignancies. Overall, care of HIV-positive inmates is improving and approaching standard levels of care”<sup>18</sup> and the use of telemedicine “increased access to care for HIV-positive inmates and generated cost savings in transportation and care delivery.”<sup>19</sup><sup>20</sup> Another telemedicine demonstration project conducted at three correctional facilities indicated that “based on data from the study, the cost-benefit analysis concluded that a telemedicine consultation would cost an average of \$71, compared with \$173 for a conventional (face-to-face) health care consultation—a savings of nearly 60%.”<sup>21</sup>

Studies on the use of telemedicine services for asthma management also have implications for reducing health care costs by reducing hospitalizations, emergency department visits as well as improving the quality of care. Statistics from the Maryland Department of Health and Mental Hygiene indicate that approximately 11.9% of Maryland adults and 11.1% of Maryland children have a history of asthma. Additionally, persons at increased risk for asthma and its complications include the elderly, the very young, African-Americans, low-income individuals, and individuals in some jurisdictions, particularly Baltimore City. In 2003, charges for hospitalizations due to asthma totaled

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<sup>13</sup>Paul E Ruskin, et al., “Treatment Outcomes in Depression: Comparison of Remote Treatment Through Telepsychiatry to In-Person Treatment.” *American Journal of Psychiatry* 2004, 161(8): p 1471.

<sup>14</sup>Betty L. Charles. “Telemedicine Can Lower Costs and Improve Access.” *Healthcare Financial Management* April 2000; p 66-69.

<sup>15</sup>Barbara M. Rohland. “Telepsychiatry in the Heartland: If We Build It, Will They Come?” *Community Mental Health Journal*, 2001, 37(5): 449-459.

<sup>16</sup>John Morrison, et al. “Telemedicine and Cost Effective Management of High Risk Pregnancy” *Managed Care*, 2001 Nov; 10(11) 42-6, 48-9.

<sup>17</sup>C. Burgess, et al., (2001) – See page 5 of Chap. I.

<sup>18</sup>Michael T. Wong. “HIV Care in Correctional Settings is Cost-Effective and Improves Medical Outcomes.” *Infectious Diseases in Clinical Practice*, 2001, 10(3 Suppl): S9.

<sup>19</sup>M. J. McCue, et al. “The case of Powhatan Correctional Center/Virginia Department of Corrections and Virginia Commonwealth University/Medical College of Virginia.” *Telemedicine Journal*, 1997, Spring; 3(1):11-7.

<sup>20</sup>Statistics indicate that at year end 2004, there were 792 HIV-positive inmates in Maryland, which accounts for 3.4 percent of the total custody population. See HIV in Prisons, 2004, 11/06. U.S. Department of Justice - Office of Justice Programs Bureau of Justice Statistics. Available at <http://www.ojp.usdoj.gov/bjs/pub/pdf/hivp00.pdf>.

<sup>21</sup>*Implementing Telemedicine in Correctional Facilities*. U.S. Department of Justice–U.S. Department of Defense. May 2002, p. 7. Available at <http://www.ncjrs.gov/pdffiles1/nij/190310.pdf>.

\$41 million and charges for emergency department visits due to asthma totaled an additional \$28 million.<sup>22</sup>

Various studies on the impact of asthma management using telemedicine have been undertaken. For example, the Packard Children's Hospital designed an intervention strategy at several urban schools in California which included patient consultations through videoconferencing.<sup>23</sup>

In 1998, the University of Maryland School of Medicine in partnership with Shore Health System's Regional Cancer Center in Easton, initiated a teleoncology pilot program. This program was supported by an internal medical school grant and provided videoconferencing equipment and the services including tumor boards, physician consultations, and multidisciplinary cancer conferences. The telehealth system was also used to set up virtual meetings among ministers in Baltimore City and on the Eastern Shore.

In 2003 the UMSOM developed a "3D remote treatment planning system" for developing radiation therapy treatment plans for cancer patients in both Howard and Montgomery Counties. Part of the leading technology was supported by the University of Maryland Statewide Health Network, through Maryland Cigarette Restitution Fund Program.

## **Quality**

Quality of care is another important factor. Like cost, quality can be difficult to measure. Most studies of quality are either studies of patient satisfaction, clinician satisfaction or outcome comparison studies.<sup>24</sup> The term 'quality' is difficult to define, although as a general guideline, experts look to whether the appropriate structure, process or outcome was achieved. Structure includes such variables as characteristics of the providers of care, tools or resources and organizational setting, process includes the technical management of care.<sup>25</sup> Measures of outcome include mortality rates, hospital length of stay and quality of life.<sup>26</sup>

Most available studies compare patient or clinician satisfaction with services provided via telemedicine compared to traditional sources of care.<sup>27, 28</sup> Generally, patient

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<sup>22</sup> Available at [http://www.fha.state.md.us/mch/asthma/data\\_surv.html](http://www.fha.state.md.us/mch/asthma/data_surv.html).

<sup>23</sup> Pamela S. Whitten and DJ Cook, "School-based telemedicine: using technology to bring health care to inner-city children." *Journal of Telemedicine and Telecare*. 1999; 5 Supplement I:S23-25.

<sup>24</sup> Smolensky, p.390

<sup>25</sup> Ibid.

<sup>26</sup> Ibid.

<sup>27</sup> Pamela Whitten and F Mair. "Systematic Review of Studies of Patient Satisfaction with Telemedicine," *British Journal of Medicine*, 2000, p. 1517.

<sup>28</sup> R. Roine, et al. "Assessing Telemedicine :A Systematic Review of the Literature." *Journal of the Canadian Medical Association*, 2001, p. 765.

satisfaction rates are high.<sup>29</sup> However, it should be noted that some of these studies have methodological problems because the patient intermittently saw the provider in person. Studies of clinician satisfaction are more mixed with some studies reporting clinicians felt telemedicine increased their workload, mental effort and technical skills.<sup>30</sup>

Outcome comparative studies are perhaps the most useful in determining quality of care.<sup>31</sup> Various studies evaluating the Department of Veterans Affairs (VA) Care Coordination Home Telehealth (CCHT) program have compared the success of telemedicine services to their traditional (face-to-face) medical counterparts.<sup>32</sup> For instance, one study assessed the healthcare use among veterans with diabetes mellitus enrolled in the VA CCHT program found a reduction in “avoidable healthcare services for diabetes mellitus, such as hospitalizations, and reduced care coordinator-initiated primary care clinic visits.”<sup>33</sup> Another study evaluating the VA CCHT program indicated a statistically significant reduction in hospitalizations, emergency room use, average number of bed days of care, and improvement in the health-related quality of life role-physical functioning, bodily pain, and social functioning.<sup>34</sup> More studies in this area with a large database are underway. The efficacy of telehealth in managing cardiovascular disease has been shown in smaller studies<sup>35,36</sup> and will be assessed by the VA.

In the area of dermatology, a study evaluating the reliability and accuracy of dermatologists’ diagnoses and treatment plans resulting from telemedicine consultations compared to clinic-based found that diagnostic accuracy is comparable among clinic-based examiners and digital image examiners.<sup>37</sup>

The use of telemedicine as a way to deliver pediatric care has grown rapidly<sup>38</sup> and, as such, an increasing number of studies relating to quality of care for this clinical specialty have been undertaken. One study reported that an Internet-based “store and forward” pediatric consultation system had “improved the quality of patient care by providing expeditious specialty consultation...to a population of underserved children.”<sup>39</sup> An additional study, assessing the impact of telemedicine on absence from child care due to illness in an urban setting, concluded that “telemedicine holds substantial potential to reduce the impact of illness on health and education of children, on time lost from work

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<sup>29</sup> Smolensky, 2002, p.393.

<sup>30</sup> Supra 110.

<sup>31</sup> Ibid. p 390.

<sup>32</sup> Ibid. p395

<sup>33</sup> T. E. Barnett, et al. “The effectiveness of a care coordination home telehealth program for veterans with diabetes mellitus: a 2-year follow-up.” *American Journal of Managed Care*, Aug. 2006. 12(8): p. 467.

<sup>34</sup> N. R. Chumbler, et al., “Evaluation of a care coordination/home-telehealth program for veterans with diabetes: health services utilization and health-related quality of life.” *Evaluation and the Health Professions*, 2005 Dec; 28(4): p. 464.

<sup>35</sup> Knox et al. *Journal of Cardiovascular Nursing*, 1999.

<sup>36</sup> Burgiss et al. “Cost of Care Reductions Using Telehealth: A Comparative Analysis”, University of Tennessee Medical Center, Knoxville, Tenn.

<sup>37</sup> Available at [http://www.research.va.gov/resources/pubs/docs/mb12\\_telemed.pdf](http://www.research.va.gov/resources/pubs/docs/mb12_telemed.pdf).

<sup>38</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity, p 9.

<sup>39</sup> Charles W. Callahan, et al., “Effectiveness of an Internet-Based Store-and-Forward Telemedicine system for Pediatric Subspecialty Consultation.” *Arch Pediatr Adolesc Med*, April 2005, 159, p. 389.

in parents, and on absenteeism in the economy.”<sup>40</sup> It would seem that telemedicine is able to maintain or improve the quality of patient care.<sup>41</sup>

## **Access**

Lastly, access to healthcare is another important factor to consider. As mentioned earlier, an estimated 14% of Maryland’s population is uninsured. Additionally, many rural or non-MSA regions face critical shortages of specialists due to health manpower shortages. Teleradiology, one of the most common clinical applications, illustrates telemedicine’s ability to provide specialty expertise to a rural region. An advanced application of teleradiology is telemammography. This application has the ability to improve access to mammography for women in remote areas that lack radiology or mammography machines.<sup>42</sup> Furthermore, this can be accomplished by providing a digital system to the remote area or by equipping a bus in order to visit several regions.

In 1999, the University of Maryland’s Express Care was the first in the nation to use mobile telemedicine to assess a stroke patient’s condition during an ambulance ride, for accelerated pre-hospital evaluation. Maryland Express Care ambulances equipped with telemedicine enable neurologists in the hospital office to see a stroke patient in real time video and speak to the emergency medical personnel on the ambulance as they transport the patient to the hospital.

Teledentistry is another application in which telemedicine is able to provide access to specialized care in underserved regions in Maryland. In a survey conducted in 2000-2001 of the oral health status of Maryland school children, the Eastern Shore region had the highest percentage of untreated dental decay (54%) followed by the Central Baltimore region (48%).<sup>43</sup> The oral cancer mortality rate in Maryland is among the highest in the United States and ranks sixth for African-American males. These findings were attributed to a lack of dental providers in rural areas, lack of public health clinics to serve the uninsured and underinsured.

Teledentistry can be a resource for dental consulting and referral for specialized care for underserved regions. In a recent article in the *Journal of Telemedicine and Telecare*, the University of Rochester, NY, presented their findings on a teledentistry project established in six inner-city elementary schools and seven child-care centers.<sup>44</sup> By using an intraoral camera, telehealth assistants recorded digital images of children’s teeth and sent the images to a computer at the expert dental site. The authors found that almost 40% of the children screened had active dental caries and that “for the first time, many children attending inner-city child-care centers have had their teeth

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<sup>40</sup> K. M. McConnochie, et al. “Telemedicine Reduces Absence Resulting From Illness in Urban Child Care: Evaluation of an Innovation.” *Pediatrics*, 2005; 115(5): p 1273.

<sup>41</sup> Smolensky, p. 397.

<sup>42</sup> Roberta A. Jong and Martin J. Yaffe. “Digital Mammography: 2005.” *Canadian Association of Radiology Journal*, 2005; 56 (5): 319-323.

<sup>43</sup> [http://www.fha.state.md.us/oralhealth/pdf/Final\\_5-Year\\_Plan-2004.pdf](http://www.fha.state.md.us/oralhealth/pdf/Final_5-Year_Plan-2004.pdf)

<sup>44</sup> Dorota T. Kopycka-Kedzierawski and Ronald J. Billings. “Teledentistry in inner-city child-care centres.” *J Telemed Telecar*, 2006, 12(4):176-81.

examined at an early age and been given prompt feedback on the need for dental care.”<sup>45</sup>

It is estimated that by the year 2025, 16.4% of Maryland’s residents will have reached 65 years of age.<sup>46</sup> Approximately 50% of the elderly will be affected by a chronic disease and “for every nursing home patient, there are three to four times as many patients residing at home with similar needs.”<sup>47</sup> Whether living in a rural or urban setting, the elderly can have various health care access issues resulting from decreased mobility due to motor skill or visual impairment, isolation from a support network or family members, or suffering from a chronic illness. Remote patient monitoring uses special devices to remotely collect and send data to a monitoring station for interpretation. Monitoring applications can include checking vital signs, such as blood glucose or heart ECG, or a variety of indicators for homebound patients. This can be accomplished with specialty hardware devices and with fixed/integrated communications capabilities.<sup>48</sup> The University of Maryland School of Medicine currently has telemedicine evaluation trials underway in several areas of chronic diseases. These include 1) an evaluation of home automated telemanagement of chronic obstructive pulmonary disease (COPD), 2) hypertension telemanagement in African Americans, 3) home automated telemanagement of ulcerative colitis, and 4) feasibility of home rehabilitation in multiple sclerosis.<sup>49</sup> The current home telehealth project of the Department of Veterans Affairs involving about 22,000 veterans shows promise in demonstrating the efficacy of this type of application of telehealth/telemedicine, which the AETNA study in 2001 called into question (see section on cost).

### **Bioterrorism**

Since September 11, 2001, the United States has faced the possibility of large-scale health crises resulting from terrorist activity. Because of its proximity to Washington, DC, Maryland could be particularly vulnerable to terrorist attacks. Telemedicine has the potential to assist by allowing access to medical services in a remote or unreachable location. For example, in 2004, a telemedicine multi-state bioterrorism exercise using telehealth technology to diagnose a case of the smallpox and to plan a public health response was conducted. Participants in this exercise included the states of Florida, Kentucky, Missouri and Virginia along with the Centers for Disease Control and Prevention.<sup>50</sup>

### **Non-Clinical Applications**

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<sup>45</sup> Ibid. p 176.

<sup>46</sup> Available at <http://www.census.gov/population/projections/state/9525rank/mdprsrel.txt>.

<sup>47</sup> Karen Rheuban. “The role of telemedicine in fostering health-care innovations to address problems of access, specialty shortages and changing patient care needs.” *Journal of Telemedicine and Telecare*, 2006. 12 (suppl. 2): p 47.

<sup>48</sup> Available at <http://www.wiredred.com/video-conferencing/video-telemedicine.html>.

<sup>49</sup> Email from Joseph Finkelstein MD, PhD, University of Maryland School of Medicine Director, Chronic Disease Informatics Group, 1/24/07.

<sup>50</sup> Available at <http://www.healthsystem.virginia.edu/internet/telemedicine/news/index.cfm>.

Another important application for use of videoconferencing/telecommunication technology is for continuing education of health care providers, patients or the public. The most common educational application reported is continuing medical education (CME), continuing nursing education (CE), training, “virtual” conferences, patient education, tumor boards and grand rounds. (See Chapter III for a description of the University of Maryland Statewide Health Network’s effort to provide CMEs to community health centers.)

### **Reimbursement and Access to Care**

Specific studies on the influence of reimbursement for telemedicine services and increased usage could not be located. However, there is evidence that there is greater use of telemedicine in states where there is reimbursement for services from Medicaid and mandated coverage from private payers. These states also tend to have more telemedicine programs with more sites. California, Hawaii, Kansas, New York and Texas—states with the greatest amount of reported telemedicine activity—reimburse services under Medicaid and private payers. Florida which also has high usage does not have public or private mandates.<sup>51</sup>

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<sup>51</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity, p.8.

## **V. Barriers to Reimbursement for Telemedicine Services in Maryland and Strategies to Facilitate Access to Telemedicine**

The use of clinical telemedicine services in Maryland is less well developed than for other more rural or frontier states. This could be related in part to a lack of reimbursement for clinical telemedicine services through the state Medicaid program and private payers as evidenced by a lack of claims data. Moreover, Medicare reimbursement for clinical services provided via telemedicine in Maryland is limited due to Federal policies that narrow the availability of Medicare reimbursement to *rural* Health Professional Service Areas (HPSAs) and non-Metropolitan Service Areas (non-MSAs). This means that Medicare does not cover clinical services provided by way of telemedicine for beneficiaries in much of the state.

The state's two major academic health centers (University of Maryland School of Medicine and Johns Hopkins School of Medicine and their affiliated hospitals) have telemedicine activities underway in many clinical specialties. Some of these provide services nationally or internationally. Most of these are supported by grants from government agencies or non-profit foundations, not from traditional sources of third party payment.

Failure to develop formal reimbursement structures may be due to Maryland's relatively small geographic size as compared to other states. States that are geographically larger (typically those in the Southern and Western United States) are more likely to be receiving Medicare reimbursement for telemedicine services in rural areas, have authorized Medicaid reimbursement and have private payers willing to reimburse. All of these factors may help improve access to health care, since states with Medicaid and private payer reimbursement report more activity via telemedicine.<sup>1</sup>

Maryland patients commute to major academic centers from rural areas for specialty clinical care although this can lead to delaying or foregoing care and adds additional transportation costs. In addition there are 13 counties or parts of counties and Baltimore City that are identified by the federal government as HPSAs for primary care providers, dentists, or mental health providers in the state. People in these areas, which may be urban, must also travel distances to get the appropriate care. For some of them, accessing transportation may also be a barrier.

There are several developments that make the issue of reimbursement for telemedicine/telehealth services in Maryland even more salient to the issue of improved access to care in the future. These are:

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<sup>1</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity. Civic Research Institute, Kingston, NJ, 2004, pg 8.

1. The Maryland Rural Broadband Cooperative is making the infrastructure improvements needed to convey images clearly and efficiently by telecommunications thus improving the feasibility of telemedicine services;
2. In addition to clinical care and consultations, emerging issues for telemedicine such as chronic disease management, home monitoring of patients with chronic diseases are increasing in popularity and may increase favorable patient outcomes while controlling health care expenditures;
3. The threat of bioterrorism is making it necessary to develop contingency plans for providing emergency medical care especially in remote areas; and
4. Telemedicine/Telehealth is being used as a medium to effectively educate providers through continuing medical education programs and to foster adherence to clinical guidelines and evidence guided care. It is also used to inform consumers in all regions of the state and in their local communities about health promotion and disease prevention strategies.

Agreements such as the one between the University of Maryland Statewide Health Network (UMSHN) and the Mid-Atlantic Association of Community Health Centers (CHCs), as well as rural hospitals show promise in improving the quality of care for uninsured, underserved and remote populations who receive care in these facilities.

### **Barriers**

In general, barriers to the growth of telemedicine in Maryland are the same as those identified nationally. These include financial, quality issues, infrastructure, legal and regulatory barriers, as follows:

- Lack of telemedicine/telehealth reimbursement (i.e., through Medicaid, Medicare) is a deterrent to health care provider participation. Moreover, stable sources of third party payment are essential to the sustainability of telemedicine services. This is particularly true for telemedicine with its high fixed costs for entry which require an investment in equipment, maintenance, training and infrastructure. Further these fixed costs can only be recouped over a long period of time. A single remote monitoring unit may cost as much as \$3000 - \$5000.<sup>2</sup>
- Medicare's geographic and service policies are restrictive. The definition for reimbursable telehealth services includes the word "interactive" which limits reimbursement for store and forward health services.<sup>3</sup> Moreover, reimbursement is limited to rural HPSAs and non MSAs as originating sites. This rules out coverage for underserved and uninsured in urban areas. In addition, current Medicare policy does not include a residence as an "originating site" for telemedicine ruling out the use of telemedicine to monitor chronic conditions as a reimbursable service.

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<sup>2</sup> Kirsten Rabe Smolensky. "Telemedicine Reimbursement: Raising the Iron Triangle to a New Plateau." *Health Matrix: Journal of Law Medicine*. 13(2) (2003): 371-413.

<sup>3</sup> Brantly, pg. 73.

- According to Center for Medicaid Services (CMS) and Agency for Health Research and Quality (AHRQ), there is a lack of quality clinical efficacy and cost-benefit research that supports telehealth services.<sup>4</sup> HRSA's Office for the Advancement of Telemedicine (OAT) has many pilot projects to demonstrate the usefulness of telehealth underway in states. Also, the Department of Veterans Affairs (VA) has been a leader in demonstrating the effectiveness of telemedicine in multiple clinical specialties and with a promising demonstration project for managing disease at home with conclusive findings expected next year.
- Lack of uniformity exists among the states. No two states share the same policy, coverage or even definition of telemedicine.<sup>5</sup> This could make it more difficult for insurance carriers who operate throughout the nation to develop policy regarding reimbursement since they would need to comply with many different state requirements.
- Liability is a relevant issue for telemedicine. Providers may not be paid for consultation or monitoring via telemedicine, but may still be responsible for poor patient outcomes.
- Licensure requirements for providers of telemedicine services vary among the states. Health care practitioners are licensed in the state in which they practice; telemedicine/ telehealth may extend the practice into a different jurisdiction. State licensing boards may prohibit, permit or decline to take a position on telemedicine.<sup>6</sup>
- The reasons for restricting licensure for telemedicine include: patient safety, application and imposition of sanctions, fear of patients being drawn away by out of state providers, boards have difficulty policing and disciplining physicians who are not licensed in their state.
- Providers may be slow or reluctant to adopt new technologies, although evidence of this concern varies. Without provider demand, the market is not responding to cover reimbursement.<sup>7</sup>

This report has shed some light on the current status of telemedicine and telehealth in Maryland and other states as well as the barriers as noted above and may be useful in supporting future policy development in this area. The Maryland General Assembly may consider additional studies, including pilot telehealth/telemedicine studies, to further support the development, expansion and reimbursement for clinical telemedicine services in Maryland.

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<sup>4</sup> Ibid. pg. 79.

<sup>5</sup> Ibid. pg. 82.

<sup>6</sup> Brantly, pg. 84

<sup>7</sup> Ibid. pg. 89.

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## Executive Summary

During the 2006 legislative session, the Maryland General Assembly passed Senate Bill 728 “Telemedicine –Use and Reimbursement -Study” (Chapter 266 of the Laws of Maryland) requiring the University of Maryland School of Medicine, in consultation with the University of Maryland School of Nursing and other stakeholders, to conduct a study of telemedicine and report to the Senate Finance Committee and House Health and Government Operations Committee on or before January 1, 2007(See Appendix A). This study on the use of and reimbursement for telemedicine is required to include the following:

- (i) The use of and reimbursement for telemedicine in other states;
- (ii) The current use of telemedicine in the State;
- (iii) The potential for telemedicine to improve access to health care in underserved areas of the State;
- (iv) How any reimbursement for telemedicine in other states has increased access to health care in those states; and
- (v) Any current barriers in the State to reimbursement for telemedicine.

This report is intended to fulfill the requirements of the study. The report is organized into five chapters to address the topics specified in the legislation.

The American Telemedicine Association (ATA), a nonprofit association that is a leading resource on telemedicine issues, defines telemedicine as “the use of medical information exchanged from one site to another via electronic communications to improve patients’ health.<sup>1</sup>” The term “telehealth” is an alternative term used in a broader sense to define health care or health information/education delivered remotely that does not always involve clinical services. Continuing medical education, remote monitoring of patients’ vital signs, videoconferencing for patient consultation, transmission of radiology and other images, e-health portals for patient education and nursing call centers are all part of telehealth.<sup>2</sup>

Our research and interviews indicate Maryland relies less on telemedicine to provide clinical care than many other states. This could be related to a lack of reimbursement for clinical telemedicine services through the state Medicaid program and private payers, as evidenced by a lack of claims data with modifiers indicating the service was provided via telemedicine. Moreover, Medicare reimbursement for clinical services provided through telemedicine in Maryland is limited due to federal policies that narrow the availability of Medicare reimbursement to *rural* Health Professional Shortage Areas (HPSAs) and non-Metropolitan Statistical Areas (MSAs). This means that Medicare does not cover clinical services provided by way of telemedicine for beneficiaries in much of the state.

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<sup>1</sup> The American Telemedicine Association Website at [www-atmedia.org](http://www-atmedia.org)

<sup>2</sup> IBID

The state's two major academic medical centers (University of Maryland School of Medicine and Johns Hopkins School of Medicine and their affiliated hospitals) have telemedicine activities underway in a number of clinical specialties. Some of these services are provided nationally or internationally. Most of these are supported by grants from federal agencies or non-profit foundations, not from traditional sources of third party payment.

To date, Maryland patients commute to major academic centers from rural areas for specialty clinical care although this can lead to delaying or foregoing care and adds additional transportation costs. This is mainly due to a lack of specialty physicians located in remote areas. In addition there are 13 counties or parts of counties and Baltimore City that are identified by the federal government as HPSAs for primary care providers, dentists or mental health providers in the state. People in these areas, which may be urban, must also travel distances to get the appropriate care. For some of them, accessing transportation may also be a barrier.

There are several developments that make the issue of reimbursement for telemedicine/telehealth services in Maryland more relevant in the future. These are:

1. The Maryland Rural Broadband Cooperative is expected to make the infrastructure improvements needed to convey images clearly and efficiently by telecommunications thus improving the feasibility of telemedicine services in Western and Southern Maryland and on the Eastern Shore;
2. In addition to traditional specialty clinical care and consultations, emerging issues for telemedicine such as managing chronic disease and home monitoring of patients are increasing in popularity and may increase favorable patient outcomes while controlling health care expenditures;
3. Providing emergency medical care including monitoring and responding to bioterrorism, especially in remote areas, is a prominent issue since "9/11"; and
4. Telemedicine/Telehealth is being used to educate providers through continuing medical education (CME) and to inform consumers in the local communities where they reside to improve the quality of care in all regions of the state and reduce health disparities. Agreements such as the one between the University of Maryland Statewide Health Network (UMSHN) and the Mid-Atlantic Association of Community Health Centers (CHCs), as well as rural hospitals, show promise in improving the quality of care for uninsured, underserved and remote populations who receive care in these facilities.

### **Barriers**

In general, barriers to the growth of telemedicine in Maryland are the same as those identified nationally. These include financial and quality issues, infrastructure, legal and regulatory barriers, as follows:

- Lack of telemedicine /telehealth reimbursement (i.e., through Medicaid, Medicare) is a deterrent to health care provider participation. Moreover, stable

sources of third party payment are essential to the sustainability of telemedicine services. This is particularly true for telemedicine with its high fixed costs for entry which require an investment in equipment, training and infrastructure. Further these fixed costs can only be recouped over a long period of time.

- Medicare's geographic and service policies are restrictive. The definition for reimbursable telehealth services includes the word "interactive" which excludes reimbursement for store and forward health services.<sup>3</sup> Moreover, reimbursement is limited to rural HPSAs and non-MSAs as originating sites. This rules out coverage for underserved and uninsured in urban areas. In addition, current Medicare policy does not include a residence as an "originating site" for telemedicine ruling out the use of telemedicine to monitor chronic conditions as a reimbursable service.
- According to the Centers for Medicare and Medicaid Services (CMS) and the Agency for Health Care Research and Quality (AHRQ), there is a lack of quality clinical efficacy and cost-benefit research that supports telehealth services.<sup>4</sup> HRSA's Office for the Advancement of Telehealth (OAT) has many pilot projects to demonstrate the usefulness of telehealth underway in states. Also, the Department of Veterans Affairs (VA) has been a leader in demonstrating the effectiveness of telemedicine in several clinical specialties, including retinal screenings and dermatology, with a promising demonstration project for managing disease at home with conclusive findings expected next year.
- Lack of uniformity exists among the states. No two states share the same policy, coverage or even definition of telemedicine.<sup>5</sup>
- Liability is a relevant issue for telemedicine. Providers may not be paid for consultation or monitoring via telemedicine but may still be sued.
- Licensure requirements for providers of telemedicine services vary among the states. Health care practitioners are licensed in the state in which they practice; telemedicine/telehealth may extend the practice into a different jurisdiction. State licensing boards may prohibit, permit or decline to take a position on telemedicine.<sup>6</sup>
- Providers may be slow or reluctant to adopt new technologies, although evidence of this concern varies.<sup>7</sup>

Based on the numerous barriers identified, it is understandable that telemedicine has been slow to develop in Maryland and many other states. However, it may be speculated that as issues of equipment availability, provider training and infrastructure, including improved connectivity, evolve more attention will be focused on reimbursement provided by Medicare, Medicaid, and private payers in Maryland. The State government may also look to employing telemedicine to reduce the cost of providing specialty clinical care in remote areas or containing employee health care costs through better management of chronic disease, as is being studied in the

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<sup>3</sup> David Brantly et al, *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, Feb. 2004, pg. 73.

<sup>4</sup> Ibid. pg. 79.

<sup>5</sup> Ibid. pg. 82.

<sup>6</sup> Ibid. pg. 84.

<sup>7</sup> Ibid. pg. 89.

Department of Veterans Affairs. Hopefully, this report has shed some light on the current status of telemedicine and telehealth in Maryland and other states and will be useful in making future policy decisions in this area.

## **Acknowledgements**

The University of Maryland School Of Medicine would like to thank the many individuals and organizations who contributed to the preparation of this report. We are particularly grateful for the insights provided by Dena Puskin, ScD., Director of the Office for the Advancement of Telehealth, Health Research and Services Administration, U.S. Dept. Health and Human Services, Jacob Frego, Executive Director, Eastern Shore AHEC, and President of the Maryland Rural Health Association, and John Peters, Office of Coordination of Care, Department of Veterans Affairs. We also appreciate the cooperation of the University of Maryland School of Nursing, Maryland Department of Health and Mental Hygiene, Maryland Health Care Commission, Mid-Atlantic Association of Community Health Centers and the many payers and providers who contributed to the information in this report. A special thanks to Barbara McLean, MA , Senior Policy Fellow in the Office of Policy and Planning, Meseret Bezuneh, M.S.Ed., Deputy Director for Strategic Initiatives in the Office of Policy and Planning, and many other staff who worked hard putting together this report .

## I. Introduction

During the 2006 legislative session, the Maryland General Assembly passed Senate Bill 728 “Telemedicine-Use and Reimbursement Study” (Chapter 266 of the Laws of Maryland) requiring the University of Maryland School of Medicine, in consultation with the University of Maryland School of Nursing and other stakeholders, to conduct a study of telemedicine use and reimbursement and report the results to the Senate Finance Committee and House Health and Government Operations Committee on or before January 2007 (See Appendix A). As detailed in the legislation, the study must include the following:

- (i) The use of and reimbursement for telemedicine in other states;
- (ii) The current use of telemedicine in the State;
- (iii) The potential for telemedicine to improve access to health care in underserved areas of the State;
- (iv) How any reimbursement for telemedicine in other states has increased access to health care in those states; and
- (v) Any current barriers in the State to reimbursement for telemedicine.

This report is intended to fulfill the requirements of this legislation. The report is organized into five chapters. The first chapter provides an introduction and overview. Chapters two through five address the specific topics enumerated in the legislation. The last chapter identifies barriers to the use of telemedicine and telehealth services in Maryland.

### **Background**

Historically concerns for access to health care have driven the development and interest in telemedicine. Originally developed to provide access to specialty and primary care for very remote, frontier areas, with the passage of time, and the improvements in telecommunications infrastructure, new uses for telemedicine have emerged.

Telemedicine can be defined in a number of ways. In the Institute of Medicine’s (IOM) report, telemedicine is the use of information and telecommunication technologies to provide and support health care when distance separates the participants.<sup>1</sup> Similarly, telemedicine has been defined as “the use of medical information exchanged from one site to another via electronic communications to improve patients’ health.”<sup>2</sup>

Another term “telehealth” is closely associated with telemedicine and is used in the broader sense to define health care or health information/education delivered remotely that does not always involve clinical services. Distance continuing medical education (CME), remote monitoring of patients in home, ambulance or hospital, videoconferencing between providers for clinical consultations to discuss patients,

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<sup>1</sup> Institute of Medicine (US): Committee on Evaluating Clinical Applications of Telemedicine. Telemedicine: A Guide to Assessing Telecommunications in Health Care. Marilyn J. Field, Editor. National Academy Press, Washington, D.C. 1996.

<sup>2</sup> The American Telemedicine Association. Available at <http://www.atmeda.org/>

transmission of images, e-health portals for patient education, and nursing call centers are all part of telehealth.<sup>3</sup> Both terms emphasize “remote” location of either the patient or provider.

Reimbursement fee structures do not always distinguish between services provided on site and those provided remotely. Some carriers use the modifier “TM” or “tm” for the Current Procedural Technology (CPT) codes for billing to distinguish the means of providing the service.

There are a variety of applications for telemedicine and telehealth including those listed below:

- a) Clinical services (may be primary care or specialty referral services);
- b) Administrative uses;
- c) Educational such as continuing education for health professionals;
- d) Clinical consultations to discuss patient care between two or more clinicians;
- e) Remote patient monitoring; and
- f) Consumer medical and health information.

Specialty referrals generally involve a physician specialist at a remote location assisting another health professional often a primary care physician or other specialist with a diagnosis real-time, remote consultation, or the transmission of patient data and images to a specialist for review at a later time. Radiology, dermatology, psychiatry, as well as ophthalmology, cardiology and pathology are examples of established telemedicine applications. In addition, applications are being used for remote patient monitoring in the home or in an ambulance remotely collecting and transferring data to a monitoring station for interpretation. Increasingly, home telehealth applications are being used for chronic disease management for patients with congestive heart failure (CHF), diabetes mellitus (DM), post-stroke, and other conditions. Home telemanagement of patients often are used to supplement care provided by visiting nurses.

Videoconferencing may be used to provide continuing education to health professionals in remote locations. Finally, advanced telecommunication technologies are used to provide specialized health information and on-line discussion and support groups. While all of the above are growing uses of telehealth, the focus of this study is confined primarily to telemedicine where clinical services, including consultations, are provided to patients remotely. These types of clinical services would usually be reimbursable, if provided through live and direct contact between a physician and patient.

A report by the United States Department of Health and Human Services (US DHHS) on telemedicine for the Medicare population classifies telemedicine services slightly differently.<sup>4</sup> This report assessed telemedicine services with a focus on those that would substitute for face-to-face medical diagnosis and treatment of the Medicare

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<sup>3</sup> Ibid.

<sup>4</sup> W. Hersh, JA Wallace, PK Patterson, et al., *Telemedicine for the Medicare Population*, Agency for Healthcare Research and Quality, US Department of Health and Human Services, July 2001.

population (adults with disabilities and those ages 65 and older) and identified health care services that could be provided through telemedicine. The US DHHS report organized telemedicine into three areas:

1. Store and forward: collects clinical data, stores it, then forwards it for interpretation later; the physician and patient need not be together at the same time (non-interactive);
2. Self-monitoring / testing (home based): physicians and health care providers can monitor physiological measurements, test results, images, and sounds collected in a patient's residence or care facility; this is beneficial to patients that have problems with mobility or where travel is costly and may allow better care due to early detection of problems and possible reduction of health care costs because of early intervention; and
3. Clinician-interactive (office/hospital based): real time interactions, such as online office visits, consultations, hospital visits and home visits, specialized exams and procedures.

For the purpose of reimbursement, the Centers for Medicare & Medicaid Services (CMS) define telemedicine as "professional services given to a patient through an *interactive* telecommunications system by a practitioner at a distant site."<sup>5</sup> Because this definition includes the term *interactive*, reimbursement is limited to telemedicine activities that occur real-time while the patient and practitioner are interacting. However, CMS demonstration projects in Alaska and Hawaii have been granted authority to submit for reimbursement for store and forward activities.<sup>6</sup> Store and forward activities are not interactive. Instead, these activities involve the collection of data at one point in time, storage of that data, and then forwarding of the data to a physician to be interpreted later.

Additionally, CMS has unique reimbursement policies for the originating site and the distant site. The originating site is defined as "the location of an eligible Medicare beneficiary at the time the service being furnished via a telecommunications system occurs."<sup>7</sup> Reimbursement to the originating site is the "lesser of 80% of the actual charge or the originating site facility fee of \$20."<sup>8</sup> This amount is set by statute, but is updated annually according to the Medicare Economic Index.<sup>9</sup>

Beneficiaries are eligible for Medicare services delivered via telemedicine only at originating sites (where the enrollee presents) located in a *rural* Health Professional Shortage Areas (HPSAs) or in counties in a non-metropolitan statistical area (MSA). The Medicare Benefit Policy Manual is included in the Appendix (Appendix B).

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<sup>5</sup> Medicare.gov, searchable glossary. Available at <http://www.medicare.gov/Glossary/search.asp?SelectAlphabet=T&Language=English#Content> Accessed December 4, 2006.

<sup>6</sup> David Brantly, K Laney-Cummings, R Spivack, *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, Feb 2004.

<sup>7</sup> CMS Internet Only Manual 100-02, Medicare Benefit Policy Manual, Chapter 15 Covered Medical and Other Health Services, Sections 270-275.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

“The Centers for Medicare and Medicaid (CMS) has not formally defined telemedicine for the Medicaid program and Medicaid law does not recognize telemedicine as a distinct service.”<sup>10</sup> However, states, at their option, are permitted to reimburse for telemedicine services. At least 36 state Medicaid programs do reimburse for some telemedicine activities (see Chapter II for detailed information).

Telemedicine can be viewed from two perspectives as either 1) facilitating geographic access, (which seems to be the focus of federal programs) or 2) facilitating access to care and efficiency in delivery of care, especially for the elderly and underserved. Telemedicine allows community and rural hospitals to offer more advanced care by providing access to clinical specialties and subspecialties that would not otherwise be available locally. This can help some patients avoid being transferred to a major medical center which can save health care costs and keep the patient closer to family and friends. Currently under Medicare, only designated *rural* HPSAs, counties, non-MSAs, and approved Federal demonstration projects are eligible for coverage of telemedicine services.

The Department of Veterans Affairs (VA) has been a leader in use and advancement of telemedicine services. In addition to the traditional clinical uses, the VA recently initiated use of telecommunication equipment to home-monitor the conditions of 22,000 chronically ill patients nationwide.<sup>11</sup> Complete data from this initiative, due in about a year, is likely to provide the most conclusive evidence to date of the efficacy of telemedicine in this area. Unlike other payer programs in the federal government, the VA provides services directly to eligible persons through its own facilities; the VA is both payer and provider (See Chapter II and IV).

One other source of federal funding for telemedicine is the Office for the Advancement of Telehealth (OAT) in the Health Resources and Services Administration (HRSA). HRSA defines “telehealth” broadly as “use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration”. Dr. Dena Puskin, an internationally recognized leader, heads this office. HRSA works to increase and improve the use of telehealth to meet the needs of the underserved, including those living in remote and rural areas with low incomes and who are uninsured or enrolled in Medicaid<sup>12</sup> (See Appendix C for a list of OAT-HRSA Awardees). Other federal agencies that fund telehealth programs include: the Department of Defense (DOD), the National Aeronautic and Space Agency (NASA), the National Institutes of Health (NIH), and the Agency for Healthcare Research and Quality (AHRQ).

The efficacy of telehealth and telemedicine services continues to be assessed. Telehealth was applied to high risk pregnancies in one study, which showed significant reduction in premature births.<sup>13</sup> In Tennessee, another study showed hospital

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<sup>10</sup> CMS, Medicaid & Telemedicine, Overview. Updated 12/14/05, Available at [http://www.cms.hhs.gov/Telemedicine/01\\_Overview.asp#TopOfPage](http://www.cms.hhs.gov/Telemedicine/01_Overview.asp#TopOfPage) (Accessed August 10, 2006)

<sup>11</sup> <http://www.hopkinsmedicine.org/medialII/enevs/picture.html>

<sup>12</sup> <http://www.hrsa.gov/telehealth>

<sup>13</sup> John Morrison, et al., (2001) “Telemedicine Cost Effective Management of High Risk Pregnancy” *Managed Care*.

readmission rates for congestive heart failure were lower after a sustained program of telehome care monitoring and patient education.<sup>14</sup> Whitten et al. observes “Preliminary research well documents the fact that telemedicine is a feasible alternative to traditional healthcare.”<sup>15</sup> Studies demonstrate that patients have reported good acceptance rates and satisfaction with technologies and treatment via telemedicine and care has been shown to be efficacious.<sup>16,17,18</sup> However, some studies have yielded contradictory conclusions.<sup>19</sup> Studies of the efficacy of the use of telemedicine services and telehealth have been limited. Part of the limitation on research is due to a lack of a critical mass of programs to make an assessment. An Aetna “evidence review” funded by the Agency for Healthcare Research and Quality (AHRQ) in 2001 to determine the efficacy of certain telehealth specialties suggested the quality of efficacy studies was insufficient to reimburse any telehomecare application.<sup>20</sup>

It is important to emphasize again the difference between telehealth and telemedicine. Telehealth can encompass a wide variety of applications while telemedicine is essentially a clinical service or consultation that occurs via telecommunications instead of in person. Studies of telehomehealth fall under telehealth services which are new and still under review. Clinical applications of telemedicine are more conclusive in their efficacy.

### **Barriers to Use of Telemedicine**

The number of telemedicine programs has grown rapidly since the 1990’s. However, telemedicine is still viewed as not being widely used for consultations and clinical care. Telehealth is used even less for quality improvement activities, such as continuing medical education.

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<sup>14</sup> S. Burgess, et al., (2001) “Costal Care Reductions Using Telehealth: A Comparative Analyst” Paper presented at American Telemedicine Association Annual meeting

<sup>15</sup> Pamela Whitten, et al., (2006) “Private Payer Reimbursement for Telemedicine Services in the United States” Department of Telecommunication, Michigan State University

<sup>16</sup> J. Finkelstein, et al.’ (2003) “Home Automated Telemanagement (H.A.T.) System to facilitate Self-Care of Patients with Chronic Diseases.” *Journal of Systemics, Cybernetics and Informatics*, 1(3) e5.

<sup>17</sup> S. S. Gustke, et al., (2000). “Patient Satisfaction with Telemedicine,” *Telemedicine Journal* 6(1), 5-13.

<sup>18</sup> Woods, K.F. et al., (1999). “Sickle Cell Telemedicine and Standard Clinical Encounters. A comparison of Patient Satisfaction.” *Telemedicine Journal*, 5(4), 349-356.

<sup>19</sup> <http://archfami.ama-assn.org/issues/v9n1/fful/foc8072>

<sup>20</sup> David Brantly, K Laney-Cummings, R. Spivack. *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, February 2004, pg 82-83.

Three main barriers to the advancement of telemedicine/telehealth can be identified:

1. Cost of the equipment and cost of line charges (for ISDN lines);
2. Access to and cost of the infrastructure required for connectivity; and
3. Practitioner reimbursement.<sup>21</sup>

Today, the cost of telemedicine/telehealth equipment is decreasing. At the same time, broadband infrastructure, which had previously only been available in urban areas for high quality video streaming necessary for conferencing and to adequately treat patients, is becoming more available in rural areas.

In Maryland, legislation was enacted in the 2006 legislative session (Chapter 269 of the Laws of Maryland sponsored by Senator Pipkin, and Delegate Jameson) to establish a rural broadband cooperative office in the Maryland Department of Business and Economic Development for the establishment of rural broadband telecommunications services. The State has committed \$10 million to the building of this Network between 2007 and 2010. Senator Mikulski added to the project by securing federal funds to build a fiber optic loop between NASA's Wallops Island Space Facility to the Patuxent River Naval Air Station River in St. Mary's county<sup>22</sup>. W.L. Gore and Associates will share fiber optic resources in the Elkton area. This Network will give the Maryland Broadband Cooperative an immediate presence in all rural regions of Maryland. The formation of a Rural Broadband Cooperative was recently announced at the annual Rural Health Summit. This Cooperative will give broadband internet service to all seeking residential or business applications, including telemedicine. The Cooperative will be owned by the rate payers much like an electric cooperative.

### **Reimbursement for Telemedicine**

Reimbursement for telemedicine services is a barrier to widespread use. A survey of states that do not require reimbursement for telemedicine services was conducted by the ATA and AMD Medicine, a supplier of medical devices used in telemedicine, and indicated the following reasons for not providing reimbursement though the Medicaid program:<sup>23</sup>

- Lack of compelling evidence of efficacy and cost/benefit needed in order to consider reimbursement (Alabama, DC, Florida, Idaho, New York);
- Transportation costs are not a major cost factor to Medicaid (Alabama, Connecticut, Maryland, Rhode Island);
- Budget concerns/limitations (Idaho, Mississippi);
- Geography – all citizens are close to medical facilities (Delaware);
- Fear of over utilization, fraud and abuse (Idaho); and
- No requests for reimbursement have been submitted (New Hampshire, Rhode Island).

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<sup>21</sup> Carrie Vaughan (2006) "Is Telemedicine in your Strategic Plan." *Health Leaders*, Available at [http://www.healthleadersmedia.com/crhlc/view\\_news.cfm?Content\\_id=81764](http://www.healthleadersmedia.com/crhlc/view_news.cfm?Content_id=81764).

<sup>22</sup> E-mail – J. Dillman III, Executive Director, Upper Shore Regional Council to Dr. Claudia Baquet, 10.24.06

<sup>23</sup> *Telemedicine Reimbursement Report*, Center for Telemedicine Law, October 2003, pg. 39-44.

It should be noted that several states did express interest in moving forward (Pennsylvania, Florida, and Idaho) with providing reimbursement through the Medicaid program.<sup>24</sup>

### **Policy Issues**

There are also broader policy issues to be considered. According to the American Telemedicine Association (ATA), “Nonpayment of telemedicine services that are reimbursed if provided in person creates a disparity and inequity for remote based populations, and often times, is in direct conflict with legislated language”(to facilitate access).<sup>25</sup> According to one article, “Most states are carrying the burden of transportation costs, which are simply eliminated when telemedicine technologies are employed to provide access to care for which the patient otherwise would have to travel long distances.”<sup>26</sup>

On the positive side, according to the ATA, the “rationale for payment of services is “Care delivered by the right practitioner at the right time results in:

1. Reduction in cost of care and improved clinical outcomes;
2. Reduction of transportation costs to the Medicaid agency with budgetary constraints; and
3. Reduction in the utilization of emergency care for chronic care or primary care.”<sup>27</sup>

This report discusses the applicability of the identified barriers to Maryland and ways to overcome these barriers and expand access to telehealth and telemedicine. Areas of variability among the states include Medicaid reimbursement, state licensure requirements for practicing medicine via telemedicine, state mandates for reimbursement and scope of reimbursement and the presence of third party payers willing to reimburse for telemedicine services. It is also important to obtain buy-in from medical practitioners and their staff in remote areas, provide training to facilitators at the originating sites.

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<sup>24</sup> *Ibid.*

<sup>25</sup> *Telemedicine Reimbursement Report*, pg. 9.

<sup>26</sup> N. M. Antoniotti, J Linkous, S. Speedie, et. al., *Medical Assistance and Telehealth: An Evolving Partnership*, American Telemedicine Association, Available at [http://atmeda.org/new/policy\\_issues](http://atmeda.org/new/policy_issues), Accessed on August 18, 2006.

<sup>27</sup> *Ibid.* pg. v.

## II. Overview of Reimbursement Policies for Telemedicine

The lack of consistent and comprehensive reimbursement policies remains one of the biggest obstacles to the integration of telemedicine/telehealth into health care in the United States. Currently, both the public payer (Medicare and Medicaid) and the private payers have not addressed the prospect of universal reimbursement (for telemedicine services).<sup>1</sup> Despite this, many states are embracing the health care opportunities presented by telemedicine and are taking various steps for public and private payer reimbursement of telemedicine services. This section presents an overview of reimbursement policies for Federal, state and private payers for telemedicine.

### **Medicare**

Medicare is the federal health insurance program that covers approximately 43 million elderly and disabled Americans. Medicare has traditionally paid for some of the telemedicine services that do not require face-to-face interactions with patients, such as teleradiology and telepathology, as long as they occur in real time.<sup>2</sup>

In 1997, Congress passed the Balanced Budget Act (BBA) which authorized Medicare payments for specific telemedicine services, effective January 1, 1999, and for the funding of telemedicine demonstration projects.<sup>3</sup> The BBA provided for very limited reimbursable telemedicine services, limited providers who could be reimbursed and required fees to be split between the distant and originating sites. Many of these constraints were removed by the Benefits Improvement and Protection Act of 2000 (BIPA) which expanded coverage for telehealth services, loosened presenter requirements at the originating site to allow a non-medical person to present a patient and revised payment policy. Still, Medicare maintains substantial limitations regarding rural geographic location of originating sites, and eligible telehealth services.<sup>4</sup> After the passage of BIPA, the American Telemedicine Association estimates that Medicare payments for telemedicine services rose from \$20,000 in the year 2000 to \$1.5 million in the year 2005.<sup>5</sup>

As noted in Chapter 1, the Centers for Medicare & Medicaid Services (CMS) define telemedicine as “professional services given to a patient through an *interactive* telecommunications system by a practitioner at a distant site.”<sup>6</sup> Because this definition includes the term “interactive,” reimbursement is limited to telemedicine activities that occur while the patient and practitioner are interacting. However, CMS demonstration

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<sup>1</sup> Pamela S. Whitten. *Telemedicine in Indiana Policy Report*, Purdue University. March 2006.

<sup>2</sup> Ibid.

<sup>3</sup> *Telemedicine Reimbursement Report*. The Center for Telemedicine Law. October 2003. Available at <http://www.hrsa.gov/telehealth/pubs/reimbursement.htm>.

<sup>4</sup> Ibid.

<sup>5</sup> Pamela Whitten, 2006.

<sup>6</sup> Medicare.gov, searchable glossary. Available at <http://www.medicare.gov/Glossary/search.asp?SelectAlphabet=T&Language=English#Content>. Accessed December 04, 2006.

projects in Alaska and Hawaii have been granted authority to submit for reimbursement for store and forward activities.<sup>7</sup>

CMS has unique reimbursement policies for the originating site and the distant site. The originating site is defined as “the location of an eligible Medicare beneficiary at the time the service being furnished via a telecommunications system occurs.”<sup>8</sup> Reimbursement to the originating site is the “lesser of 80 percent of the actual charge or the originating site facility fee of \$20.”<sup>9</sup> This amount is set by statute, but is updated annually according to the Medicare Economic Index.<sup>10</sup>

The distant site is defined as “the site where the physician or practitioner providing the professional service is located at the time the service is provided” and reimbursement is equal to the current fee schedule for the service provided.<sup>11</sup> Beneficiaries are eligible for Medicare services delivered via telemedicine only at originating sites (where the enrollee presents) located in a *rural* Health Professional Shortage Areas (HPSAs) or in counties in non-metropolitan statistical areas (MSAs).

Facilities eligible to receive reimbursement as the originating site include<sup>12</sup>:

- Office of physician or practitioner
- Hospital
- Critical access hospital
- Rural health clinic
- Federally qualified health center (FQHC)

The following services are eligible for reimbursement (excluding the demonstration projects):<sup>13</sup>

- Consultations
- Office or outpatient visits
- Individual psychotherapy
- Pharmacologic management
- Psychiatric diagnostic interview examination
- End state renal disease related services
- Individual medical nutrition therapy

Providers eligible for reimbursement include:<sup>14</sup>

- Physician
- Nurse practitioner

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<sup>7</sup> David Brantly, et al. *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, Feb 2004.

<sup>8</sup> CMS Internet Only Manual 100-02, *Medicare Benefit Policy Manual*, Chapter 15, Covered Medical and Other Health Services, Sections 270-275.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> CMS Internet Only Manual 100-02.

- Physician assistant
- Nurse midwife
- Clinical nurse specialist
- Clinical psychologist
- Clinical social worker
- Registered dietitian or nutrition professional

With the exception of demonstration projects, Medicare reimbursement for telemedicine services appears consistent between the states. However, because Medicare essentially authorizes reimbursement only in designated rural areas, policy favors more extensive coverage in rural states. The Medicare Benefit Policy Manual is included in the Appendix (Appendix B).

### **Medicaid**

Since its enactment in 1965, the Medicaid program has been the nation's major public health insurance program for low-income Americans. Medicaid is jointly financed by federal and state government and each state administers the program within broad federal guidelines. Each state may establish its own eligibility standards; determine the type, amount, duration, and scope of services; set the rate of payment for services; and administer its own program."<sup>15</sup>

However, state Medicaid programs must follow several mandatory requirements for federal matching funds to be received. For example, each state's Medicaid program is required to provide specific basic services to the categorically needy populations, such as: "inpatient hospital services, outpatient hospital services, prenatal care, vaccines for children, physician services, nursing facility services for persons aged 21 or older, family planning services and supplies, rural health clinic services, home health care for persons eligible for skilled-nursing services, laboratory and x-ray services, pediatric and family nurse practitioner services, nurse-midwife services, FQHC services, ambulatory services of an FQHC that would be available otherwise, and early periodic screening, diagnostic, and treatment services for children under age 21."<sup>16</sup>

CMS has not formally defined telemedicine for the Medicaid program and Medicaid law does not recognize telemedicine as a distinct service.<sup>17</sup> However, CMS does recognize that telemedicine has the potential to reduce Medicaid expenditures and has encouraged states to "create innovative payment methodologies for services that incorporate telemedicine services."<sup>18</sup> Thus, states are permitted, at their option, to reimburse for telemedicine activities.

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<sup>15</sup> *Telemedicine Reimbursement Report*.

<sup>16</sup> *Ibid.*

<sup>17</sup> CMS, Medicaid & Telemedicine, Overview. Available at [http://www.cms.hhs.gov/Telemedicine/01\\_Overview.asp#TopOfPage](http://www.cms.hhs.gov/Telemedicine/01_Overview.asp#TopOfPage) . Accessed August 10, 2006.

<sup>18</sup> Available at [http://www.cms.hhs.gov/Telemedicine/02\\_Considerations.asp#TopOfPage](http://www.cms.hhs.gov/Telemedicine/02_Considerations.asp#TopOfPage), Accessed December 14, 2006.

Since 2002, there have been several studies and surveys published that describe Medicaid reimbursement for telemedicine. The studies include: 2002 Survey of State Medicaid Directors,<sup>19</sup> 2003 Survey of State Medicaid Offices,<sup>20</sup> 2003 Telemedicine Reimbursement Report<sup>21</sup>, 2004 Innovation, Demand and Investment in Telehealth (US Department of Commerce)<sup>22</sup>, and 2006 State Medicaid and Private Payer Reimbursement for Telemedicine: An Overview.<sup>23</sup> Additionally, there are three national data sources that publish information about Medicaid reimbursement for telemedicine: CMS Medicaid Telemedicine “State Profiles”<sup>24</sup>, Association of Telehealth Providers – The State of Medicaid Reimbursement in the U.S.,<sup>25</sup> and National Conference of State Legislatures.<sup>26</sup> Unfortunately, these data are not updated regularly. In fact, the data on the CMS website only describes 17 of the 36 known Medicaid reimbursement policies.

Our research indicates 36 states, as of 2005, have Medicaid programs that have formally begun using telemedicine services and are currently reimbursing for some telemedicine activities. Of those 36 states, at least 20 have Medicaid reimbursement policies as a result of legislation (TIE and other sources). These states include: Arkansas, California, Colorado, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Minnesota, Montana, Nebraska, North Carolina, North Dakota, Oklahoma, South Dakota, Texas, Utah, and West Virginia (See Table 1.). However, due to the challenges involved with telemedicine reimbursement, these state Medicaid programs vary in terms of what and who are covered, which sites are reimbursed and whether the service is live or a store-and-forward consultation.<sup>27</sup> The following is a brief overview of a few state Medicaid programs.

### **State Medicaid Programs Reimbursing for Telemedicine**

In Arkansas, physician consultations using interactive video teleconferencing can be reimbursed. Although payments are only to physicians, Arkansas does reimburse facilities (community health centers) for certain services provided by qualified mental health professionals via telemedicine. In this instance, Arkansas does not reimburse the mental health professionals, as they are non-physicians, but instead

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<sup>19</sup> S Palsbo. “Medicaid payment for telerehabilitation.” *Arch Phys Med Rehabil* 2004, 85:1188-91.

<sup>20</sup> G. Gray. *Exploratory study of telemedicine Medicaid reimbursement status: participating and non-participating states and its impact on Idaho’s policy-making process* (in press).

<sup>21</sup> *Telemedicine Reimbursement Report*.

<sup>22</sup> David Brantly, et al. *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, February 2004.

<sup>23</sup> Nancy A. Brown, “State Medicaid and private payer reimbursement for telemedicine: an overview.” *Journal of Telemedicine and Telecare*, 2006; 12 (Suppl. 2): S2:32-39.

<sup>24</sup> CMS, Medicaid & Telemedicine, State Profiles. Available at [http://www.cms.hhs.gov/Telemedicine/03\\_StateProfiles.asp](http://www.cms.hhs.gov/Telemedicine/03_StateProfiles.asp), Accessed August 10, 2006.

<sup>25</sup> Telemedicine and Telehealth Database, Association of Telehealth Providers. Available at <http://tie.telemed.org/professional/state.asp>, Accessed December 5, 2006.

<sup>26</sup> Telemedicine Legislation, National Conference of State Legislatures, September 2005. Available: <http://www.ncsl.org/programs/health/teleleg.htm>, Accessed December 11, 2006.

<sup>27</sup> Lise Youngblade, et al. *Telemedicine for CSHCN: A State-by-State Comparison of Medicaid Reimbursement Policies and Title V Activities*, July 2005. Institute for Child Health Policy, Univ. of FL.

reimburses the community mental health facilities where those professionals work.<sup>28</sup> Hospital outpatient departments and ambulatory surgical centers may be reimbursed for services that are, by definition “telemedicine,” but the state currently has no means by which to track payments.

The California Medicaid program reimburses for physician consultations (medical and mental health) using interactive video teleconferencing. In addition, any provider that can bill for traditional services provided face-to-face may bill for telemedicine services. Telemedicine is billed no differently than face-to-face at both the distant (hub) site and the originating (spoke) site are reimbursed. If provider is out-of-state, a valid license from the state of origin is required.

In Louisiana, physician consultations using interactive video teleconferencing are reimbursable through Medicaid; however, the Mental Health program will reimburse only live consultations (no store and forward). Tertiary care facilities do provide telemedicine services and bill as if face to face. Registered nurses and other allied health professionals, as well as physician assistants, are allowed to perform the service using telemedicine if they are authorized by a primary physician.

The Nebraska Medicaid program will reimburse most Medicaid services when using interactive video teleconferencing. These services are generally covered provided a comparable service is not available within a 30-mile radius of the patient’s home. Payments can be made to non-physicians, certified nurse practitioners, physician assistants, mental health providers, dentists, and ancillary services/therapists. The provider of service must comply with the licensure requirements of the state where the procedure is occurs.

To illustrate the Medicaid reimbursement policies throughout the United States are summarized and presented Table 1.

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<sup>28</sup> Youngblade, p.10.

**Table 1. State Medicaid Programs - Reimbursement for Telemedicine**

	State	Interactive	Store and Forward	Reimburse Hub site (consulting)	Reimburse Spoke site (originating)	Other
1.	Alabama					Pilot project to transmit vital signs from patient's homes to medical personnel.
2.	Alaska	X	X	X	X	
3.	Arizona	X	X	X	X	Non-emergency transportation to and from the spoke site
4.	Arkansas*	X		X	X	
5.	California*	X		X	X	Medical and mental health
6.	Colorado*	X	X			
7.	Georgia*	X		X	X	
8.	Hawaii	X	X			
9.	Illinois*	X	Limited	X	X	
10.	Indiana	X		X	X	
11.	Iowa*	X		X	X	
12.	Kansas*	X		X	No	
13.	Kentucky*	X				
14.	Louisiana*	X	No	X	X	
15.	Maine*	X				
16.	Michigan	X				Only in the upper peninsula, other regions to do not reimburse through Medicaid
17.	Minnesota*	X	X	X	X	
18.	Missouri	X	No			
19.	Montana*	X		X	X	
20.	Nebraska*	X	X	X	X	Available to patients who cannot access comparable service within 30 miles of their home
21.	Nevada	X				
22.	New York	X	X	No	No	
23.	North Carolina*	X	No	75%	25%	
24.	North Dakota*	X	No	X	Only if a medical service is provided	
25.	Oklahoma*	X	X	X	X	
26.	Oregon	X		X	X	
27.	South Carolina	X	No	X	X	
28.	South Dakota*	X	X limited to "near real-time" such as email, phone and fax.	X	X	
29.	Tennessee	X				
30.	Texas*	X	X (imaging services)	X	X	

31.	Utah*	X		X (mental health covered)	X (mental health excluded)	
32.	Virginia	X		X	X	
33.	Washington	X				
34.	West Virginia*	X		X	X	
35.	Wisconsin	X				
36.	Wyoming	X				

Medicaid reimbursement enacted by law or legislation.

Source: Office of Policy and Planning, University of Maryland School of Medicine, December, 2006

Note: An empty cell does not necessarily mean the item is not reimbursable, although that assumption is highly likely, it may also be that the published reports did not state one way or another if these items were eligible for reimbursement.

In summary, all of the 36 states that reimburse through their Medicaid programs cover interactive services except for Alabama, which has a pilot project. Ten states specifically provide for reimbursement using store and forward technology. Almost all states reimbursing specify reimbursing the distant site where professional services are provided; fewer specify reimbursing the originating site. States vary as to whether mental health services are covered. The remaining 14 states do not appear to have Medicaid reimbursement policies:

- 1) Connecticut
- 2) Delaware
- 3) Florida
- 4) Idaho
- 5) Maryland
- 6) Massachusetts
- 7) Mississippi
- 8) New Hampshire
- 9) New Jersey
- 10) New Mexico (Reimbursement program is tentative, based on a verbal agreement, but there have been no reimbursements made to date)<sup>29</sup>
- 11) Ohio
- 12) Pennsylvania
- 13) Rhode Island
- 14) Vermont

The report “Medical Assistance and Telehealth: An Evolving Partnership”<sup>30</sup> describes several strategies for gaining Medicaid reimbursement via telehealth. These include: encouraging the Medicaid agency to make an internal determination for payment, an executive order to Medicaid to reimburse for telemedicine services, legislation or regulation mandating payment for services, working with the Office of the Insurance Commissioner for a regulatory decree barring discrimination in payment for services delivered via telehealth technologies, and authorizing reimbursement on a program by program basis for SCHIP, waiver programs or Medicaid, as determined by each program through contracts with providers. The authors suggest an analysis of

<sup>29</sup> Brown, S2:32-39.

<sup>30</sup> Nina M Antoniotti et al. *Medicaid Handbook - Medical Assistance and Telehealth: An Evolving Partnership*. June 2006. Available at [www.americantelemed.org/news/policy\\_issues/2006\\_medicaid\\_handbook2.pdf](http://www.americantelemed.org/news/policy_issues/2006_medicaid_handbook2.pdf).

how previous amendments were made to Medicaid policy, Medicaid coverage of transportation costs and costs of treating the chronically ill to determine appropriate action.

### **Department of Veterans Affairs**

The Department of Veterans Affairs (VA), a closed medical system for veterans (as noted in chapters I and III), has been a leader in the use of telemedicine services for clinical care. The first recorded use of telemedicine in VA occurred in 1977, for a telemental health project in Nebraska. Twenty years later, the VA began its major systematic implementation of telemedicine in 1997. By 1999, the VA was performing 300,000 telemedicine service episodes per year.

There are over 32 different clinical specialties and home telehealth services for chronically ill and/or disease management. The telemedicine activities are constantly evolving and new activities are being reported to the national office. Services are organized as follows:

- A) Home Telehealth: programs exist in all 21 designated regions for the delivery of care, that provide home telehealth monitoring of chronically ill patients and those needing disease management (i.e. diabetes, chronic heart failure, chronic obstructive pulmonary disease, post traumatic stress disorder, depression, and spinal cord injury).
- B) General Telehealth: videoconferencing technologies with supportive peripheral devices between clinics and hospitals and other hospitals. Services include telemental health, teleradiology, teleendocrinology and telesurgery (specialist consultations).
- C) Store and Forward: primary care based program that assesses veterans with diabetes for retinopathy using teleretinal imaging that expedites referral for treatment and provides health information.

Of an estimated 25 million veterans, 5.5 million receive health services through the United States Department of Veterans Affairs. In Fiscal Year 2006, approximately 22,000 veterans were monitored through home telehealth services, and another 38,000 received general telehealth services, and over 17,000 received store and forward services (e.g., 7,500 received teleretinal screenings). It is important to note that these numbers represent the number of veterans served and not the number of telemedicine episodes per year.

According to Telehealth Program Analyst, Office of Care Coordination, Department of Veterans Affairs (VA), although the VA does not have definitive research, there is anecdotal evidence to date that suggests that telemedicine has increased access health care to the veterans.<sup>31</sup> The VA is about one year away from publishing studies that will most likely support that telemedicine has increased access. Past studies have shown that telemedicine can help with patient compliance, that patients find telemedicine more convenient, and that some activities increase efficiencies (i.e. teleretinal screenings usually take 30 minutes in the office, but through store and forward, a

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<sup>31</sup> John Peters, Telehealth Program Analyst, Office of Coordination of Care, VA, Personal communication: December 22, 2006.

nurse can review data form 100 patients a day, then schedule appointments with the ones who need to see the ophthalmologist).

### **Payers**

With over 68% of Americans insured through private or employer-sponsored health plans,<sup>32</sup> private payers are a substantial force in the health care market. Current data regarding private payer reimbursement policies are difficult to obtain. The results reported here were obtained from a 2003 survey conducted by the American Telemedicine Association and AMD Telemedicine<sup>33</sup> and from articles gathered through researching legislation.<sup>34</sup>

Because Medicare and Medicaid reimbursement for telemedicine has been limited, many private payers have been reluctant to reimburse telemedicine services at the same level as face-to-face services. The concerns expressed by private payers are similar to the public payers and included fear of duplication of services, concerns about quality of images, tort liability and stimulating inappropriate demand or fraud and abuse.<sup>35</sup>

Based upon the available data, private payers are reimbursing for telemedicine in 29 states, as displayed in Table 2. All of these states also reimburse for telemedicine through their Medicaid program. Eight of these states (California, Colorado, Georgia, Hawaii, Kentucky, Louisiana, Oklahoma, and Texas) have legislation prohibiting private insurance payers from excluding coverage of medical services provided by telehealth.<sup>36</sup> The following is a description of the legislation regarding telemedicine reimbursement for a sampling of these states.<sup>37</sup>

The **California** law (SB 1665) approved in 1996 prohibits insurers from requiring face-to-face contact between a clinician and patient for services appropriately provided through telemedicine, subject to the terms of the contract.

In **Colorado** (Chapter 300 of the Laws of Colorado 2001) the legislation limits the applicability of the mandate for coverage of telemedicine services to health plans insuring a person residing in a county with 150,000 or less residents.

**Georgia** law (HB291) states that every policy shall include payment for services provided through telemedicine.

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<sup>32</sup> Pamela Whitten and L. Buis. *Private Payer Reimbursement for Telemedicine Services in the United States*. Michigan State University. November 2006. Available at

<http://www.amricantelemed.org/news/Whitepapers/2006%20Private%20Payer%20Report.pdf>.

<sup>33</sup> AMD Telemedicine. Private payer reimbursement information directory. Available at [http://www.amdtelemedicine.com/private\\_payer/index.cfm](http://www.amdtelemedicine.com/private_payer/index.cfm).

<sup>34</sup> Brown, pg. S2:32-39.

<sup>35</sup> Kirsten R. Smolensky. "Telemedicine Reimbursement: Raising the Iron Triangle to a New Plateau." *Health Matrix: Journal of Law Medicine* 2003, 13(2): 371-413.

<sup>36</sup> Available at [www.amdtelemedicine.com](http://www.amdtelemedicine.com).

<sup>37</sup> Note: State mandates even differ in how they require coverage. While some are direct in requiring coverage, others are indirect prohibiting discrimination in coverage by how the service is provided. Others include qualifiers such as provider distance or county size.

Approved in 2000, **Kentucky** law (HB177) prohibits Medicaid and private insurers from excluding coverage for services provided through telemedicine.

Approved in 1995, **Louisiana** law (SB 773) states that a health care provider participating at the originating terminus of a telemedicine transmission shall be reimbursed at a rate of not less than 75% of the amount of reimbursement for an office visit. The bill prohibits provisions in health and accident policies that discriminate against services provided by telemedicine.

Approved in 1997, **Oklahoma** law (SB 48) provides that health care plans cannot deny coverage for services provided through audio, video, or data communications. This allows compensation for patient consultations and diagnoses and the transfer of medical information through telecommunication technology. The law excludes telephone and fax communications from the term “telemedicine.”

Approved in 1997, **Texas** law (HB 2033) prohibits certain health benefit plans from excluding a medical service solely because the service is provided through telemedicine. Telemedicine services may be subject to deductible, copayment or coinsurance requirements not to exceed requirement for the same face-to-face services.

The majority of the bills state that no health care service plan may require face to face or person to person contact for the medical service to be considered reimbursable; however most bills also exclude standard telephone, facsimile transmission and unsecured email from reimbursable telemedicine activities. See Table below. Copies of the state statutes are included as Appendix D.

**Table 2. States with Private Payer reimbursement for telemedicine**

	State	Private Payer
1	Alaska	BCBS
2	Arizona	BCBS, Mailhandlers, FHP, Aetna, Cigna, United Partners, Pacificare, Premier Healthcare, Health Net Intergroup, First Health Group
3	Arkansas	Aetna
4	California*	All
5	Colorado*	Unknown
6	Georgia*	59 payers
7	Hawaii*	Unknown
8	Indiana	Anthem, Commercial, Sagamore
9	Kansas	BCBS
10	Kentucky*	All
11	Louisiana*	All
12	Maine	Guardian, NYL, Aetna, Maine Health Plan, Cigna, BCBS
13	Michigan	Upper Peninsula Health Plan, BCBS, United Health Care, Preferred Provider
14	Minnesota	Medica, Preferred One, BCBS
15	Missouri	HealthNet, Alliance BCBS, FirstHealth, United Health Care, Health Link
16	Montana	BCBS, Cigna
17	New York	Blue Shield of NE NY
18	North Carolina	Medcost, Tricare, HealthChoice, BCBC
19	North Dakota	BCBS
20	Oklahoma*	All
21	Oregon	Lifewise, Regence BCBS, Providence Health System, Greater Oregon Behavioral Health, Oregon Health Plan Fee For Service
22	South Dakota	Avera Health Plans, Cigna, Dakota Care, Wellmark BCBS, Sioux Valley Health Plan

23	Tennessee	Cariten Pref, Cigna, Dvocare, Tricare, BCBS, Blucare
24	Texas*	All
25	Utah	United Health Care
26	Virginia	Trigon BCBS
27	Washington	Champ, Cigna, Mutual of Omaha, Regence BCBS, Premera Blue Cross, Tricare, Basic Health Plan
28	West Virginia	BCBS
29	Wisconsin	Wausau, Wisconsin Physician Services, WEA Insurance Trust, Group Health

\*Reimbursement required by enacted law.

Source: Private Payer Reimbursement Information Directory:

[http://www.amdtelemedicine.com/private\\_payer/searchform\\_private.cfm](http://www.amdtelemedicine.com/private_payer/searchform_private.cfm)

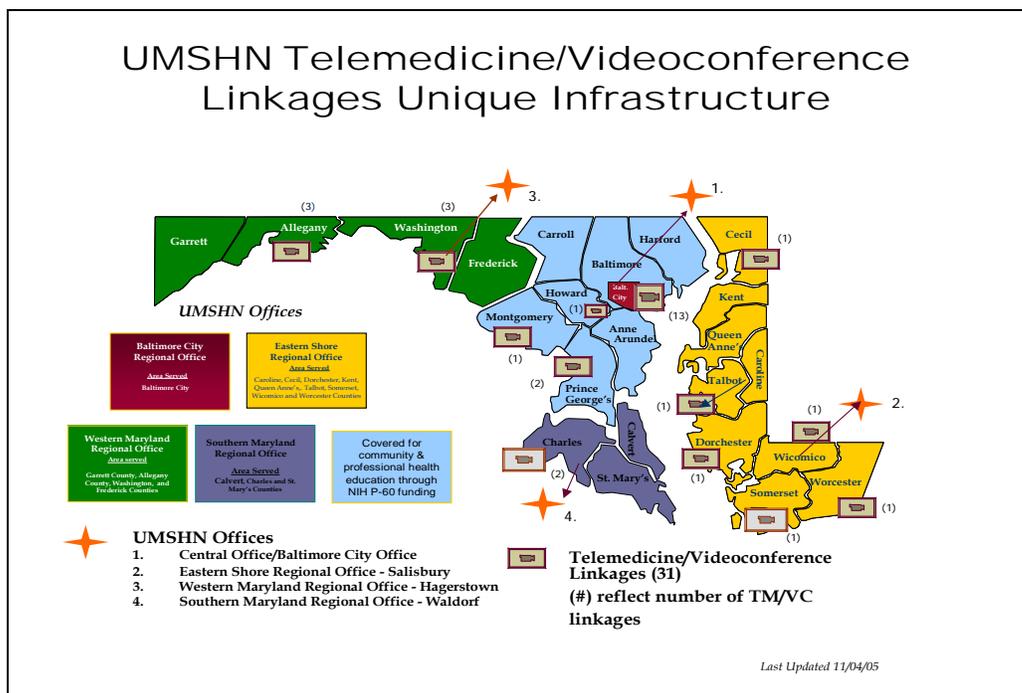
### III. Reimbursement for Telemedicine Services in Maryland

This section provides an overview of the current status of telemedicine/telehealth in Maryland: telemedicine programs, reimbursement for services by Medicare, Medicaid and private payers, utilization of telemedicine services and licensure requirements for practitioners who provide telemedicine services in Maryland and outside the state. The information provided here is based on national surveys, telemedicine data exchanges, and personal interviews conducted with key informants in the state including providers of clinical telemedicine services, health insurance carriers, and state officials at the Maryland Department of Health and Mental Hygiene.

#### Telemedicine Programs in Maryland

The use of telemedicine for clinical services in place of a direct practitioner/patient encounter or for consultation usually involves a center where specialists are located (the hub or distant site) and designated sites in outlying rural areas or in underserved areas of the state (the spokes or originating site) near where the patient resides.

Surveys were sent to 25 of the statewide telemedicine sites of the University of Maryland Statewide Health Network (UMSHN) and to selected physicians in departments where telemedicine is likely to be employed for delivering clinical care by faculty in the University of Maryland School of Medicine and the University of Maryland Medical System (UMMS). Interviews were also conducted with the administrator for the Mid-Atlantic Association of Community Health Centers, where the University of Maryland School of Medicine, through its formal telemedicine partnership through the UMSHN, has provided telemedicine equipment and training.



Key informants from these organizations were asked to respond to a brief questionnaire (by telephone, in person, or via email). Respondents were asked to report whether they were offering clinical telemedicine or telehealth services, the type of service being offered, whether the service was being billed to a third party payer and what payers were being billed. Respondents were also asked about whether lack of insurance coverage (i.e. reimbursement) was an issue in the delivery of services via telemedicine and perceived barriers to reimbursement (see interview schedule in Appendix E).

In general, the results of the survey indicate that two academic medical centers use telemedicine to offer clinical services in Maryland. Additional sources for locating telemedicine programs in the state were also examined, including the Telemedicine Information Exchange (TIE), the Association of Telemedicine Service Providers (ATSP) and the 2004 report of the Telemedicine Research Center (TRC). The TIE lists only two programs in Maryland: the Maryland Brain Attack Center at the University of Maryland Medical Center and the Global Access Program at Johns Hopkins Medicine.<sup>1</sup> Although the ATSP has a membership of 140 individuals and seven organizations, a representative from the ATSP confirmed that there are no organizational members and only two individual members from Maryland, as noted above (telephone interview conducted December 13, 2006). The TRC report, in collaboration with the TIE (which reports results of an online survey of telemedicine networks) confirms this information as well.<sup>2</sup> It should be noted that while these national reports and associations only report two programs in Maryland, other medical departments and associated offices of these two medical centers are employing telemedicine for clinical care although they have not registered with the national association of providers of telemedicine. Some of this telemedicine activity may be supported by specific grants.

All of the responses to the University of Maryland School of Medicine (UMSOM) survey were received from the University of Maryland Medical System (UMMS) or the University of Maryland Statewide Health Network (UMSHN) and its affiliates. Three responses were received from community health centers, four from clinical departments, and one from a community hospital. Of the eight respondents to the survey, more than half (n=5) were offering clinical telemedicine services. However, none of the respondents were billing for these services. Examples of the types of clinical services provided included stroke assessment case conferences with child psychiatrists, direct clinical care for mental health in selected school systems in the state. The Maryland Brain Attack Center has an innovative pilot study on the use of telemedicine for accelerated pre-hospital evaluation of stroke to reduce time to treatment for better patient outcome.

Five providers said they considered lack of insurance coverage/reimbursement for clinical telemedicine services to be a problem; however, providers differed as to the nature of the problem. In general, providers agreed on a lack of understanding about the use of telemedicine services among both insurers and providers. Some felt

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<sup>1</sup> Available at <http://tie.telemed.org/programs-t2/showprogram-t2.asp?item=2642>.

<sup>2</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity. Civic Research Institute, Kingston, NJ, 2004.

providers were unaware of how to code billing for telemedicine services, others felt the billing rates for these services would be too low. Still, others felt that insurers would resist billing for other than face-to-face encounters because they feared an escalation of their costs. Several suggested the need for better outcome measurement tools and the need to establish consensus among providers and insurers on the economic value of telemedicine/telehealth services.

In addition to clinical services provided via telemedicine, the University of Maryland Statewide Health Network (UMSHN), in collaboration with the various clinical departments, offers ongoing continuing medical education (CME) courses for physicians and other health care professionals using its telehealth/videoconferencing linkages throughout the state. The continuing education programs include surgery grand rounds, tumor boards, and case conferences on disease management and prevention as well as lectures on specific diseases as requested by community health centers (CHCs) and community hospitals in the state.

Providing access to education on advances in prevention, current guidelines for treatment, disease management and patient care, serves an important role in keeping providers of underserved patients abreast of advances in a convenient way while not having to take off work to travel to a University for educational credits. The 2006 CME series included the following programs: Smoking Cessation in May (2006); Chronic Kidney Disease in June (2006); Cardiovascular Disease - Management of Heart Failure in October (2006); New Therapies for the Management of Diabetes in January (2007) and a program on Pediatric Obesity and Diabetes is planned for February (2007). Additional programs are being planned for Spring 2007 on Mental Health and Health Disparities. Community Health Center physicians and other health care professionals - nurse practitioners, physician assistants, pharmacists, nurses and dentists at Total Health Care (THC); Greater Baden Medical Services, Inc.; Park West Health System; and South Baltimore Family Health Centers have participated to date, as well as physicians and other clinical staff at University Care at Edmondson Village; and physicians in Southern Maryland meeting at the UMSHN regional office in Waldorf.

According to Miguel McInnis, MPH, Chief Executive Office (CEO) of the Regional Primary Care Association: "In partnership with the UMSHN, the Mid-Atlantic Association of Community Health Centers now has the ability to develop telemedicine clinical education training centers throughout the region which provide clinicians in rural and underserved areas the ability to receive access to critical training remotely and improve the quality of care to patients who are economically disadvantaged, uninsured and underinsured."<sup>3</sup> The CME program of UMSHN is supported by the Maryland Cigarette Restitution Fund Program. Topics for the series were solicited from the community health centers (CHCs).

Also, the Psychiatry department at the University of Maryland School of Medicine has successfully piloted educational programming to the Worcester County mental health

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<sup>3</sup> Center for Health Disparities, *Partners*, Volume 1, Number 7, December 2006.

center staff and has with Hopkins psychiatry department initiated best practice conferences with seven sites across the state.<sup>4</sup>

A number of attempts were made to reach a representative of Johns Hopkins Medicine; however, information was obtained from the Johns Hopkins International website. While Johns Hopkins has developed an extensive network for consultation with its specialists, most of the consultations are either in other states or outside of the United States according to Alexander Nason, PhD (Johns Hopkins International Senior Manager of Business Development and Chair of the newly formed Committee on Telemedicine at Johns Hopkins Medicine).<sup>5</sup> The Committee on Telemedicine is designated to coordinate the many growing telemedicine programs at Johns Hopkins Medicine, including the Johns Hopkins Global Access Lecture Series, which allows overseas physicians to participate in live presentations by Hopkins specialists. The Emergency Access program at Johns Hopkins is working with the International SOS to provide air-to-ground medical consultations. Johns Hopkins also collaborates with Medical Missions for Children, a non-profit group that peer reviews complex medical cases in developing nations.

Locally, Hopkins works with the Maryland Department of Corrections to provide some clinical services remotely to prisoners in the state system. The Wilmer Eye Institute also has a project that allows community physicians to digitally transmit retinal images to specialists for evaluation. Other pioneering projects use robotics with telemedicine technology for post-operative evaluation of patients and for monitoring of surgical intensive care patients.<sup>6</sup>

Dr. Nason cited connecting physicians to technology and program opportunities as one of the challenges to advancing telemedicine. In addition, he added that funding is also an issue and most of the funding for seed grant projects has been targeted to rural areas limiting the efforts to put together telemedicine projects for Baltimore City, such as a two-way video-based health screening.<sup>7</sup>

Activities of the Department of Veterans Affairs (VA) in Maryland should also be noted. As stated earlier, the VA has been a national leader in the use of telemedicine services for clinical care and the management of chronic disease (see Chapter II). In 1993, the Baltimore VA Medical Center (VAMC) implemented through faculty of the University of Maryland School of Medicine, the first completely film-less radiology department in the United States which uses digital radiology systems (PACS) for teleradiology. Dermatologists at the Baltimore VAMC have used teledermatology and store and forward imaging to assess skin conditions<sup>8</sup> and psychiatrists have assessed the use of telepsychiatry to treat depression.<sup>9</sup>

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<sup>4</sup> Rob White, *Telepsychiatry White Paper*, University of Maryland School of Medicine, January 17, 2007.

<sup>5</sup> Available at <http://www.jhintl.net/JHI/English/Doctors/Publications/IPU-Nov02-Videoconferencing>.

<sup>6</sup> Available at <http://www.hopkinsmedicine.org/mediaII/enews/picture.html>.

<sup>7</sup> Available at <http://www.hopkinsmedicine.org/mediaII/enews/picture.html>.

<sup>8</sup> VA, *HSR&D Management Brief*, Nov. 1999, Available at [http://www1.va.gov/resdev/resources/pubs/docs/mb12\\_telemed.pdf](http://www1.va.gov/resdev/resources/pubs/docs/mb12_telemed.pdf).

<sup>9</sup> Paul E Ruskin, et al, "Treatment Outcomes in Depression: Comparison of Remote Treatment Through Telepsychiatry to In-Person Treatment." *American Journal of Psychiatry*. 161(8) (2004): p 1471.

## **Utilization of Clinical Telemedicine Services**

One method of assessing clinical telemedicine activity in Maryland would be to look at billable services. The Maryland Medical Care Database of the Maryland Health Care Commission (MHCC) is based on claims data, indicating activity for which providers are seeking reimbursement. The MHCC database shows little evidence of claims filed through private and public payers for services provided through telemedicine in the state. No claims with a modifier “TM or tm” were reported for 2004 and only two claims coded in this way were filed by private payers in 2005-2006 (as compiled). One claim was filed by Optimum Choice and one by CareFirst. (See payer section).<sup>10</sup> While Optimum Choice, a subsidiary of United Healthcare does cover telemedicine, CareFirst of Maryland does not. Results may indicate miscoding or lack of understanding of payment policy.

The Telemedicine Research Center (TRC) is the only central source of information on volume of telemedicine services in the United States. The TRC surveyed 88 organizations offering services by way of telemedicine connections in 2003. Findings in the 2004 report of the Telemedicine Research Center indicate 48,194 teleconsultations, excluding radiology, took place in 2003 in 46 states.<sup>11</sup> The two Maryland networks, identified previously as the Maryland Brain Attack Center and the Johns Hopkins Global Access Lectures, responded to this survey but did not respond to questions concerning volume of activity. While the report indicates the number of teleconsultations is growing, consultations via this medium still represent a small amount of all consultations.

Among the 88 telemedicine networks responding to the TRC survey, the most common clinical specialties were mental health, cardiology, pediatrics, dermatology, neurology, and orthopedics.<sup>12</sup> The five states with the most telemedicine programs and the greatest number of sites were California, Florida, Hawaii, New York and Texas. California, Hawaii, Kansas, New York, Tennessee, Texas and Florida had the greatest amount of reported activity.<sup>13</sup>

## **Payers**

As noted earlier, Medicare reimburses for certain interactive, “live” clinical services and consultations provided in designated *rural* Health Professional Shortage Areas (HPSA) and in counties in non-metropolitan services areas (non-MSAs). The originating sites (spokes) in Maryland eligible for reimbursement are: the office of a practitioner, a hospital, a rural health clinic and a federally qualified health center (FQHC). Reimbursable services include consultations (including radiology), outpatient visits, individual psychotherapy, pharmacologic management, psychiatric diagnostic interview

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<sup>10</sup> Maryland Health Care Commission, Email communication: January 2, 2007.

<sup>11</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity. Civic Research Institute, Kingston, NJ, 2004.

<sup>12</sup> Ibid. pg. 9.

<sup>13</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity, pg. 8.

examination, end-stage renal disease related services, and individual medical nutrition therapy.<sup>14</sup>

Applying these reimbursement requirements to Maryland, Medicare beneficiaries are eligible for telemedicine services only if they present from a rural Health Professional Shortage Area (HPSA) or a non-metropolitan service area (MSA) county as the originating (spoke) site for service. According to the Director of the Federal Office for the Advancement of Telehealth, there are seven designated counties that are non-MSAs in Maryland that receive Medicare reimbursement. Five counties are on the Eastern Shore (Caroline, Dorchester, Kent, Talbot and Worcester), one is in Southern Maryland (St. Mary's), and one is in Western Maryland (Garrett).<sup>15</sup> Some of these counties are also rural HPSAs. There are other federally designated HPSAs located through out the state, even in Baltimore City. However, because they are not designated "rural", they do not qualify for reimbursement. To further complicate the situation, Medicare has ruled that a beneficiary can be reimbursed if the beneficiary resides in the qualifying rural area even if the originating site, where the beneficiary presents for service, is outside the area. (See Appendix F for HRSA explanation of reimbursement under Medicare in rural areas).<sup>16</sup>

While reimbursement by Medicare is usually a driver for reimbursement in other payer markets, the narrow geographic focus of Medicare reimbursement for telemedicine services does not encourage the policies of reimbursement in other markets.

Further while the distant site, where the specialist is located, receives reimbursement equal to what Medicare would have paid for a face to face encounter, the originating site, where the patient is, only receives the lesser of 80% of the payment for the services or \$20 as a facility fee, leaving little incentive for a local provider to refer. It should be noted, however, that changes in Medicare reimbursement policy in 2000 make it less burdensome for a local practitioner to refer a patient for telemedicine. Unless medically necessary, a non-medical staff person may be present with the patient at the originating site so the cost of services, in terms of medical manpower required, is minimal.

It is understandable that without a core base of Medicare eligible patients, other providers have been reluctant to invest in telemedicine equipment and other payers have declined to reimburse for these services. Information from Medicaid and several large commercial insurers in Maryland confirms policies of non-reimbursement for clinical medical services provided via telemedicine that was reported by practitioners above. As noted earlier in Chapter I, the federal Medicaid program does not require or prohibit reimbursement for services delivered by means of telemedicine and leaves the decision on reimbursement to the states. The Maryland Medicaid program does not have a policy of reimbursement for telemedicine in its fee for service population or

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<sup>14</sup> CMS, Medicare Policy Manual #100-02, Chapter 15, Covered Medical and Other Health Services, Available at <http://www.cms.hhs.gov/Manuals/IOM/list.asp>

<sup>15</sup> Dena Puskin, Sc. D., Director of the Office for the Advancement of Telehealth, Health Research and Services Administration (HRSA), US Department of Health and Human Services, Telephone interview and e-mail communication: December 20, 2006.

<sup>16</sup> Available at <http://www.hrsa.gov/telehealth/pubs/reimb.htm>.

capitulated MCO population.<sup>17</sup> At least thirty-six states do reimburse for some telemedicine or telehealth services through Medicaid programs (See Chapter II for a complete discussion of states that reimburse for telemedicine under their Medicaid program and types of covered services).

Studies by national organizations indicate several states mandate coverage for telemedicine services in the private market (see Chapter II) and, furthermore, that even when coverage is not mandated, some carriers provide coverage or, at least, do not exclude coverage for telemedicine services.<sup>18</sup> Two major carriers in Maryland were interviewed. CareFirst does not cover services delivered via telemedicine in the private payer market. CareFirst also does not cover transportation unless medically necessary such as ambulance transport.<sup>19</sup> A spokesperson for Optimum Choice and Mid-Atlantic Medical Services, LLC (MAMSI), subsidiaries of UnitedHealth Group, indicated United Healthcare covers telemedicine in accordance with Medicare policy as established by CMS<sup>20</sup>.

Given that the Maryland Health Care Commission's medical care database did not show any other claims activity among private payers for telemedicine, as noted above, we did not conduct interviews with other private payers in Maryland.

### **Maryland Licensure Requirements for Practitioners who use Telemedicine to Provide Clinical Care or Consultations**

The issue of lack of uniformity of state licensure laws plays a role in limiting the national market for telemedicine and is thought to be a factor in slowing the adoption of telemedicine technologies.<sup>21</sup> Ironically, it is easier for a U.S. physician to practice telemedicine in some foreign countries where there are few regulatory restrictions than in the United States where each state has its own licensure requirements.

In general, physicians are subject to licensure laws in the state where they practice medicine. Licensure laws are designed to protect the citizens of the state. In the case of telemedicine, the situation may arise where practitioners who are licensed in their home state where their practice is located, care for patients in another state. Therefore, they are required to be licensed to practice medicine in the patient's state as well. The issue of state licensure has become even more complicated with the use of the Internet to give medical advice, especially when the advice is given for a fee. The Center for Telemedicine Law (CTL) surveyed the 50 states to identify laws, policies, and practices related to licensure. According to the CTL survey, 33 states require a license to practice telehealth and three other states have regulations. Twenty-four states require full licensure for out-of-state physicians who practice telemedicine while seven have a special purpose license for those who consult on an irregular basis. Maryland is one of

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<sup>17</sup> Susan Steinberg, Acting Deputy Secretary for Health Care Financing, Maryland Department of Health and Mental Hygiene, Personal Interview: December 18, 2006.

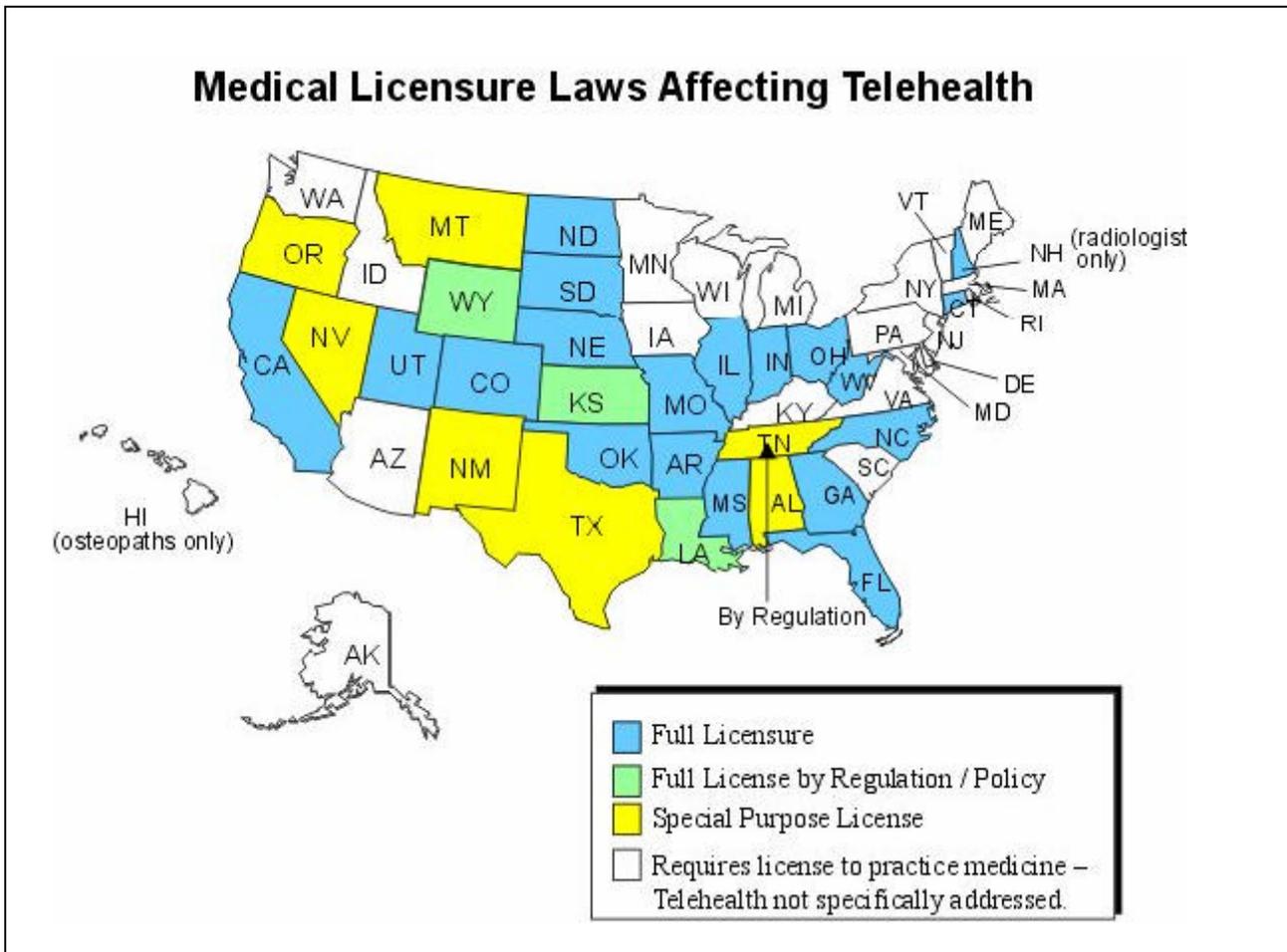
<sup>18</sup> HRSA, Center for Telemedicine Law, 2003.

<sup>19</sup> Patti Ciotti, Coordinator of Legislative Affairs, Carefirst Blue Cross Blue Shield, Personal interview: December 12, 2006.

<sup>20</sup> Beth Sammis, PhD., United Healthcare, Governmental Affairs, Mid-Atlantic Region, Personal Interview: January 3, 2007.

<sup>21</sup> David Brantley, K Laney-Cummings, R. Spivackl. *Innovation, Demand and Investment in Telehealth*. US Department of Commerce. February 2004.

17 states that does not have specific laws regarding telehealth or telemedicine. This means that physicians practicing telehealth or telemedicine are treated exactly the same as physicians with practices in state, therefore, all licensure requirements must be met and a license to practice medicine issued.<sup>22</sup> It is interesting to note that many of the states that have provisions for special purpose licensure are located west of the Mississippi River where states are larger and specialists may be at a greater distance (See Appendix G for a summary of state telemedicine licensure provisions<sup>23</sup>).



As noted above, Maryland has no special provisions for out-of state physicians wanting to practice telemedicine or telehealth in the State. Conversely, Maryland physicians wishing to practice telemedicine elsewhere must comply with relevant laws and regulations of the state where the patient being treated is located. According to Karen Wolfe, Policy Analyst at the Maryland Board of Physicians, the Board will issue new regulations in early January 2007 to clarify its position with regard to medical advice

<sup>22</sup> Brantley, February 2004.

<sup>23</sup> Ibid.

given via websites for compensation. The regulations will reiterate the need for a Maryland license.<sup>24</sup>

Maryland law does not require an out-of-state physician to have a Maryland license to consult with a Maryland physician if the Maryland physician is actually treating the patient [Health Occupations 14-302(2)]. Also, a physician who resides in another state or jurisdiction adjoining Maryland whose practice extends into this state but who does not have an office in this state does not need a license if the same privileges are extended to physicians of Maryland by the adjoining state or jurisdiction [Health Occupations 14-302(4)]. In practice, this means physicians in the District of Columbia do not need a Maryland license to practice in Maryland. There is also an exception from full Maryland licensure requirement for an “eminent physician” from outside the state. This usually refers to foreign physicians, according to Karen Wolfe. Some standards still apply (Health Occupations 14-319).<sup>25</sup>

There has been a movement toward greater uniformity in examination requirements for physicians in recent years. Physicians are licensed by a national examination and efforts are underway to promote less restrictive rules by the Federation of State Licensure Boards. Congress has also expressed interest in the topic. States differ in the number of failures of the licensure exam permitted, the exceptions process and the time allowed for completion of requirements. Also, credentialing is required for licensure in many states including Maryland which entails providing documentation of fulfillment of educational requirements on a state by state basis.

Other Maryland health professions who are eligible to receive reimbursement for telemedicine services under Medicare do not have special provisions in their licensure statute concerning telemedicine. Registered nurses and licensed practical nurses may be licensed through an endorsement process to practice in other states though an interstate compact among states that agree to similar licensing requirements. However, advanced practice nurses (nurse practitioners, nurse midwives) who are the only nurses eligible for Medicare reimbursement for telemedicine services must be certified by the state of Maryland to practice (Health Occupations 8-301d).<sup>26</sup> The Boards of Social Work<sup>27</sup>, Pharmacy<sup>28</sup>, and Dental Examiners<sup>29</sup> indicated their statutes did not refer to telemedicine or telehealth services.

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<sup>24</sup> Karen Wolfe, Maryland Board of Physicians, Personal communication and verbal interview: December 13, 2006.

<sup>25</sup> Ibid.

<sup>26</sup> Available at <http://www.mbon.org>.

<sup>27</sup> Gloria Hammel, Staff Social Worker, Board of Social Work Examiners, Personal communication: January 5, 2007.

<sup>28</sup> Shirley A. Costley, Licensing Program Manager, Board of Pharmacy, Communication by e-mail, January 5, 2007.

<sup>29</sup> Murray Sherman, Legal Assistant, Maryland Board of Dental Examiners, Personal communication: January 5, 2007.

#### IV. Telemedicine's Potential to Improve Health Care Access in Maryland

The advancement in telecommunications technology provides innovative methods of delivering healthcare. Telemedicine can successfully assist in providing medical services to Maryland's residents in underserved regions.

##### Maryland's Underserved Regions

Maryland is a mid-Atlantic state comprised of 23 counties and Baltimore City with a total land area of 9,774 square miles. According to the 2000 United States Census, the population ranges from nearly 900,000 in Montgomery County, to approximately 650,000 in Baltimore City, to 30,000 in more rural counties throughout the State. Maryland is 86% urban and 14% rural.<sup>1</sup> In 2000, the racial distribution of the State was 64% white, 27.9% African American, and the remainder Asian, Hispanic, and Native American. More recent projections (2005 estimated census) estimate the non-Caucasian population at close to 40%. Baltimore, the largest metropolitan area in the State, has a population that is 64% African American and has a poverty rate of approximately 22.9%.<sup>2</sup>

For many Americans, lack of insurance is a major barrier to health care access on a routine basis. *Care Without Coverage: Too Little, Too Late*, a 2002 report from the Institute of Medicine<sup>3</sup>, found that millions of working Americans would live longer and better if they obtained health insurance. Nearly 14.6% or 41.2 million people of the total US population of 282 million people lacked health coverage for the year 2000. In Maryland from 1996-2001, four areas exceeded a cumulative 15% health care non-coverage rate: Baltimore City (17.3%), Caroline County (20.9%), Somerset County (19.4%), and Garrett County (23.7%). Nine other counties, eight of which were either in Western Maryland or in the Eastern Shore region, had a health care non-coverage rate exceeding 10%. Reimbursement for telemedicine services by private payers and Medicaid will not directly benefit the uninsured population. However, for those uninsured in remote areas of the state who do have to pay for care out-of-pocket, the ability to access services via telemedicine might at least result in less lost productivity in terms of absence from work, travel time and transportation costs. There may also be some potential for expanding services to the uninsured through community health centers, which are resources for care, by using telemedicine to access specialists or consultants.

Telemedicine may also be a vehicle for providing access where a shortage of physicians and other practitioners exists. The United States Department of Health and Human Service's (DHHS) Health Research and Services Administration (HRSA) measures the availability of health care professionals overall and specifically primary care providers, mental health providers, and dentists by census tract. HRSA designates

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<sup>1</sup> US Census Bureau 2000.

<sup>2</sup> Ibid.

<sup>3</sup> Institute of Medicine, 2002.

health professional shortage areas (HPSAs) which can include entire counties or specific census tracts within a county. According to the HRSA website, there are HPSAs or shortage areas in 13 counties or parts of counties in Maryland and in areas of Baltimore City. Entire counties that are designated HPSAs are Calvert, Garrett, Kent, and St. Mary's counties.

It is important to note that for the purpose of reimbursement for telemedicine services, the Centers for Medicare and Medicaid Services (CMS) distinguishes between rural and urban HPSAs reimbursing only those HPSAs in designated rural areas and reimbursing non-MSAs. Current Medicare policies for telemedicine do not focus on practitioner manpower shortages and, instead, rely on rural designations as a proxy for lack of access. This results in some rural counties being allowed reimbursement for telemedicine under Medicare that are not designated shortage areas. The policy also downplays access issues experienced by urban uninsured populations. (See Chapters II and III)

The availability of primary care services has been shown to lead to greater continuity of care and earlier detection and prevention of disease. HRSA has designated several counties or census tracts within counties in Maryland as Health Professional Shortage Areas (HPSAs) for primary care. The criteria for (HPSA) designation includes having a shortage of primary medical care, special population groups or a shortage of medical or other public facilities such as community health centers.<sup>4</sup> Ten counties or parts of counties in Maryland are designated federal primary care HPSAs. Nine of the ten counties with primary care HPSA status are in Western Maryland (Allegany and Garrett counties) or on the Eastern Shore (Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, and Worcester counties), and one (Calvert county) is located in Southern Maryland. (See Appendix H for HPSA designations)

In addition to HPSAs there are federal designations for Medically Underserved Areas (MUA) or Populations (MUP) with inadequate access to primary health care services using several factors in addition to the availability of health care providers. These include infant mortality rates, poverty rates, percentages of population aged 65 or over, and the ratio of primary care physicians per 1,000 population for the area examined. Seven counties in Maryland are designated as federal MUA/MUP (five are located on the Eastern Shore in Caroline, Dorchester, Kent, Somerset, and Worcester counties; one is in Western Maryland in Garrett county; and one is in Southern Maryland in Calvert county).

While a shortage of physicians and practitioners in remote areas has been an obstacle to access in the past, the advancement of telecommunication technology makes use of telemedicine to improve access more feasible in the future. Currently, the Maryland Rural Broadband Cooperative is being established in order to offer broadband service to the Eastern Shore, Southern Maryland, and Western Maryland.<sup>5</sup> The implementation

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<sup>4</sup> Available at <http://bhpr.hrsa.gov/shortage/>.

<sup>5</sup> Rural Maryland Council Winter 2006 Newsletter, p 2.

of these infrastructure improvements will technologically enable Maryland's rural regions to efficiently integrate telemedicine services.

### **Efficacy of Telemedicine to Improve Cost, Quality and Access**

Current research on the efficacy of telemedicine services is mixed and varies with the application of the technology. The use of telemedicine to deliver health care services has the potential to result in "lower costs, particularly if telemedicine technology is used for an extended period of time, likely improves or maintains quality, and increases access."<sup>6</sup> This section will review the effect of various telemedicine applications on the cost, quality and access to healthcare.

In 2004, it was found that the two most commonly reported telemedicine clinical applications were management of patient condition and diagnostic exam interpretation.<sup>7</sup> Some of the most common clinical services include mental health, radiology, pediatrics and dermatology.<sup>8</sup>

### **Cost**

An important determinant to the implementation of telemedicine services is cost. The correct determination of the costs and benefits of telemedicine can be challenging and, as a result, there is some disagreement regarding the evidence for cost-effectiveness of telemedicine.<sup>9</sup> Some drawbacks of existing studies include small sample size, restricted geographic location, poor methodological design such as lack of a control group and restricted practice area. Also, most studies of cost effectiveness fail to take into account externalities such as transportation costs and loss of productivity and economies of scale. In 2001, an evidence review conducted by AETNA for AHRQ concluded there was not enough evidence to support reimbursement for telemedicine<sup>10</sup>. Since then, more definitive studies have been published. There is some convincing evidence that teleradiology is cost effective.<sup>11</sup> Studies of teledermatology show while the fixed costs were higher than for a conventional dermatology consultation, as the equipment costs go down with use, the cost effectiveness increases.<sup>12</sup>

Some studies and various on-going clinical telemedicine programs have reported on telemedicine's potential for cost-effectiveness. For example, a recent study conducted by the University of Maryland School of Medicine, found that telepsychiatry consultations had "comparable outcomes and equivalent levels of patient adherence,

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<sup>6</sup> Kirsten Rabe Smolensky. "Telemedicine Reimbursement: Raising the Iron Triangle to a New Plateau." *Health Matrix: Journal of Law Medicine* 2003, 13(2): 371-413.

<sup>7</sup> *2004 TRC Report*, p 19.

<sup>8</sup> *Ibid.* p 20.

<sup>9</sup> Smolensky, p 386.

<sup>10</sup> David Brantley, K Laney-Cummings, R. Spivackl. *Innovation, Demand and Investment in Telehealth*. US Department of Commerce. February 2004.

<sup>11</sup> *Ibid.*

<sup>12</sup> *Ibid.*

patient satisfaction, and health care cost” to in-person treatment.<sup>13</sup> Other studies have concluded that psychiatric services can be effectively offered to rural patients or to the underserved by way of telemedicine’s videoconferencing technology.<sup>14,15</sup> Still others have shown cost effectiveness of telemedicine in treatment of high risk pregnancy by reducing premature births<sup>16</sup> and in managing patients with congestive heart failure<sup>17</sup> by lowering hospital admission rates.

Studies conducted with the prison population have also documented the cost-effectiveness of telemedicine services in the correctional setting. A study conducted at the facilities of the Virginia Department of Corrections reported that a treatment program which consisted of conventional outpatient clinical and telemedicine settings achieved a “sharp decrease in viral load levels among HIV-positive inmates, treatment compliance has improved, and there has been a reduction in all HIV-related morbidities except malignancies. Overall, care of HIV-positive inmates is improving and approaching standard levels of care”<sup>18</sup> and the use of telemedicine “increased access to care for HIV-positive inmates and generated cost savings in transportation and care delivery.”<sup>19</sup><sup>20</sup> Another telemedicine demonstration project conducted at three correctional facilities indicated that “based on data from the study, the cost-benefit analysis concluded that a telemedicine consultation would cost an average of \$71, compared with \$173 for a conventional (face-to-face) health care consultation—a savings of nearly 60%.”<sup>21</sup>

Studies on the use of telemedicine services for asthma management also have implications for reducing health care costs by reducing hospitalizations, emergency department visits as well as improving the quality of care. Statistics from the Maryland Department of Health and Mental Hygiene indicate that approximately 11.9% of Maryland adults and 11.1% of Maryland children have a history of asthma. Additionally, persons at increased risk for asthma and its complications include the elderly, the very young, African-Americans, low-income individuals, and individuals in some jurisdictions, particularly Baltimore City. In 2003, charges for hospitalizations due to asthma totaled

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<sup>13</sup>Paul E Ruskin, et al., “Treatment Outcomes in Depression: Comparison of Remote Treatment Through Telepsychiatry to In-Person Treatment.” *American Journal of Psychiatry* 2004, 161(8): p 1471.

<sup>14</sup>Betty L. Charles. “Telemedicine Can Lower Costs and Improve Access.” *Healthcare Financial Management* April 2000; p 66-69.

<sup>15</sup>Barbara M. Rohland. “Telepsychiatry in the Heartland: If We Build It, Will They Come?” *Community Mental Health Journal*, 2001, 37(5): 449-459.

<sup>16</sup>John Morrison, et al. “Telemedicine and Cost Effective Management of High Risk Pregnancy” *Managed Care*, 2001 Nov; 10(11) 42-6, 48-9.

<sup>17</sup>C. Burgess, et al., (2001) – See page 5 of Chap. I.

<sup>18</sup>Michael T. Wong. “HIV Care in Correctional Settings is Cost-Effective and Improves Medical Outcomes.” *Infectious Diseases in Clinical Practice*, 2001, 10(3 Suppl): S9.

<sup>19</sup>M. J. McCue, et al. “The case of Powhatan Correctional Center/Virginia Department of Corrections and Virginia Commonwealth University/Medical College of Virginia.” *Telemedicine Journal*, 1997, Spring; 3(1):11-7.

<sup>20</sup>Statistics indicate that at year end 2004, there were 792 HIV-positive inmates in Maryland, which accounts for 3.4 percent of the total custody population. See HIV in Prisons, 2004, 11/06. U.S. Department of Justice - Office of Justice Programs Bureau of Justice Statistics. Available at <http://www.ojp.usdoj.gov/bjs/pub/pdf/hivp00.pdf>.

<sup>21</sup>*Implementing Telemedicine in Correctional Facilities*. U.S. Department of Justice–U.S. Department of Defense. May 2002, p. 7. Available at <http://www.ncjrs.gov/pdffiles1/nij/190310.pdf>.

\$41 million and charges for emergency department visits due to asthma totaled an additional \$28 million.<sup>22</sup>

Various studies on the impact of asthma management using telemedicine have been undertaken. For example, the Packard Children's Hospital designed an intervention strategy at several urban schools in California which included patient consultations through videoconferencing.<sup>23</sup>

In 1998, the University of Maryland School of Medicine in partnership with Shore Health System's Regional Cancer Center in Easton, initiated a teleoncology pilot program. This program was supported by an internal medical school grant and provided videoconferencing equipment and the services including tumor boards, physician consultations, and multidisciplinary cancer conferences. The telehealth system was also used to set up virtual meetings among ministers in Baltimore City and on the Eastern Shore.

In 2003 the UMSOM developed a "3D remote treatment planning system" for developing radiation therapy treatment plans for cancer patients in both Howard and Montgomery Counties. Part of the leading technology was supported by the University of Maryland Statewide Health Network, through Maryland Cigarette Restitution Fund Program.

## **Quality**

Quality of care is another important factor. Like cost, quality can be difficult to measure. Most studies of quality are either studies of patient satisfaction, clinician satisfaction or outcome comparison studies.<sup>24</sup> The term 'quality' is difficult to define, although as a general guideline, experts look to whether the appropriate structure, process or outcome was achieved. Structure includes such variables as characteristics of the providers of care, tools or resources and organizational setting, process includes the technical management of care.<sup>25</sup> Measures of outcome include mortality rates, hospital length of stay and quality of life.<sup>26</sup>

Most available studies compare patient or clinician satisfaction with services provided via telemedicine compared to traditional sources of care.<sup>27, 28</sup> Generally, patient

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<sup>22</sup> Available at [http://www.fha.state.md.us/mch/asthma/data\\_surv.html](http://www.fha.state.md.us/mch/asthma/data_surv.html).

<sup>23</sup> Pamela S. Whitten and DJ Cook, "School-based telemedicine: using technology to bring health care to inner-city children." *Journal of Telemedicine and Telecare*. 1999; 5 Supplement I:S23-25.

<sup>24</sup> Smolensky, p.390

<sup>25</sup> Ibid.

<sup>26</sup> Ibid.

<sup>27</sup> Pamela Whitten and F Mair. "Systematic Review of Studies of Patient Satisfaction with Telemedicine," *British Journal of Medicine*, 2000, p. 1517.

<sup>28</sup> R. Roine, et al. "Assessing Telemedicine :A Systematic Review of the Literature." *Journal of the Canadian Medical Association*, 2001, p. 765.

satisfaction rates are high.<sup>29</sup> However, it should be noted that some of these studies have methodological problems because the patient intermittently saw the provider in person. Studies of clinician satisfaction are more mixed with some studies reporting clinicians felt telemedicine increased their workload, mental effort and technical skills.<sup>30</sup>

Outcome comparative studies are perhaps the most useful in determining quality of care.<sup>31</sup> Various studies evaluating the Department of Veterans Affairs (VA) Care Coordination Home Telehealth (CCHT) program have compared the success of telemedicine services to their traditional (face-to-face) medical counterparts.<sup>32</sup> For instance, one study assessed the healthcare use among veterans with diabetes mellitus enrolled in the VA CCHT program found a reduction in “avoidable healthcare services for diabetes mellitus, such as hospitalizations, and reduced care coordinator-initiated primary care clinic visits.”<sup>33</sup> Another study evaluating the VA CCHT program indicated a statistically significant reduction in hospitalizations, emergency room use, average number of bed days of care, and improvement in the health-related quality of life role-physical functioning, bodily pain, and social functioning.<sup>34</sup> More studies in this area with a large database are underway. The efficacy of telehealth in managing cardiovascular disease has been shown in smaller studies<sup>35,36</sup> and will be assessed by the VA.

In the area of dermatology, a study evaluating the reliability and accuracy of dermatologists’ diagnoses and treatment plans resulting from telemedicine consultations compared to clinic-based found that diagnostic accuracy is comparable among clinic-based examiners and digital image examiners.<sup>37</sup>

The use of telemedicine as a way to deliver pediatric care has grown rapidly<sup>38</sup> and, as such, an increasing number of studies relating to quality of care for this clinical specialty have been undertaken. One study reported that an Internet-based “store and forward” pediatric consultation system had “improved the quality of patient care by providing expeditious specialty consultation...to a population of underserved children.”<sup>39</sup> An additional study, assessing the impact of telemedicine on absence from child care due to illness in an urban setting, concluded that “telemedicine holds substantial potential to reduce the impact of illness on health and education of children, on time lost from work

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<sup>29</sup> Smolensky, 2002, p.393.

<sup>30</sup> Supra 110.

<sup>31</sup> Ibid. p 390.

<sup>32</sup> Ibid. p395

<sup>33</sup> T. E. Barnett, et al. “The effectiveness of a care coordination home telehealth program for veterans with diabetes mellitus: a 2-year follow-up.” *American Journal of Managed Care*, Aug. 2006. 12(8): p. 467.

<sup>34</sup> N. R. Chumbler, et al., “Evaluation of a care coordination/home-telehealth program for veterans with diabetes: health services utilization and health-related quality of life.” *Evaluation and the Health Professions*, 2005 Dec; 28(4): p. 464.

<sup>35</sup> Knox et al. *Journal of Cardiovascular Nursing*, 1999.

<sup>36</sup> Burgiss et al. “Cost of Care Reductions Using Telehealth: A Comparative Analysis”, University of Tennessee Medical Center, Knoxville, Tenn.

<sup>37</sup> Available at [http://www.research.va.gov/resources/pubs/docs/mb12\\_telemed.pdf](http://www.research.va.gov/resources/pubs/docs/mb12_telemed.pdf).

<sup>38</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity, p 9.

<sup>39</sup> Charles W. Callahan, et al., “Effectiveness of an Internet-Based Store-and-Forward Telemedicine system for Pediatric Subspecialty Consultation.” *Arch Pediatr Adolesc Med*, April 2005, 159, p. 389.

in parents, and on absenteeism in the economy.”<sup>40</sup> It would seem that telemedicine is able to maintain or improve the quality of patient care.<sup>41</sup>

## **Access**

Lastly, access to healthcare is another important factor to consider. As mentioned earlier, an estimated 14% of Maryland’s population is uninsured. Additionally, many rural or non-MSA regions face critical shortages of specialists due to health manpower shortages. Teleradiology, one of the most common clinical applications, illustrates telemedicine’s ability to provide specialty expertise to a rural region. An advanced application of teleradiology is telemammography. This application has the ability to improve access to mammography for women in remote areas that lack radiology or mammography machines.<sup>42</sup> Furthermore, this can be accomplished by providing a digital system to the remote area or by equipping a bus in order to visit several regions.

In 1999, the University of Maryland’s Express Care was the first in the nation to use mobile telemedicine to assess a stroke patient’s condition during an ambulance ride, for accelerated pre-hospital evaluation. Maryland Express Care ambulances equipped with telemedicine enable neurologists in the hospital office to see a stroke patient in real time video and speak to the emergency medical personnel on the ambulance as they transport the patient to the hospital.

Teledentistry is another application in which telemedicine is able to provide access to specialized care in underserved regions in Maryland. In a survey conducted in 2000-2001 of the oral health status of Maryland school children, the Eastern Shore region had the highest percentage of untreated dental decay (54%) followed by the Central Baltimore region (48%).<sup>43</sup> The oral cancer mortality rate in Maryland is among the highest in the United States and ranks sixth for African-American males. These findings were attributed to a lack of dental providers in rural areas, lack of public health clinics to serve the uninsured and underinsured.

Teledentistry can be a resource for dental consulting and referral for specialized care for underserved regions. In a recent article in the *Journal of Telemedicine and Telecare*, the University of Rochester, NY, presented their findings on a teledentistry project established in six inner-city elementary schools and seven child-care centers.<sup>44</sup> By using an intraoral camera, telehealth assistants recorded digital images of children’s teeth and sent the images to a computer at the expert dental site. The authors found that almost 40% of the children screened had active dental caries and that “for the first time, many children attending inner-city child-care centers have had their teeth

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<sup>40</sup> K. M. McConnochie, et al. “Telemedicine Reduces Absence Resulting From Illness in Urban Child Care: Evaluation of an Innovation.” *Pediatrics*, 2005; 115(5): p 1273.

<sup>41</sup> Smolensky, p. 397.

<sup>42</sup> Roberta A. Jong and Martin J. Yaffe. “Digital Mammography: 2005.” *Canadian Association of Radiology Journal*, 2005; 56 (5): 319-323.

<sup>43</sup> [http://www.fha.state.md.us/oralhealth/pdf/Final\\_5-Year\\_Plan-2004.pdf](http://www.fha.state.md.us/oralhealth/pdf/Final_5-Year_Plan-2004.pdf)

<sup>44</sup> Dorota T. Kopycka-Kedzierawski and Ronald J. Billings. “Teledentistry in inner-city child-care centres.” *J Telemed Telecar*, 2006, 12(4):176-81.

examined at an early age and been given prompt feedback on the need for dental care.”<sup>45</sup>

It is estimated that by the year 2025, 16.4% of Maryland’s residents will have reached 65 years of age.<sup>46</sup> Approximately 50% of the elderly will be affected by a chronic disease and “for every nursing home patient, there are three to four times as many patients residing at home with similar needs.”<sup>47</sup> Whether living in a rural or urban setting, the elderly can have various health care access issues resulting from decreased mobility due to motor skill or visual impairment, isolation from a support network or family members, or suffering from a chronic illness. Remote patient monitoring uses special devices to remotely collect and send data to a monitoring station for interpretation. Monitoring applications can include checking vital signs, such as blood glucose or heart ECG, or a variety of indicators for homebound patients. This can be accomplished with specialty hardware devices and with fixed/integrated communications capabilities.<sup>48</sup> The University of Maryland School of Medicine currently has telemedicine evaluation trials underway in several areas of chronic diseases. These include 1) an evaluation of home automated telemanagement of chronic obstructive pulmonary disease (COPD), 2) hypertension telemanagement in African Americans, 3) home automated telemanagement of ulcerative colitis, and 4) feasibility of home rehabilitation in multiple sclerosis.<sup>49</sup> The current home telehealth project of the Department of Veterans Affairs involving about 22,000 veterans shows promise in demonstrating the efficacy of this type of application of telehealth/telemedicine, which the AETNA study in 2001 called into question (see section on cost).

### **Bioterrorism**

Since September 11, 2001, the United States has faced the possibility of large-scale health crises resulting from terrorist activity. Because of its proximity to Washington, DC, Maryland could be particularly vulnerable to terrorist attacks. Telemedicine has the potential to assist by allowing access to medical services in a remote or unreachable location. For example, in 2004, a telemedicine multi-state bioterrorism exercise using telehealth technology to diagnose a case of the smallpox and to plan a public health response was conducted. Participants in this exercise included the states of Florida, Kentucky, Missouri and Virginia along with the Centers for Disease Control and Prevention.<sup>50</sup>

### **Non-Clinical Applications**

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<sup>45</sup> Ibid. p 176.

<sup>46</sup> Available at <http://www.census.gov/population/projections/state/9525rank/mdprsrel.txt>.

<sup>47</sup> Karen Rheuban. “The role of telemedicine in fostering health-care innovations to address problems of access, specialty shortages and changing patient care needs.” *Journal of Telemedicine and Telecare*, 2006. 12 (suppl. 2): p 47.

<sup>48</sup> Available at <http://www.wiredred.com/video-conferencing/video-telemedicine.html>.

<sup>49</sup> Email from Joseph Finkelstein MD, PhD, University of Maryland School of Medicine Director, Chronic Disease Informatics Group, 1/24/07.

<sup>50</sup> Available at <http://www.healthsystem.virginia.edu/internet/telemedicine/news/index.cfm>.

Another important application for use of videoconferencing/telecommunication technology is for continuing education of health care providers, patients or the public. The most common educational application reported is continuing medical education (CME), continuing nursing education (CE), training, “virtual” conferences, patient education, tumor boards and grand rounds. (See Chapter III for a description of the University of Maryland Statewide Health Network’s effort to provide CMEs to community health centers.)

### **Reimbursement and Access to Care**

Specific studies on the influence of reimbursement for telemedicine services and increased usage could not be located. However, there is evidence that there is greater use of telemedicine in states where there is reimbursement for services from Medicaid and mandated coverage from private payers. These states also tend to have more telemedicine programs with more sites. California, Hawaii, Kansas, New York and Texas—states with the greatest amount of reported telemedicine activity—reimburse services under Medicaid and private payers. Florida which also has high usage does not have public or private mandates.<sup>51</sup>

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<sup>51</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity, p.8.

## **V. Barriers to Reimbursement for Telemedicine Services in Maryland and Strategies to Facilitate Access to Telemedicine**

The use of clinical telemedicine services in Maryland is less well developed than for other more rural or frontier states. This could be related in part to a lack of reimbursement for clinical telemedicine services through the state Medicaid program and private payers as evidenced by a lack of claims data. Moreover, Medicare reimbursement for clinical services provided via telemedicine in Maryland is limited due to Federal policies that narrow the availability of Medicare reimbursement to *rural* Health Professional Service Areas (HPSAs) and non-Metropolitan Service Areas (non-MSAs). This means that Medicare does not cover clinical services provided by way of telemedicine for beneficiaries in much of the state.

The state's two major academic health centers (University of Maryland School of Medicine and Johns Hopkins School of Medicine and their affiliated hospitals) have telemedicine activities underway in many clinical specialties. Some of these provide services nationally or internationally. Most of these are supported by grants from government agencies or non-profit foundations, not from traditional sources of third party payment.

Failure to develop formal reimbursement structures may be due to Maryland's relatively small geographic size as compared to other states. States that are geographically larger (typically those in the Southern and Western United States) are more likely to be receiving Medicare reimbursement for telemedicine services in rural areas, have authorized Medicaid reimbursement and have private payers willing to reimburse. All of these factors may help improve access to health care, since states with Medicaid and private payer reimbursement report more activity via telemedicine.<sup>1</sup>

Maryland patients commute to major academic centers from rural areas for specialty clinical care although this can lead to delaying or foregoing care and adds additional transportation costs. In addition there are 13 counties or parts of counties and Baltimore City that are identified by the federal government as HPSAs for primary care providers, dentists, or mental health providers in the state. People in these areas, which may be urban, must also travel distances to get the appropriate care. For some of them, accessing transportation may also be a barrier.

There are several developments that make the issue of reimbursement for telemedicine/telehealth services in Maryland even more salient to the issue of improved access to care in the future. These are:

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<sup>1</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity. Civic Research Institute, Kingston, NJ, 2004, pg 8.

1. The Maryland Rural Broadband Cooperative is making the infrastructure improvements needed to convey images clearly and efficiently by telecommunications thus improving the feasibility of telemedicine services;
2. In addition to clinical care and consultations, emerging issues for telemedicine such as chronic disease management, home monitoring of patients with chronic diseases are increasing in popularity and may increase favorable patient outcomes while controlling health care expenditures;
3. The threat of bioterrorism is making it necessary to develop contingency plans for providing emergency medical care especially in remote areas; and
4. Telemedicine/Telehealth is being used as a medium to effectively educate providers through continuing medical education programs and to foster adherence to clinical guidelines and evidence guided care. It is also used to inform consumers in all regions of the state and in their local communities about health promotion and disease prevention strategies.

Agreements such as the one between the University of Maryland Statewide Health Network (UMSHN) and the Mid-Atlantic Association of Community Health Centers (CHCs), as well as rural hospitals show promise in improving the quality of care for uninsured, underserved and remote populations who receive care in these facilities.

### **Barriers**

In general, barriers to the growth of telemedicine in Maryland are the same as those identified nationally. These include financial, quality issues, infrastructure, legal and regulatory barriers, as follows:

- Lack of telemedicine/telehealth reimbursement (i.e., through Medicaid, Medicare) is a deterrent to health care provider participation. Moreover, stable sources of third party payment are essential to the sustainability of telemedicine services. This is particularly true for telemedicine with its high fixed costs for entry which require an investment in equipment, maintenance, training and infrastructure. Further these fixed costs can only be recouped over a long period of time. A single remote monitoring unit may cost as much as \$3000 - \$5000.<sup>2</sup>
- Medicare's geographic and service policies are restrictive. The definition for reimbursable telehealth services includes the word "interactive" which limits reimbursement for store and forward health services.<sup>3</sup> Moreover, reimbursement is limited to rural HPSAs and non MSAs as originating sites. This rules out coverage for underserved and uninsured in urban areas. In addition, current Medicare policy does not include a residence as an "originating site" for telemedicine ruling out the use of telemedicine to monitor chronic conditions as a reimbursable service.

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<sup>2</sup> Kirsten Rabe Smolensky. "Telemedicine Reimbursement: Raising the Iron Triangle to a New Plateau." *Health Matrix: Journal of Law Medicine*. 13(2) (2003): 371-413.

<sup>3</sup> Brantly, pg. 73.

- According to Center for Medicaid Services (CMS) and Agency for Health Research and Quality (AHRQ), there is a lack of quality clinical efficacy and cost-benefit research that supports telehealth services.<sup>4</sup> HRSA's Office for the Advancement of Telemedicine (OAT) has many pilot projects to demonstrate the usefulness of telehealth underway in states. Also, the Department of Veterans Affairs (VA) has been a leader in demonstrating the effectiveness of telemedicine in multiple clinical specialties and with a promising demonstration project for managing disease at home with conclusive findings expected next year.
- Lack of uniformity exists among the states. No two states share the same policy, coverage or even definition of telemedicine.<sup>5</sup> This could make it more difficult for insurance carriers who operate throughout the nation to develop policy regarding reimbursement since they would need to comply with many different state requirements.
- Liability is a relevant issue for telemedicine. Providers may not be paid for consultation or monitoring via telemedicine, but may still be responsible for poor patient outcomes.
- Licensure requirements for providers of telemedicine services vary among the states. Health care practitioners are licensed in the state in which they practice; telemedicine/ telehealth may extend the practice into a different jurisdiction. State licensing boards may prohibit, permit or decline to take a position on telemedicine.<sup>6</sup>
- The reasons for restricting licensure for telemedicine include: patient safety, application and imposition of sanctions, fear of patients being drawn away by out of state providers, boards have difficulty policing and disciplining physicians who are not licensed in their state.
- Providers may be slow or reluctant to adopt new technologies, although evidence of this concern varies. Without provider demand, the market is not responding to cover reimbursement.<sup>7</sup>

This report has shed some light on the current status of telemedicine and telehealth in Maryland and other states as well as the barriers as noted above and may be useful in supporting future policy development in this area. The Maryland General Assembly may consider additional studies, including pilot telehealth/telemedicine studies, to further support the development, expansion and reimbursement for clinical telemedicine services in Maryland.

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<sup>4</sup> Ibid. pg. 79.

<sup>5</sup> Ibid. pg. 82.

<sup>6</sup> Brantly, pg. 84

<sup>7</sup> Ibid. pg. 89.

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## I. Introduction

During the 2006 legislative session, the Maryland General Assembly passed Senate Bill 728 “Telemedicine-Use and Reimbursement Study” (Chapter 266 of the Laws of Maryland) requiring the University of Maryland School of Medicine, in consultation with the University of Maryland School of Nursing and other stakeholders, to conduct a study of telemedicine use and reimbursement and report the results to the Senate Finance Committee and House Health and Government Operations Committee on or before January 2007 (See Appendix A). As detailed in the legislation, the study must include the following:

- (i) The use of and reimbursement for telemedicine in other states;
- (ii) The current use of telemedicine in the State;
- (iii) The potential for telemedicine to improve access to health care in underserved areas of the State;
- (iv) How any reimbursement for telemedicine in other states has increased access to health care in those states; and
- (v) Any current barriers in the State to reimbursement for telemedicine.

This report is intended to fulfill the requirements of this legislation. The report is organized into five chapters. The first chapter provides an introduction and overview. Chapters two through five address the specific topics enumerated in the legislation. The last chapter identifies barriers to the use of telemedicine and telehealth services in Maryland.

### **Background**

Historically concerns for access to health care have driven the development and interest in telemedicine. Originally developed to provide access to specialty and primary care for very remote, frontier areas, with the passage of time, and the improvements in telecommunications infrastructure, new uses for telemedicine have emerged.

Telemedicine can be defined in a number of ways. In the Institute of Medicine’s (IOM) report, telemedicine is the use of information and telecommunication technologies to provide and support health care when distance separates the participants.<sup>1</sup> Similarly, telemedicine has been defined as “the use of medical information exchanged from one site to another via electronic communications to improve patients’ health.”<sup>2</sup>

Another term “telehealth” is closely associated with telemedicine and is used in the broader sense to define health care or health information/education delivered remotely that does not always involve clinical services. Distance continuing medical education (CME), remote monitoring of patients in home, ambulance or hospital, videoconferencing between providers for clinical consultations to discuss patients,

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<sup>1</sup> Institute of Medicine (US): Committee on Evaluating Clinical Applications of Telemedicine. Telemedicine: A Guide to Assessing Telecommunications in Health Care. Marilyn J. Field, Editor. National Academy Press, Washington, D.C. 1996.

<sup>2</sup> The American Telemedicine Association. Available at <http://www.atmeda.org/>

transmission of images, e-health portals for patient education, and nursing call centers are all part of telehealth.<sup>3</sup> Both terms emphasize “remote” location of either the patient or provider.

Reimbursement fee structures do not always distinguish between services provided on site and those provided remotely. Some carriers use the modifier “TM” or “tm” for the Current Procedural Technology (CPT) codes for billing to distinguish the means of providing the service.

There are a variety of applications for telemedicine and telehealth including those listed below:

- a) Clinical services (may be primary care or specialty referral services);
- b) Administrative uses;
- c) Educational such as continuing education for health professionals;
- d) Clinical consultations to discuss patient care between two or more clinicians;
- e) Remote patient monitoring; and
- f) Consumer medical and health information.

Specialty referrals generally involve a physician specialist at a remote location assisting another health professional often a primary care physician or other specialist with a diagnosis real-time, remote consultation, or the transmission of patient data and images to a specialist for review at a later time. Radiology, dermatology, psychiatry, as well as ophthalmology, cardiology and pathology are examples of established telemedicine applications. In addition, applications are being used for remote patient monitoring in the home or in an ambulance remotely collecting and transferring data to a monitoring station for interpretation. Increasingly, home telehealth applications are being used for chronic disease management for patients with congestive heart failure (CHF), diabetes mellitus (DM), post-stroke, and other conditions. Home telemanagement of patients often are used to supplement care provided by visiting nurses.

Videoconferencing may be used to provide continuing education to health professionals in remote locations. Finally, advanced telecommunication technologies are used to provide specialized health information and on-line discussion and support groups. While all of the above are growing uses of telehealth, the focus of this study is confined primarily to telemedicine where clinical services, including consultations, are provided to patients remotely. These types of clinical services would usually be reimbursable, if provided through live and direct contact between a physician and patient.

A report by the United States Department of Health and Human Services (US DHHS) on telemedicine for the Medicare population classifies telemedicine services slightly differently.<sup>4</sup> This report assessed telemedicine services with a focus on those that would substitute for face-to-face medical diagnosis and treatment of the Medicare

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<sup>3</sup> Ibid.

<sup>4</sup> W. Hersh, JA Wallace, PK Patterson, et al., *Telemedicine for the Medicare Population*, Agency for Healthcare Research and Quality, US Department of Health and Human Services, July 2001.

population (adults with disabilities and those ages 65 and older) and identified health care services that could be provided through telemedicine. The US DHHS report organized telemedicine into three areas:

1. Store and forward: collects clinical data, stores it, then forwards it for interpretation later; the physician and patient need not be together at the same time (non-interactive);
2. Self-monitoring / testing (home based): physicians and health care providers can monitor physiological measurements, test results, images, and sounds collected in a patient's residence or care facility; this is beneficial to patients that have problems with mobility or where travel is costly and may allow better care due to early detection of problems and possible reduction of health care costs because of early intervention; and
3. Clinician-interactive (office/hospital based): real time interactions, such as online office visits, consultations, hospital visits and home visits, specialized exams and procedures.

For the purpose of reimbursement, the Centers for Medicare & Medicaid Services (CMS) define telemedicine as "professional services given to a patient through an *interactive* telecommunications system by a practitioner at a distant site."<sup>5</sup> Because this definition includes the term *interactive*, reimbursement is limited to telemedicine activities that occur real-time while the patient and practitioner are interacting. However, CMS demonstration projects in Alaska and Hawaii have been granted authority to submit for reimbursement for store and forward activities.<sup>6</sup> Store and forward activities are not interactive. Instead, these activities involve the collection of data at one point in time, storage of that data, and then forwarding of the data to a physician to be interpreted later.

Additionally, CMS has unique reimbursement policies for the originating site and the distant site. The originating site is defined as "the location of an eligible Medicare beneficiary at the time the service being furnished via a telecommunications system occurs."<sup>7</sup> Reimbursement to the originating site is the "lesser of 80% of the actual charge or the originating site facility fee of \$20."<sup>8</sup> This amount is set by statute, but is updated annually according to the Medicare Economic Index.<sup>9</sup>

Beneficiaries are eligible for Medicare services delivered via telemedicine only at originating sites (where the enrollee presents) located in a *rural* Health Professional Shortage Areas (HPSAs) or in counties in a non-metropolitan statistical area (MSA). The Medicare Benefit Policy Manual is included in the Appendix (Appendix B).

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<sup>5</sup> Medicare.gov, searchable glossary. Available at <http://www.medicare.gov/Glossary/search.asp?SelectAlphabet=T&Language=English#Content> Accessed December 4, 2006.

<sup>6</sup> David Brantly, K Laney-Cummings, R Spivack, *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, Feb 2004.

<sup>7</sup> CMS Internet Only Manual 100-02, Medicare Benefit Policy Manual, Chapter 15 Covered Medical and Other Health Services, Sections 270-275.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

“The Centers for Medicare and Medicaid (CMS) has not formally defined telemedicine for the Medicaid program and Medicaid law does not recognize telemedicine as a distinct service.”<sup>10</sup> However, states, at their option, are permitted to reimburse for telemedicine services. At least 36 state Medicaid programs do reimburse for some telemedicine activities (see Chapter II for detailed information).

Telemedicine can be viewed from two perspectives as either 1) facilitating geographic access, (which seems to be the focus of federal programs) or 2) facilitating access to care and efficiency in delivery of care, especially for the elderly and underserved. Telemedicine allows community and rural hospitals to offer more advanced care by providing access to clinical specialties and subspecialties that would not otherwise be available locally. This can help some patients avoid being transferred to a major medical center which can save health care costs and keep the patient closer to family and friends. Currently under Medicare, only designated *rural* HPSAs, counties, non-MSAs, and approved Federal demonstration projects are eligible for coverage of telemedicine services.

The Department of Veterans Affairs (VA) has been a leader in use and advancement of telemedicine services. In addition to the traditional clinical uses, the VA recently initiated use of telecommunication equipment to home-monitor the conditions of 22,000 chronically ill patients nationwide.<sup>11</sup> Complete data from this initiative, due in about a year, is likely to provide the most conclusive evidence to date of the efficacy of telemedicine in this area. Unlike other payer programs in the federal government, the VA provides services directly to eligible persons through its own facilities; the VA is both payer and provider (See Chapter II and IV).

One other source of federal funding for telemedicine is the Office for the Advancement of Telehealth (OAT) in the Health Resources and Services Administration (HRSA). HRSA defines “telehealth” broadly as “use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration”. Dr. Dena Puskin, an internationally recognized leader, heads this office. HRSA works to increase and improve the use of telehealth to meet the needs of the underserved, including those living in remote and rural areas with low incomes and who are uninsured or enrolled in Medicaid<sup>12</sup> (See Appendix C for a list of OAT-HRSA Awardees). Other federal agencies that fund telehealth programs include: the Department of Defense (DOD), the National Aeronautic and Space Agency (NASA), the National Institutes of Health (NIH), and the Agency for Healthcare Research and Quality (AHRQ).

The efficacy of telehealth and telemedicine services continues to be assessed. Telehealth was applied to high risk pregnancies in one study, which showed significant

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<sup>10</sup> CMS, Medicaid & Telemedicine, Overview. Updated 12/14/05, Available at [http://www.cms.hhs.gov/Telemedicine/01\\_Overview.asp#TopOfPage](http://www.cms.hhs.gov/Telemedicine/01_Overview.asp#TopOfPage) (Accessed August 10, 2006)

<sup>11</sup> <http://www.hopkinsmedicine.org/mediall/enews/picture.html>

<sup>12</sup> <http://www.hrsa.gov/telehealth>

reduction in premature births.<sup>13</sup> In Tennessee, another study showed hospital readmission rates for congestive heart failure were lower after a sustained program of telehome care monitoring and patient education.<sup>14</sup> Whitten et al. observes “Preliminary research well documents the fact that telemedicine is a feasible alternative to traditional healthcare.”<sup>15</sup> Studies demonstrate that patients have reported good acceptance rates and satisfaction with technologies and treatment via telemedicine and care has been shown to be efficacious.<sup>16,17,18</sup> However, some studies have yielded contradictory conclusions.<sup>19</sup> Studies of the efficacy of the use of telemedicine services and telehealth have been limited. Part of the limitation on research is due to a lack of a critical mass of programs to make an assessment. An Aetna “evidence review” funded by the Agency for Healthcare Research and Quality (AHRQ) in 2001 to determine the efficacy of certain telehealth specialties suggested the quality of efficacy studies was insufficient to reimburse any telehomecare application.<sup>20</sup>

It is important to emphasize again the difference between telehealth and telemedicine. Telehealth can encompass a wide variety of applications while telemedicine is essentially a clinical service or consultation that occurs via telecommunications instead of in person. Studies of telehomehealth fall under telehealth services which are new and still under review. Clinical applications of telemedicine are more conclusive in their efficacy.

### **Barriers to Use of Telemedicine**

The number of telemedicine programs has grown rapidly since the 1990's. However, telemedicine is still viewed as not being widely used for consultations and clinical care. Telehealth is used even less for quality improvement activities, such as continuing medical education.

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<sup>13</sup> John Morrison, et al., (2001) “Telemedicine Cost Effective Management of High Risk Pregnancy” *Managed Care*.

<sup>14</sup> S. Burgess, et al., (2001) “Costal Care Reductions Using Telehealth: A Comparative Analyst” Paper presented at American Telemedicine Association Annual meeting

<sup>15</sup> Pamela Whitten, et al., (2006) “Private Payer Reimbursement for Telemedicine Services in the United States” Department of Telecommunication, Michigan State University

<sup>16</sup> J. Finkelstein, et al.' (2003) “Home Automated Telemanagement (H.A.T.) System to facilitate Self-Care of Patients with Chronic Diseases.” *Journal of Systemics, Cybernetics and Informatics*, 1(3) e5.

<sup>17</sup> S. S. Gustke, et al., (2000). “Patient Satisfaction with Telemedicine,” *Telemedicine Journal* 6(1), 5-13.

<sup>18</sup> Woods, K.F. et al., (1999). “Sickle Cell Telemedicine and Standard Clinical Encounters. A comparison of Patient Satisfaction.” *Telemedicine Journal*, 5(4), 349-356.

<sup>19</sup> <http://archfami.ama-assn.org/issues/v9n1/fful/foc8072>

<sup>20</sup> David Brantly, K Laney-Cummings, R. Spivack. *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, February 2004, pg 82-83.

Three main barriers to the advancement of telemedicine/telehealth can be identified:

1. Cost of the equipment and cost of line charges (for ISDN lines);
2. Access to and cost of the infrastructure required for connectivity; and
3. Practitioner reimbursement.<sup>21</sup>

Today, the cost of telemedicine/telehealth equipment is decreasing. At the same time, broadband infrastructure, which had previously only been available in urban areas for high quality video streaming necessary for conferencing and to adequately treat patients, is becoming more available in rural areas.

In Maryland, legislation was enacted in the 2006 legislative session (Chapter 269 of the Laws of Maryland sponsored by Senator Pipkin, and Delegate Jameson) to establish a rural broadband cooperative office in the Maryland Department of Business and Economic Development for the establishment of rural broadband telecommunications services. The State has committed \$10 million to the building of this Network between 2007 and 2010. Senator Mikulski added to the project by securing federal funds to build a fiber optic loop between NASA's Wallops Island Space Facility to the Patuxent River Naval Air Station River in St. Mary's county<sup>22</sup>. W.L. Gore and Associates will share fiber optic resources in the Elkton area. This Network will give the Maryland Broadband Cooperative an immediate presence in all rural regions of Maryland. The formation of a Rural Broadband Cooperative was recently announced at the annual Rural Health Summit. This Cooperative will give broadband internet service to all seeking residential or business applications, including telemedicine. The Cooperative will be owned by the rate payers much like an electric cooperative.

### **Reimbursement for Telemedicine**

Reimbursement for telemedicine services is a barrier to widespread use. A survey of states that do not require reimbursement for telemedicine services was conducted by the ATA and AMD Medicine, a supplier of medical devices used in telemedicine, and indicated the following reasons for not providing reimbursement though the Medicaid program:<sup>23</sup>

- Lack of compelling evidence of efficacy and cost/benefit needed in order to consider reimbursement (Alabama, DC, Florida, Idaho, New York);
- Transportation costs are not a major cost factor to Medicaid (Alabama, Connecticut, Maryland, Rhode Island);
- Budget concerns/limitations (Idaho, Mississippi);
- Geography – all citizens are close to medical facilities (Delaware);
- Fear of over utilization, fraud and abuse (Idaho); and
- No requests for reimbursement have been submitted (New Hampshire, Rhode Island).

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<sup>21</sup> Carrie Vaughan (2006) "Is Telemedicine in your Strategic Plan." *Health Leaders*, Available at [http://www.healthleadersmedia.com/crhlc/view\\_news.cfm?Content\\_id=81764](http://www.healthleadersmedia.com/crhlc/view_news.cfm?Content_id=81764).

<sup>22</sup> E-mail – J. Dillman III, Executive Director, Upper Shore Regional Council to Dr. Claudia Baquet, 10.24.06

<sup>23</sup> *Telemedicine Reimbursement Report*, Center for Telemedicine Law, October 2003, pg. 39-44.

It should be noted that several states did express interest in moving forward (Pennsylvania, Florida, and Idaho) with providing reimbursement through the Medicaid program.<sup>24</sup>

### **Policy Issues**

There are also broader policy issues to be considered. According to the American Telemedicine Association (ATA), “Nonpayment of telemedicine services that are reimbursed if provided in person creates a disparity and inequity for remote based populations, and often times, is in direct conflict with legislated language”(to facilitate access).<sup>25</sup> According to one article, “Most states are carrying the burden of transportation costs, which are simply eliminated when telemedicine technologies are employed to provide access to care for which the patient otherwise would have to travel long distances.”<sup>26</sup>

On the positive side, according to the ATA, the “rationale for payment of services is “Care delivered by the right practitioner at the right time results in:

1. Reduction in cost of care and improved clinical outcomes;
2. Reduction of transportation costs to the Medicaid agency with budgetary constraints; and
3. Reduction in the utilization of emergency care for chronic care or primary care.”<sup>27</sup>

This report discusses the applicability of the identified barriers to Maryland and ways to overcome these barriers and expand access to telehealth and telemedicine. Areas of variability among the states include Medicaid reimbursement, state licensure requirements for practicing medicine via telemedicine, state mandates for reimbursement and scope of reimbursement and the presence of third party payers willing to reimburse for telemedicine services. It is also important to obtain buy-in from medical practitioners and their staff in remote areas, provide training to facilitators at the originating sites.

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<sup>24</sup> *Ibid.*

<sup>25</sup> *Telemedicine Reimbursement Report*, pg. 9.

<sup>26</sup> N. M. Antoniotti, J Linkous, S. Speedie, et. al., *Medical Assistance and Telehealth: An Evolving Partnership*, American Telemedicine Association, Available at [http://atmeda.org/new/policy\\_issues](http://atmeda.org/new/policy_issues), Accessed on August 18, 2006.

<sup>27</sup> *Ibid.* pg. v.

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## II. Overview of Reimbursement Policies for Telemedicine

The lack of consistent and comprehensive reimbursement policies remains one of the biggest obstacles to the integration of telemedicine/telehealth into health care in the United States. Currently, both the public payer (Medicare and Medicaid) and the private payers have not addressed the prospect of universal reimbursement (for telemedicine services).<sup>28</sup> Despite this, many states are embracing the health care opportunities presented by telemedicine and are taking various steps for public and private payer reimbursement of telemedicine services. This section presents an overview of reimbursement policies for Federal, state and private payers for telemedicine.

### **Medicare**

Medicare is the federal health insurance program that covers approximately 43 million elderly and disabled Americans. Medicare has traditionally paid for some of the telemedicine services that do not require face-to-face interactions with patients, such as teleradiology and telepathology, as long as they occur in real time.<sup>29</sup>

In 1997, Congress passed the Balanced Budget Act (BBA) which authorized Medicare payments for specific telemedicine services, effective January 1, 1999, and for the funding of telemedicine demonstration projects.<sup>30</sup> The BBA provided for very limited reimbursable telemedicine services, limited providers who could be reimbursed and required fees to be split between the distant and originating sites. Many of these constraints were removed by the Benefits Improvement and Protection Act of 2000 (BIPA) which expanded coverage for telehealth services, loosened presenter requirements at the originating site to allow a non-medical person to present a patient and revised payment policy. Still, Medicare maintains substantial limitations regarding rural geographic location of originating sites, and eligible telehealth services.<sup>31</sup> After the passage of BIPA, the American Telemedicine Association estimates that Medicare payments for telemedicine services rose from \$20,000 in the year 2000 to \$1.5 million in the year 2005.<sup>32</sup>

As noted in Chapter 1, the Centers for Medicare & Medicaid Services (CMS) define telemedicine as “professional services given to a patient through an *interactive* telecommunications system by a practitioner at a distant site.”<sup>33</sup> Because this definition includes the term “interactive,” reimbursement is limited to telemedicine activities that occur while the patient and practitioner are interacting. However, CMS demonstration projects in Alaska and Hawaii have been granted authority to submit for reimbursement for store and forward activities.<sup>34</sup>

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<sup>28</sup> Pamela S. Whitten. *Telemedicine in Indiana Policy Report*, Purdue University. March 2006.

<sup>29</sup> *Ibid.*

<sup>30</sup> *Telemedicine Reimbursement Report*. The Center for Telemedicine Law. October 2003. Available at <http://www.hrsa.gov/telehealth/pubs/reimbursement.htm>.

<sup>31</sup> *Ibid.*

<sup>32</sup> Pamela Whitten, 2006.

<sup>33</sup> Medicare.gov, searchable glossary. Available at

<http://www.medicare.gov/Glossary/search.asp?SelectAlphabet=T&Language=English#Content>. Accessed December 04, 2006.

<sup>34</sup> David Brantly, et al. *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, Feb 2004.

CMS has unique reimbursement policies for the originating site and the distant site. The originating site is defined as “the location of an eligible Medicare beneficiary at the time the service being furnished via a telecommunications system occurs.”<sup>35</sup> Reimbursement to the originating site is the “lesser of 80 percent of the actual charge or the originating site facility fee of \$20.”<sup>36</sup> This amount is set by statute, but is updated annually according to the Medicare Economic Index.<sup>37</sup>

The distant site is defined as “the site where the physician or practitioner providing the professional service is located at the time the service is provided” and reimbursement is equal to the current fee schedule for the service provided.<sup>38</sup> Beneficiaries are eligible for Medicare services delivered via telemedicine only at originating sites (where the enrollee presents) located in a *rural* Health Professional Shortage Areas (HPSAs) or in counties in non-metropolitan statistical areas (MSAs).

Facilities eligible to receive reimbursement as the originating site include<sup>39</sup>:

- Office of physician or practitioner
- Hospital
- Critical access hospital
- Rural health clinic
- Federally qualified health center (FQHC)

The following services are eligible for reimbursement (excluding the demonstration projects):<sup>40</sup>

- Consultations
- Office or outpatient visits
- Individual psychotherapy
- Pharmacologic management
- Psychiatric diagnostic interview examination
- End state renal disease related services
- Individual medical nutrition therapy

Providers eligible for reimbursement include:<sup>41</sup>

- Physician
- Nurse practitioner
- Physician assistant
- Nurse midwife
- Clinical nurse specialist
- Clinical psychologist
- Clinical social worker

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<sup>35</sup> CMS Internet Only Manual 100-02, *Medicare Benefit Policy Manual*, Chapter 15, Covered Medical and Other Health Services, Sections 270-275.

<sup>36</sup> *Ibid.*

<sup>37</sup> *Ibid.*

<sup>38</sup> *Ibid.*

<sup>39</sup> *Ibid.*

<sup>40</sup> *Ibid.*

<sup>41</sup> CMS Internet Only Manual 100-02.

- Registered dietitian or nutrition professional

With the exception of demonstration projects, Medicare reimbursement for telemedicine services appears consistent between the states. However, because Medicare essentially authorizes reimbursement only in designated rural areas, policy favors more extensive coverage in rural states. The Medicare Benefit Policy Manual is included in the Appendix (Appendix B).

### **Medicaid**

Since its enactment in 1965, the Medicaid program has been the nation's major public health insurance program for low-income Americans. Medicaid is jointly financed by federal and state government and each state administers the program within broad federal guidelines. Each state may establish its own eligibility standards; determine the type, amount, duration, and scope of services; set the rate of payment for services; and administer its own program.<sup>42</sup>

However, state Medicaid programs must follow several mandatory requirements for federal matching funds to be received. For example, each state's Medicaid program is required to provide specific basic services to the categorically needy populations, such as: "inpatient hospital services, outpatient hospital services, prenatal care, vaccines for children, physician services, nursing facility services for persons aged 21 or older, family planning services and supplies, rural health clinic services, home health care for persons eligible for skilled-nursing services, laboratory and x-ray services, pediatric and family nurse practitioner services, nurse-midwife services, FQHC services, ambulatory services of an FQHC that would be available otherwise, and early periodic screening, diagnostic, and treatment services for children under age 21."<sup>43</sup>

CMS has not formally defined telemedicine for the Medicaid program and Medicaid law does not recognize telemedicine as a distinct service.<sup>44</sup> However, CMS does recognize that telemedicine has the potential to reduce Medicaid expenditures and has encouraged states to "create innovative payment methodologies for services that incorporate telemedicine services."<sup>45</sup> Thus, states are permitted, at their option, to reimburse for telemedicine activities.

Since 2002, there have been several studies and surveys published that describe Medicaid reimbursement for telemedicine. The studies include: 2002 Survey of State Medicaid Directors,<sup>46</sup> 2003 Survey of State Medicaid Offices,<sup>47</sup> 2003 Telemedicine Reimbursement Report<sup>48</sup>, 2004 Innovation, Demand and Investment in Telehealth (US

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<sup>42</sup> *Telemedicine Reimbursement Report*.

<sup>43</sup> *Ibid*.

<sup>44</sup> CMS, Medicaid & Telemedicine, Overview. Available at [http://www.cms.hhs.gov/Telemedicine/01\\_Overview.asp#TopOfPage](http://www.cms.hhs.gov/Telemedicine/01_Overview.asp#TopOfPage). Accessed August 10, 2006.

<sup>45</sup> Available at [http://www.cms.hhs.gov/Telemedicine/02\\_Considerations.asp#TopOfPage](http://www.cms.hhs.gov/Telemedicine/02_Considerations.asp#TopOfPage), Accessed December 14, 2006.

<sup>46</sup> S Palsbo. "Medicaid payment for telerehabilitation." *Arch Phys Med Rehabil* 2004, 85:1188-91.

<sup>47</sup> G. Gray. *Exploratory study of telemedicine Medicaid reimbursement status: participating and non-participating states and its impact on Idaho's policy-making process* (in press).

<sup>48</sup> *Telemedicine Reimbursement Report*.

Department of Commerce)<sup>49</sup>, and 2006 State Medicaid and Private Payer Reimbursement for Telemedicine: An Overview.<sup>50</sup> Additionally, there are three national data sources that publish information about Medicaid reimbursement for telemedicine: CMS Medicaid Telemedicine “State Profiles”<sup>51</sup>, Association of Telehealth Providers – The State of Medicaid Reimbursement in the U.S.,<sup>52</sup> and National Conference of State Legislatures.<sup>53</sup> Unfortunately, these data are not updated regularly. In fact, the data on the CMS website only describes 17 of the 36 known Medicaid reimbursement policies.

Our research indicates 36 states, as of 2005, have Medicaid programs that have formally begun using telemedicine services and are currently reimbursing for some telemedicine activities. Of those 36 states, at least 20 have Medicaid reimbursement policies as a result of legislation (TIE and other sources). These states include: Arkansas, California, Colorado, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Minnesota, Montana, Nebraska, North Carolina, North Dakota, Oklahoma, South Dakota, Texas, Utah, and West Virginia (See Table 1.). However, due to the challenges involved with telemedicine reimbursement, these state Medicaid programs vary in terms of what and who are covered, which sites are reimbursed and whether the service is live or a store-and-forward consultation.<sup>54</sup> The following is a brief overview of a few state Medicaid programs.

### **State Medicaid Programs Reimbursing for Telemedicine**

In Arkansas, physician consultations using interactive video teleconferencing can be reimbursed. Although payments are only to physicians, Arkansas does reimburse facilities (community mental health centers) for certain services provided by qualified mental health professionals via telemedicine. In this instance, Arkansas does not reimburse the mental health professionals, as they are non-physicians, but instead reimburses the community mental health facilities where those professionals work.<sup>55</sup> Hospital outpatient departments and ambulatory surgical centers may be reimbursed for services that are, by definition “telemedicine,” but the state currently has no means by which to track payments.

The California Medicaid program reimburses for physician consultations (medical and mental health) using interactive video teleconferencing. In addition, any provider that can bill for traditional services provided face-to-face may bill for telemedicine services. Telemedicine is billed no differently than face-to-face at both the distant (hub) site and

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<sup>49</sup> David Brantly, et al. *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, February 2004.

<sup>50</sup> Nancy A. Brown, “State Medicaid and private payer reimbursement for telemedicine: an overview.” *Journal of Telemedicine and Telecare*, 2006; 12 (Suppl. 2): S2:32-39.

<sup>51</sup> CMS, Medicaid & Telemedicine, State Profiles. Available at [http://www.cms.hhs.gov/Telemedicine/03\\_StateProfiles.asp](http://www.cms.hhs.gov/Telemedicine/03_StateProfiles.asp). Accessed August 10, 2006.

<sup>52</sup> Telemedicine and Telehealth Database, Association of Telehealth Providers. Available at <http://tie.telemed.org/professional/state.asp>. Accessed December 5, 2006.

<sup>53</sup> Telemedicine Legislation, National Conference of State Legislatures, September 2005. Available: <http://www.ncsl.org/programs/health/teleleg.htm>. Accessed December 11, 2006.

<sup>54</sup> Lise Youngblade, et al. *Telemedicine for CSHCN: A State-by-State Comparison of Medicaid Reimbursement Policies and Title V Activities*, July 2005. Institute for Child Health Policy, Univ. of FL.

<sup>55</sup> Youngblade, p.10.

the originating (spoke) site are reimbursed. If provider is out-of-state, a valid license from the state of origin is required.

In Louisiana, physician consultations using interactive video teleconferencing are reimbursable through Medicaid; however, the Mental Health program will reimburse only live consultations (no store and forward). Tertiary care facilities do provide telemedicine services and bill as if face to face. Registered nurses and other allied health professionals, as well as physician assistants, are allowed to perform the service using telemedicine if they are authorized by a primary physician.

The Nebraska Medicaid program will reimburse most Medicaid services when using interactive video teleconferencing. These services are generally covered provided a comparable service is not available within a 30-mile radius of the patient's home. Payments can be made to non-physicians, certified nurse practitioners, physician assistants, mental health providers, dentists, and ancillary services/therapists. The provider of service must comply with the licensure requirements of the state where the procedure is occurs.

To illustrate the Medicaid reimbursement policies throughout the United States are summarized and presented Table 1.

**Table 1. State Medicaid Programs - Reimbursement for Telemedicine**

	State	Interactive	Store and Forward	Reimburse Hub site (consulting)	Reimburse Spoke site (originating)	Other
1.	Alabama					Pilot project to transmit vital signs from patient's homes to medical personnel.
2.	Alaska	X	X	X	X	
3.	Arizona	X	X	X	X	Non-emergency transportation to and from the spoke site
4.	Arkansas*	X		X	X	
5.	California*	X		X	X	Medical and mental health
6.	Colorado*	X	X			
7.	Georgia*	X		X	X	
8.	Hawaii	X	X			
9.	Illinois*	X	Limited	X	X	
10.	Indiana	X		X	X	
11.	Iowa*	X		X	X	
12.	Kansas*	X		X	No	
13.	Kentucky*	X				
14.	Louisiana*	X	No	X	X	
15.	Maine*	X				
16.	Michigan	X				Only in the upper peninsula, other regions to do not reimburse through Medicaid
17.	Minnesota*	X	X	X	X	
18.	Missouri	X	No			
19.	Montana*	X		X	X	
20.	Nebraska*	X	X	X	X	Available to patients who cannot access comparable service within 30 miles of their home
21.	Nevada	X				
22.	New York	X	X	No	No	
23.	North Carolina*	X	No	75%	25%	
24.	North Dakota*	X	No	X	Only if a medical service is provided	
25.	Oklahoma*	X	X	X	X	
26.	Oregon	X		X	X	
27.	South Carolina	X	No	X	X	
28.	South Dakota*	X	X limited to "near real-time" such as email, phone and fax.	X	X	
29.	Tennessee	X				
30.	Texas*	X	X (imaging services)	X	X	
31.	Utah*	X		X (mental health covered)	X (mental health excluded)	
32.	Virginia	X		X	X	
33.	Washington	X				
34.	West Virginia*	X		X	X	
35.	Wisconsin	X				
36.	Wyoming	X				

Medicaid reimbursement enacted by law or legislation.

Source: Office of Policy and Planning, University of Maryland School of Medicine, December, 2006

Note: An empty cell does not necessarily mean the item is not reimbursable, although that assumption is highly likely, it may also be that the published reports did not state one way or another if these items were eligible for reimbursement.

In summary, all of the 36 states that reimburse through their Medicaid programs cover interactive services except for Alabama, which has a pilot project. Ten states specifically provide for reimbursement using store and forward technology. Almost all states reimbursing specify reimbursing the distant site where professional services are provided; fewer specify reimbursing the originating site. States vary as to whether mental health services are covered. The remaining 14 states do not appear to have Medicaid reimbursement policies:

- 1) Connecticut
- 2) Delaware
- 3) Florida
- 4) Idaho
- 5) Maryland
- 6) Massachusetts
- 7) Mississippi
- 8) New Hampshire
- 9) New Jersey
- 10) New Mexico (Reimbursement program is tentative, based on a verbal agreement, but there have been no reimbursements made to date)<sup>56</sup>
- 11) Ohio
- 12) Pennsylvania
- 13) Rhode Island
- 14) Vermont

The report “Medical Assistance and Telehealth: An Evolving Partnership”<sup>57</sup> describes several strategies for gaining Medicaid reimbursement via telehealth. These include: encouraging the Medicaid agency to make an internal determination for payment, an executive order to Medicaid to reimburse for telemedicine services, legislation or regulation mandating payment for services, working with the Office of the Insurance Commissioner for a regulatory decree barring discrimination in payment for services delivered via telehealth technologies, and authorizing reimbursement on a program by program basis for SCHIP, waiver programs or Medicaid, as determined by each program through contracts with providers. The authors suggest an analysis of how previous amendments were made to Medicaid policy, Medicaid coverage of transportation costs and costs of treating the chronically ill to determine appropriate action.

### **Department of Veterans Affairs**

The Department of Veterans Affairs (VA), a closed medical system for veterans (as noted in chapters I and III), has been a leader in the use of telemedicine services for clinical care. The first recorded use of telemedicine in VA occurred in 1977, for a telemental health project in Nebraska. Twenty years later, the VA began its major

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<sup>56</sup> Brown, S2:32-39.

<sup>57</sup> Nina M Antoniotti et al. *Medicaid Handbook - Medical Assistance and Telehealth: An Evolving Partnership*. June 2006. Available at [www.americantelemed.org/news/policy\\_issues/2006\\_medicaid\\_handbook2.pdf](http://www.americantelemed.org/news/policy_issues/2006_medicaid_handbook2.pdf).

systematic implementation of telemedicine in 1997. By 1999, the VA was performing 300,000 telemedicine service episodes per year.

There are over 32 different clinical specialties and home telehealth services for chronically ill and/or disease management. The telemedicine activities are constantly evolving and new activities are being reported to the national office. Services are organized as follows:

- A) Home Telehealth: programs exist in all 21 designated regions for the delivery of care, that provide home telehealth monitoring of chronically ill patients and those needing disease management (i.e. diabetes, chronic heart failure, chronic obstructive pulmonary disease, post traumatic stress disorder, depression, and spinal cord injury).
- B) General Telehealth: videoconferencing technologies with supportive peripheral devices between clinics and hospitals and hospitals and other hospitals. Services include telemental health, teleradiology, teleendocrinology and telesurgery (specialist consultations).
- C) Store and Forward: primary care based program that assesses veterans with diabetes for retinopathy using teleretinal imaging that expedites referral for treatment and provides health information.

Of an estimated 25 million veterans, 5.5 million receive health services through the United States Department of Veterans Affairs. In Fiscal Year 2006, approximately 22,000 veterans were monitored through home telehealth services, and another 38,000 received general telehealth services, and over 17,000 received store and forward services (e.g., 7,500 received teleretinal screenings). It is important to note that these numbers represent the number of veterans served and not the number of telemedicine episodes per year.

According to Telehealth Program Analyst, Office of Care Coordination, Department of Veterans Affairs (VA), although the VA does not have definitive research, there is anecdotal evidence to date that suggests that telemedicine has increased access health care to the veterans.<sup>58</sup> The VA is about one year away from publishing studies that will most likely support that telemedicine has increased access. Past studies have shown that telemedicine can help with patient compliance, that patients find telemedicine more convenient, and that some activities increase efficiencies (i.e. teleretinal screenings usually take 30 minutes in the office, but through store and forward, a nurse can review data form 100 patients a day, then schedule appointments with the ones who need to see the ophthalmologist).

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<sup>58</sup> John Peters, Telehealth Program Analyst, Office of Coordination of Care, VA, Personal communication: December 22, 2006.

## **Payers**

With over 68% of Americans insured through private or employer-sponsored health plans,<sup>59</sup> private payers are a substantial force in the health care market. Current data regarding private payer reimbursement policies are difficult to obtain. The results reported here were obtained from a 2003 survey conducted by the American Telemedicine Association and AMD Telemedicine<sup>60</sup> and from articles gathered through researching legislation.<sup>61</sup>

Because Medicare and Medicaid reimbursement for telemedicine has been limited, many private payers have been reluctant to reimburse telemedicine services at the same level as face-to-face services. The concerns expressed by private payers are similar to the public payers and included fear of duplication of services, concerns about quality of images, tort liability and stimulating inappropriate demand or fraud and abuse.<sup>62</sup>

Based upon the available data, private payers are reimbursing for telemedicine in 29 states, as displayed in Table 2. All of these states also reimburse for telemedicine through their Medicaid program. Eight of these states (California, Colorado, Georgia, Hawaii, Kentucky, Louisiana, Oklahoma, and Texas) have legislation prohibiting private insurance payers from excluding coverage of medical services provided by telehealth.<sup>63</sup> The following is a description of the legislation regarding telemedicine reimbursement for a sampling of these states.<sup>64</sup>

The **California** law (SB 1665) approved in 1996 prohibits insurers from requiring face-to-face contact between a clinician and patient for services appropriately provided through telemedicine, subject to the terms of the contract.

In **Colorado** (Chapter 300 of the Laws of Colorado 2001) the legislation limits the applicability of the mandate for coverage of telemedicine services to health plans insuring a person residing in a county with 150,000 or less residents.

**Georgia** law (HB291) states that every policy shall include payment for services provided through telemedicine.

Approved in 2000, **Kentucky** law (HB177) prohibits Medicaid and private insurers from excluding coverage for services provided through telemedicine.

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<sup>59</sup> Pamela Whitten and L. Buis. *Private Payer Reimbursement for Telemedicine Services in the United States*. Michigan State University. November 2006. Available at <http://www.americantelemed.org/news/Whitepapers/2006%20Private%20Payer%20Report.pdf>.

<sup>60</sup> AMD Telemedicine. Private payer reimbursement information directory. Available at [http://www.amdtelemedicine.com/private\\_payer/index.cfm](http://www.amdtelemedicine.com/private_payer/index.cfm).

<sup>61</sup> Brown, pg. S2:32-39.

<sup>62</sup> Kirsten R. Smolensky. "Telemedicine Reimbursement: Raising the Iron Triangle to a New Plateau." *Health Matrix: Journal of Law Medicine* 2003, 13(2): 371-413.

<sup>63</sup> Available at [www.amdtelemedicine.com](http://www.amdtelemedicine.com).

<sup>64</sup> Note: State mandates even differ in how they require coverage. While some are direct in requiring coverage, others are indirect prohibiting discrimination in coverage by how the service is provided. Others include qualifiers such as provider distance or county size.

Approved in 1995, **Louisiana** law (SB 773) states that a health care provider participating at the originating terminus of a telemedicine transmission shall be reimbursed at a rate of not less than 75% of the amount of reimbursement for an office visit. The bill prohibits provisions in health and accident policies that discriminate against services provided by telemedicine.

Approved in 1997, **Oklahoma** law (SB 48) provides that health care plans cannot deny coverage for services provided through audio, video, or data communications. This allows compensation for patient consultations and diagnoses and the transfer of medical information through telecommunication technology. The law excludes telephone and fax communications from the term “telemedicine.”

Approved in 1997, **Texas** law (HB 2033) prohibits certain health benefit plans from excluding a medical service solely because the service is provided through telemedicine. Telemedicine services may be subject to deductible, copayment or coinsurance requirements not to exceed requirement for the same face-to-face services.

The majority of the bills state that no health care service plan may require face to face or person to person contact for the medical service to be considered reimbursable; however most bills also exclude standard telephone, facsimile transmission and unsecured email from reimbursable telemedicine activities. See Table below. Copies of the state statutes are included as Appendix D.

**Table 2. States with Private Payer reimbursement for Telemedicine**

	State	Private Payer
1	Alaska	BCBS
2	Arizona	BCBS, Mailhandlers, FHP, Aetna, Cigna, United Partners, Pacificare, Premier Healthcare, Health Net Intergroup, First Health Group
3	Arkansas	Aetna
4	California*	All
5	Colorado*	Unknown
6	Georgia*	59 payers
7	Hawaii*	Unknown
8	Indiana	Anthem, Commercial, Sagamore
9	Kansas	BCBS
10	Kentucky*	All
11	Louisiana*	All
12	Maine	Guardian, NYL, Aetna, Maine Health Plan, Cigna, BCBS
13	Michigan	Upper Peninsula Health Plan, BCBS, United Health Care, Preferred Provider
14	Minnesota	Medica, Preferred One, BCBS
15	Missouri	HealthNet, Alliance BCBS, FirstHealth, United Health Care, Health Link
16	Montana	BCBS, Cigna
17	New York	Blue Shield of NE NY
18	North Carolina	Medcost, Tricare, HealthChoice, BCBC
19	North Dakota	BCBS
20	Oklahoma*	All
21	Oregon	Lifewise, Regence BCBS, Providence Health System, Greater Oregon Behavioral Health, Oregon Health Plan Fee For Service
22	South Dakota	Avera Health Plans, Cigna, Dakota Care, Wellmark BCBS, Sioux Valley Health Plan
23	Tennessee	Cariten Pref, Cigna, Dvocare, Tricare, BCBS, Blucare
24	Texas*	All
25	Utah	United Health Care
26	Virginia	Trigon BCBS
27	Washington	Champ, Cigna, Mutual of Omaha, Regence BCBS, Premera Blue Cross, Tricare, Basic Health Plan
28	West Virginia	BCBS
29	Wisconsin	Wausau, Wisconsin Physician Services, WEA Insurance Trust, Group Health

\*Reimbursement required by enacted law.

Source: Private Payer Reimbursement Information Directory:

[http://www.amdtelemedicine.com/private\\_payer/searchform\\_private.cfm](http://www.amdtelemedicine.com/private_payer/searchform_private.cfm)

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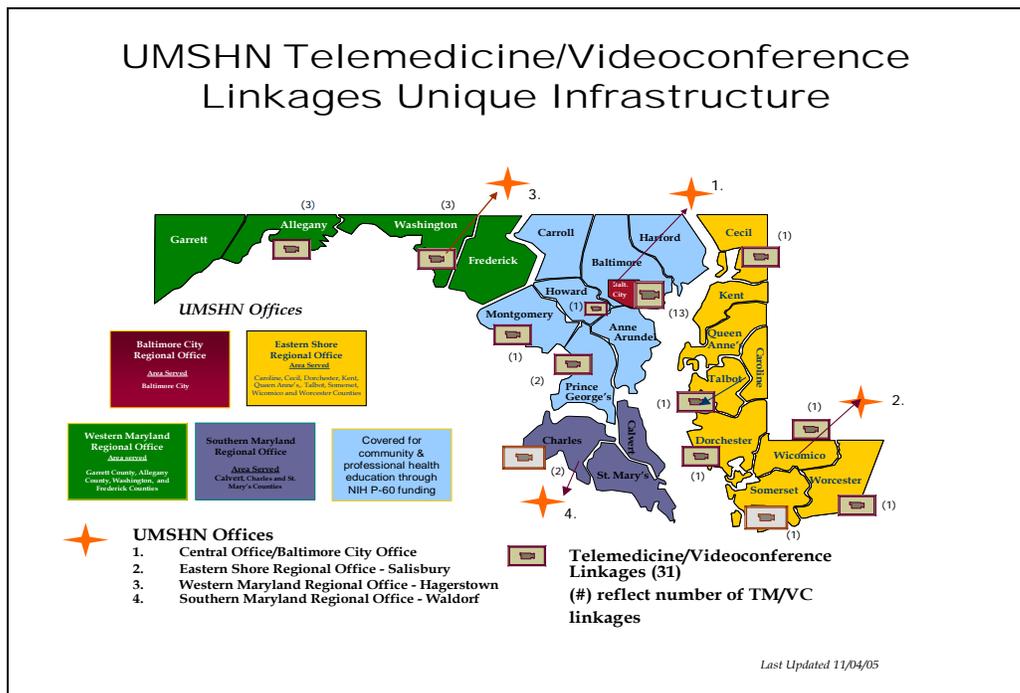
### III. Reimbursement for Telemedicine Services in Maryland

This section provides an overview of the current status of telemedicine/telehealth in Maryland: telemedicine programs, reimbursement for services by Medicare, Medicaid and private payers, utilization of telemedicine services and licensure requirements for practitioners who provide telemedicine services in Maryland and outside the state. The information provided here is based on national surveys, telemedicine data exchanges, and personal interviews conducted with key informants in the state including providers of clinical telemedicine services, health insurance carriers, and state officials at the Maryland Department of Health and Mental Hygiene.

#### Telemedicine Programs in Maryland

The use of telemedicine for clinical services in place of a direct practitioner/patient encounter or for consultation usually involves a center where specialists are located (the hub or distant site) and designated sites in outlying rural areas or in underserved areas of the state (the spokes or originating site) near where the patient resides.

Surveys were sent to 25 of the statewide telemedicine sites of the University of Maryland Statewide Health Network (UMSHN) and to selected physicians in departments where telemedicine is likely to be employed for delivering clinical care by faculty in the University of Maryland School of Medicine and the University of Maryland Medical System (UMMS). Interviews were also conducted with the administrator for the Mid-Atlantic Association of Community Health Centers, where the University of Maryland School of Medicine, through its formal telemedicine partnership through the UMSHN, has provided telemedicine equipment and training.



Key informants from these organizations were asked to respond to a brief questionnaire (by telephone, in person, or via email). Respondents were asked to report whether they were offering clinical telemedicine or telehealth services, the type of service being offered, whether the service was being billed to a third party payer and what payers were being billed. Respondents were also asked about whether lack of insurance coverage (i.e. reimbursement) was an issue in the delivery of services via telemedicine and perceived barriers to reimbursement (see interview schedule in Appendix E).

In general, the results of the survey indicate that two academic medical centers use telemedicine to offer clinical services in Maryland. Additional sources for locating telemedicine programs in the state were also examined, including the Telemedicine Information Exchange (TIE), the Association of Telemedicine Service Providers (ATSP) and the 2004 report of the Telemedicine Research Center (TRC). The TIE lists only two programs in Maryland: the Maryland Brain Attack Center at the University of Maryland Medical Center and the Global Access Program at Johns Hopkins Medicine.<sup>65</sup> Although the ATSP has a membership of 140 individuals and seven organizations, a representative from the ATSP confirmed that there are no organizational members and only two individual members from Maryland, as noted above (telephone interview conducted December 13, 2006). The TRC report, in collaboration with the TIE (which reports results of an online survey of telemedicine networks) confirms this information as well.<sup>66</sup> It should be noted that while these national reports and associations only report two programs in Maryland, other medical departments and associated offices of these two medical centers are employing telemedicine for clinical care although they have not registered with the national association of providers of telemedicine. Some of this telemedicine activity may be supported by specific grants.

All of the responses to the University of Maryland School of Medicine (UMSOM) survey were received from the University of Maryland Medical System (UMMS) or the University of Maryland Statewide Health Network (UMSHN) and its affiliates. Three responses were received from community health centers, four from clinical departments, and one from a community hospital. Of the eight respondents to the survey, more than half (n=5) were offering clinical telemedicine services. However, none of the respondents were billing for these services. Examples of the types of clinical services provided included stroke assessment case conferences with child psychiatrists, direct clinical care for mental health in selected school systems in the state. The Maryland Brain Attack Center has an innovative pilot study on the use of telemedicine for accelerated pre-hospital evaluation of stroke to reduce time to treatment for better patient outcome.

Five providers said they considered lack of insurance coverage/reimbursement for clinical telemedicine services to be a problem; however, providers differed as to the nature of the problem. In general, providers agreed on a lack of understanding about the use of telemedicine services among both insurers and providers. Some felt providers were unaware of how to code billing for telemedicine services, others felt the

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<sup>65</sup> Available at <http://tie.telemed.org/programs-t2/showprogram-t2.asp?item=2642>.

<sup>66</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity. Civic Research Institute, Kingston, NJ, 2004.

billing rates for these services would be too low. Still, others felt that insurers would resist billing for other than face-to-face encounters because they feared an escalation of their costs. Several suggested the need for better outcome measurement tools and the need to establish consensus among providers and insurers on the economic value of telemedicine/telehealth services.

In addition to clinical services provided via telemedicine, the University of Maryland Statewide Health Network (UMSHN), in collaboration with the various clinical departments, offers ongoing continuing medical education (CME) courses for physicians and other health care professionals using its telehealth/videoconferencing linkages throughout the state. The continuing education programs include surgery grand rounds, tumor boards, and case conferences on disease management and prevention as well as lectures on specific diseases as requested by community health centers (CHCs) and community hospitals in the state.

Providing access to education on advances in prevention, current guidelines for treatment, disease management and patient care, serves an important role in keeping providers of underserved patients abreast of advances in a convenient way while not having to take off work to travel to a University for educational credits. The 2006 CME series included the following programs: Smoking Cessation in May (2006); Chronic Kidney Disease in June (2006); Cardiovascular Disease - Management of Heart Failure in October (2006); New Therapies for the Management of Diabetes in January (2007) and a program on Pediatric Obesity and Diabetes is planned for February (2007). Additional programs are being planned for Spring 2007 on Mental Health and Health Disparities. Community Health Center physicians and other health care professionals - nurse practitioners, physician assistants, pharmacists, nurses and dentists at Total Health Care (THC); Greater Baden Medical Services, Inc.; Park West Health System; and South Baltimore Family Health Centers have participated to date, as well as physicians and other clinical staff at University Care at Edmondson Village; and physicians in Southern Maryland meeting at the UMSHN regional office in Waldorf.

According to Miguel McInnis, MPH, Chief Executive Office (CEO) of the Regional Primary Care Association: "In partnership with the UMSHN, the Mid-Atlantic Association of Community Health Centers now has the ability to develop telemedicine clinical education training centers throughout the region which provide clinicians in rural and underserved areas the ability to receive access to critical training remotely and improve the quality of care to patients who are economically disadvantaged, uninsured and underinsured."<sup>67</sup> The CME program of UMSHN is supported by the Maryland Cigarette Restitution Fund Program. Topics for the series were solicited from the community health centers (CHCs).

Also, the Psychiatry department at the University of Maryland School of Medicine has successfully piloted educational programming to the Worcester County mental health

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<sup>67</sup> Center for Health Disparities, *Partners*, Volume 1, Number 7, December 2006.

center staff and has with Hopkins psychiatry department initiated best practice conferences with seven sites across the state.<sup>68</sup>

A number of attempts were made to reach a representative of Johns Hopkins Medicine; however, information was obtained from the Johns Hopkins International website. While Johns Hopkins has developed an extensive network for consultation with its specialists, most of the consultations are either in other states or outside of the United States according to Alexander Nason, PhD (Johns Hopkins International Senior Manager of Business Development and Chair of the newly formed Committee on Telemedicine at Johns Hopkins Medicine).<sup>69</sup> The Committee on Telemedicine is designated to coordinate the many growing telemedicine programs at Johns Hopkins Medicine, including the Johns Hopkins Global Access Lecture Series, which allows overseas physicians to participate in live presentations by Hopkins specialists. The Emergency Access program at Johns Hopkins is working with the International SOS to provide air-to-ground medical consultations. Johns Hopkins also collaborates with Medical Missions for Children, a non-profit group that peer reviews complex medical cases in developing nations.

Locally, Hopkins works with the Maryland Department of Corrections to provide some clinical services remotely to prisoners in the state system. The Wilmer Eye Institute also has a project that allows community physicians to digitally transmit retinal images to specialists for evaluation. Other pioneering projects use robotics with telemedicine technology for post-operative evaluation of patients and for monitoring of surgical intensive care patients.<sup>70</sup>

Dr. Nason cited connecting physicians to technology and program opportunities as one of the challenges to advancing telemedicine. In addition, he added that funding is also an issue and most of the funding for seed grant projects has been targeted to rural areas limiting the efforts to put together telemedicine projects for Baltimore City, such as a two-way video-based health screening.<sup>71</sup>

Activities of the Department of Veterans Affairs (VA) in Maryland should also be noted. As stated earlier, the VA has been a national leader in the use of telemedicine services for clinical care and the management of chronic disease (see Chapter II). In 1993, the Baltimore VA Medical Center (VAMC) implemented through faculty of the University of Maryland School of Medicine, the first completely film-less radiology department in the United States which uses digital radiology systems (PACS) for teleradiology. Dermatologists at the Baltimore VAMC have used teledermatology and store and forward imaging to assess skin conditions<sup>72</sup> and psychiatrists have assessed the use of telepsychiatry to treat depression.<sup>73</sup>

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<sup>68</sup> Rob White, *Telepsychiatry White Paper*, University of Maryland School of Medicine, January 17, 2007.

<sup>69</sup> Available at <http://www.jhintl.net/JHI/English/Doctors/Publications/IPU-Nov02-Videoconferencing>.

<sup>70</sup> Available at <http://www.hopkinsmedicine.org/mediall/enews/picture.html>.

<sup>71</sup> Available at <http://www.hopkinsmedicine.org/mediall/enews/picture.html>.

<sup>72</sup> VA, *HSR&D Management Brief*, Nov. 1999, Available at [http://www1.va.gov/resdev/resources/pubs/docs/mb12\\_telemed.pdf](http://www1.va.gov/resdev/resources/pubs/docs/mb12_telemed.pdf).

<sup>73</sup> Paul E Ruskin, et al, "Treatment Outcomes in Depression: Comparison of Remote Treatment Through Telepsychiatry to In-Person Treatment." *American Journal of Psychiatry*. 161(8) (2004): p 1471.

## **Utilization of Clinical Telemedicine Services**

One method of assessing clinical telemedicine activity in Maryland would be to look at billable services. The Maryland Medical Care Database of the Maryland Health Care Commission (MHCC) is based on claims data, indicating activity for which providers are seeking reimbursement. The MHCC database shows little evidence of claims filed through private and public payers for services provided through telemedicine in the state. No claims with a modifier “TM or tm” were reported for 2004 and only two claims coded in this way were filed by private payers in 2005-2006 (as compiled). One claim was filed by Optimum Choice and one by CareFirst. (See payer section).<sup>74</sup> While Optimum Choice, a subsidiary of United Healthcare does cover telemedicine, CareFirst of Maryland does not. Results may indicate miscoding or lack of understanding of payment policy.

The Telemedicine Research Center (TRC) is the only central source of information on volume of telemedicine services in the United States. The TRC surveyed 88 organizations offering services by way of telemedicine connections in 2003. Findings in the 2004 report of the Telemedicine Research Center indicate 48,194 teleconsultations, excluding radiology, took place in 2003 in 46 states.<sup>75</sup> The two Maryland networks, identified previously as the Maryland Brain Attack Center and the Johns Hopkins Global Access Lectures, responded to this survey but did not respond to questions concerning volume of activity. While the report indicates the number of teleconsultations is growing, consultations via this medium still represent a small amount of all consultations.

Among the 88 telemedicine networks responding to the TRC survey, the most common clinical specialties were mental health, cardiology, pediatrics, dermatology, neurology, and orthopedics.<sup>76</sup> The five states with the most telemedicine programs and the greatest number of sites were California, Florida, Hawaii, New York and Texas. California, Hawaii, Kansas, New York, Tennessee, Texas and Florida had the greatest amount of reported activity.<sup>77</sup>

## **Payers**

As noted earlier, Medicare reimburses for certain interactive, “live” clinical services and consultations provided in designated *rural* Health Professional Shortage Areas (HPSA) and in counties in non-metropolitan services areas (non-MSAs). The originating sites (spokes) in Maryland eligible for reimbursement are: the office of a practitioner, a hospital, a rural health clinic and a federally qualified health center (FQHC). Reimbursable services include consultations (including radiology), outpatient visits, individual psychotherapy, pharmacologic management, psychiatric diagnostic interview

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<sup>74</sup> Maryland Health Care Commission, Email communication: January 2, 2007.

<sup>75</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity. Civic Research Institute, Kingston, NJ, 2004.

<sup>76</sup> Ibid. pg. 9.

<sup>77</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity, pg. 8.

examination, end-stage renal disease related services, and individual medical nutrition therapy.<sup>78</sup>

Applying these reimbursement requirements to Maryland, Medicare beneficiaries are eligible for telemedicine services only if they present from a rural Health Professional Shortage Area (HPSA) or a non-metropolitan service area (MSA) county as the originating (spoke) site for service. According to the Director of the Federal Office for the Advancement of Telehealth, there are seven designated counties that are non-MSAs in Maryland that receive Medicare reimbursement. Five counties are on the Eastern Shore (Caroline, Dorchester, Kent, Talbot and Worcester), one is in Southern Maryland (St. Mary's), and one is in Western Maryland (Garrett).<sup>79</sup> Some of these counties are also rural HPSAs. There are other federally designated HPSAs located through out the state, even in Baltimore City. However, because they are not designated "rural", they do not qualify for reimbursement. To further complicate the situation, Medicare has ruled that a beneficiary can be reimbursed if the beneficiary resides in the qualifying rural area even if the originating site, where the beneficiary presents for service, is outside the area. (See Appendix F for HRSA explanation of reimbursement under Medicare in rural areas).<sup>80</sup>

While reimbursement by Medicare is usually a driver for reimbursement in other payer markets, the narrow geographic focus of Medicare reimbursement for telemedicine services does not encourage the policies of reimbursement in other markets.

Further while the distant site, where the specialist is located, receives reimbursement equal to what Medicare would have paid for a face to face encounter, the originating site, where the patient is, only receives the lesser of 80% of the payment for the services or \$20 as a facility fee, leaving little incentive for a local provider to refer. It should be noted, however, that changes in Medicare reimbursement policy in 2000 make it less burdensome for a local practitioner to refer a patient for telemedicine. Unless medically necessary, a non-medical staff person may be present with the patient at the originating site so the cost of services, in terms of medical manpower required, is minimal.

It is understandable that without a core base of Medicare eligible patients, other providers have been reluctant to invest in telemedicine equipment and other payers have declined to reimburse for these services. Information from Medicaid and several large commercial insurers in Maryland confirms policies of non-reimbursement for clinical medical services provided via telemedicine that was reported by practitioners above. As noted earlier in Chapter I, the federal Medicaid program does not require or prohibit reimbursement for services delivered by means of telemedicine and leaves the decision on reimbursement to the states. The Maryland Medicaid program does not

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<sup>78</sup> CMS, Medicare Policy Manual #100-02, Chapter 15, Covered Medical and Other Health Services, Available at <http://www.cms.hhs.gov/Manuals/IOM/list.asp>

<sup>79</sup> Dena Puskin, Sc. D., Director of the Office for the Advancement of Telehealth, Health Research and Services Administration (HRSA),

US Department of Health and Human Services, Telephone interview and e-mail communication: December 20, 2006.

<sup>80</sup> Available at <http://www.hrsa.gov/telehealth/pubs/reimb.htm>.

have a policy of reimbursement for telemedicine in its fee for service population or capitated MCO population.<sup>81</sup> At least thirty-six states do reimburse for some telemedicine or telehealth services through Medicaid programs (See Chapter II for a complete discussion of states that reimburse for telemedicine under their Medicaid program and types of covered services).

Studies by national organizations indicate several states mandate coverage for telemedicine services in the private market (see Chapter II) and, furthermore, that even when coverage is not mandated, some carriers provide coverage or, at least, do not exclude coverage for telemedicine services.<sup>82</sup> Two major carriers in Maryland were interviewed. CareFirst does not cover services delivered via telemedicine in the private payer market. CareFirst also does not cover transportation unless medically necessary such as ambulance transport.<sup>83</sup> A spokesperson for Optimum Choice and Mid-Atlantic Medical Services, LLC (MAMSI), subsidiaries of UnitedHealth Group, indicated United Healthcare covers telemedicine in accordance with Medicare policy as established by CMS<sup>84</sup>.

Given that the Maryland Health Care Commission's medical care database did not show any other claims activity among private payers for telemedicine, as noted above, we did not conduct interviews with other private payers in Maryland.

### **Maryland Licensure Requirements for Practitioners who use Telemedicine to Provide Clinical Care or Consultations**

The issue of lack of uniformity of state licensure laws plays a role in limiting the national market for telemedicine and is thought to be a factor in slowing the adoption of telemedicine technologies.<sup>85</sup> Ironically, it is easier for a U.S. physician to practice telemedicine in some foreign countries where there are few regulatory restrictions than in the United States where each state has its own licensure requirements.

In general, physicians are subject to licensure laws in the state where they practice medicine. Licensure laws are designed to protect the citizens of the state. In the case of telemedicine, the situation may arise where practitioners who are licensed in their home state where their practice is located, care for patients in another state. Therefore, they are required to be licensed to practice medicine in the patient's state as well. The issue of state licensure has become even more complicated with the use of the Internet to give medical advice, especially when the advice is given for a fee. The Center for Telemedicine Law (CTL) surveyed the 50 states to identify laws, policies, and practices related to licensure. According to the CTL survey, 33 states require a license to practice telehealth and three other states have regulations. Twenty-four states require full licensure for out-of-state physicians who practice telemedicine while seven have a

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<sup>81</sup> Susan Steinberg, Acting Deputy Secretary for Health Care Financing, Maryland Department of Health and Mental Hygiene, Personal Interview: December 18, 2006.

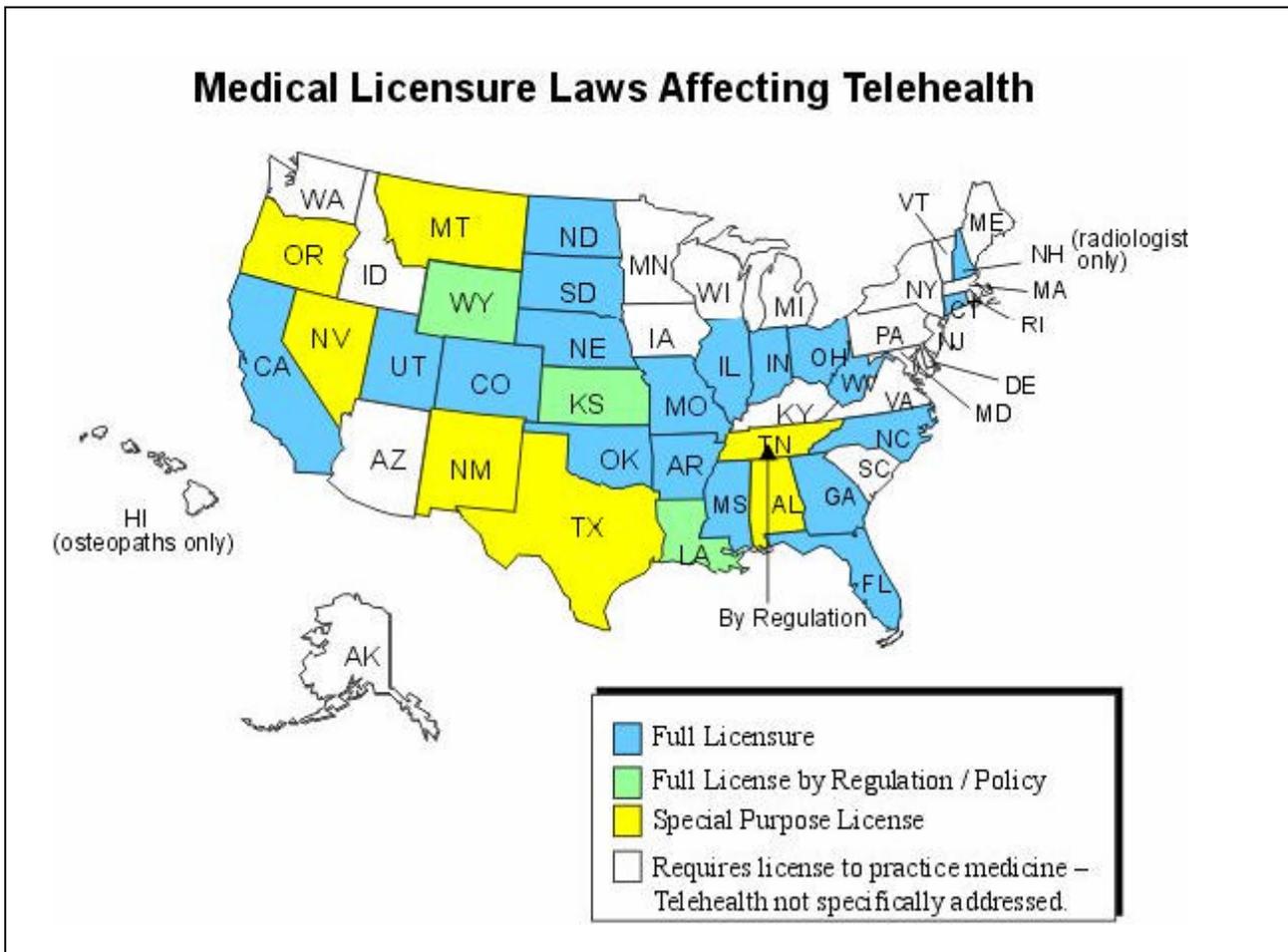
<sup>82</sup> HRSA, Center for Telemedicine Law, 2003.

<sup>83</sup> Patti Ciotti, Coordinator of Legislative Affairs, Carefirst Blue Cross Blue Shield, Personal interview: December 12, 2006.

<sup>84</sup> Beth Sammis, PhD., United Healthcare, Governmental Affairs, Mid-Atlantic Region, Personal Interview: January 3, 2007.

<sup>85</sup> David Brantley, K Laney-Cummings, R. Spivack. *Innovation, Demand and Investment in Telehealth*. US Department of Commerce. February 2004.

special purpose license for those who consult on an irregular basis. Maryland is one of 17 states that does not have specific laws regarding telehealth or telemedicine. This means that physicians practicing telehealth or telemedicine are treated exactly the same as physicians with practices in state, therefore, all licensure requirements must be met and a license to practice medicine issued.<sup>86</sup> It is interesting to note that many of the states that have provisions for special purpose licensure are located west of the Mississippi River where states are larger and specialists may be at a greater distance (See Table below and Appendix G for a summary of state telemedicine licensure provisions<sup>87</sup>).



As noted above, Maryland has no special provisions for out-of state physicians wanting to practice telemedicine or telehealth in the State. Conversely, Maryland physicians wishing to practice telemedicine elsewhere must comply with relevant laws and regulations of the state where the patient being treated is located. According to Karen Wolfe, Policy Analyst at the Maryland Board of Physicians, the Board will issue new

<sup>86</sup> Brantley, February 2004.

<sup>87</sup> Federation of State Medical Boards, 2006.

regulations in early January 2007 to clarify its position with regard to medical advice given via websites for compensation. The regulations will reiterate the need for a Maryland license.<sup>88</sup>

Maryland law does not require an out-of-state physician to have a Maryland license to consult with a Maryland physician if the Maryland physician is actually treating the patient [Health Occupations 14-302(2)]. Also, a physician who resides in another state or jurisdiction adjoining Maryland whose practice extends into this state but who does not have an office in this state does not need a license if the same privileges are extended to physicians of Maryland by the adjoining state or jurisdiction [Health Occupations 14-302(4)]. In practice, this means physicians in the District of Columbia do not need a Maryland license to practice in Maryland. There is also an exception from full Maryland licensure requirement for an “eminent physician” from outside the state. This usually refers to foreign physicians, according to Karen Wolfe. Some standards still apply (Health Occupations 14-319).<sup>89</sup>

There has been a movement toward greater uniformity in examination requirements for physicians in recent years. Physicians are licensed by a national examination and efforts are underway to promote less restrictive rules by the Federation of State Licensure Boards. Congress has also expressed interest in the topic. States differ in the number of failures of the licensure exam permitted, the exceptions process and the time allowed for completion of requirements. Also, credentialing is required for licensure in many states including Maryland which entails providing documentation of fulfillment of educational requirements on a state by state basis.

Other Maryland health professions who are eligible to receive reimbursement for telemedicine services under Medicare do not have special provisions in their licensure statute concerning telemedicine. Registered nurses and licensed practical nurses may be licensed through an endorsement process to practice in other states though an interstate compact among states that agree to similar licensing requirements. However, advanced practice nurses (nurse practitioners, nurse midwives) who are the only nurses eligible for Medicare reimbursement for telemedicine services must be certified by the state of Maryland to practice (Health Occupations 8-301d).<sup>90</sup> The Boards of Social Work<sup>91</sup>, Pharmacy<sup>92</sup>, and Dental Examiners<sup>93</sup> indicated their statutes did not refer to telemedicine or telehealth services.

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<sup>88</sup> Karen Wolfe, Maryland Board of Physicians, Personal communication and verbal interview: December 13, 2006.

<sup>89</sup> Ibid.

<sup>90</sup> Available at <http://www.mbon.org>.

<sup>91</sup> Gloria Hammel, Staff Social Worker, Board of Social Work Examiners, Personal communication: January 5, 2007.

<sup>92</sup> Shirley A. Costley, Licensing Program Manager, Board of Pharmacy, Communication by e-mail, January 5, 2007.

<sup>93</sup> Murray Sherman, Legal Assistant, Maryland Board of Dental Examiners, Personal communication: January 5, 2007.

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#### IV. Telemedicine's Potential to Improve Health Care Access in Maryland

The advancement in telecommunications technology provides innovative methods of delivering healthcare. Telemedicine can successfully assist in providing medical services to Maryland's residents in underserved regions.

##### Maryland's Underserved Regions

Maryland is a mid-Atlantic state comprised of 23 counties and Baltimore City with a total land area of 9,774 square miles. According to the 2000 United States Census, the population ranges from nearly 900,000 in Montgomery County, to approximately 650,000 in Baltimore City, to 30,000 in more rural counties throughout the State. Maryland is 86% urban and 14% rural.<sup>94</sup> In 2000, the racial distribution of the State was 64% white, 27.9% African American, and the remainder Asian, Hispanic, and Native American. More recent projections (2005 estimated census) estimate the non-Caucasian population at close to 40%. Baltimore, the largest metropolitan area in the State, has a population that is 64% African American and has a poverty rate of approximately 22.9%.<sup>95</sup>

For many Americans, lack of insurance is a major barrier to health care access on a routine basis. *Care Without Coverage: Too Little, Too Late*, a 2002 report from the Institute of Medicine<sup>96</sup>, found that millions of working Americans would live longer and better if they obtained health insurance. Nearly 14.6% or 41.2 million people of the total US population of 282 million people lacked health coverage for the year 2000. In Maryland from 1996-2001, four areas exceeded a cumulative 15% health care non-coverage rate: Baltimore City (17.3%), Caroline County (20.9%), Somerset County (19.4%), and Garrett County (23.7%). Nine other counties, eight of which were either in Western Maryland or in the Eastern Shore region, had a health care non-coverage rate exceeding 10%. Reimbursement for telemedicine services by private payers and Medicaid will not directly benefit the uninsured population. However, for those uninsured in remote areas of the state who do have to pay for care out-of-pocket, the ability to access services via telemedicine might at least result in less lost productivity in terms of absence from work, travel time and transportation costs. There may also be some potential for expanding services to the uninsured through community health centers, which are resources for care, by using telemedicine to access specialists or consultants.

Telemedicine may also be a vehicle for providing access where a shortage of physicians and other practitioners exists. The United States Department of Health and Human Service's (DHHS) Health Research and Services Administration (HRSA) measures the availability of health care professionals overall and specifically primary care providers, mental health providers, and dentists by census tract. HRSA designates

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<sup>94</sup> US Census Bureau 2000.

<sup>95</sup> Ibid.

<sup>96</sup> Institute of Medicine, 2002.

health professional shortage areas (HPSAs) which can include entire counties or specific census tracts within a county. According to the HRSA website, there are HPSAs or shortage areas in 13 counties or parts of counties in Maryland and in areas of Baltimore City. Entire counties that are designated HPSAs are Calvert, Garrett, Kent, and St. Mary's counties.

It is important to note that for the purpose of reimbursement for telemedicine services, the Centers for Medicare and Medicaid Services (CMS) distinguishes between rural and urban HPSAs reimbursing only those HPSAs in designated rural areas and reimbursing non-MSAs. Current Medicare policies for telemedicine do not focus on practitioner manpower shortages and, instead, rely on rural designations as a proxy for lack of access. This results in some rural counties being allowed reimbursement for telemedicine under Medicare that are not designated shortage areas. The policy also downplays access issues experienced by urban uninsured populations. (See Chapters II and III)

The availability of primary care services has been shown to lead to greater continuity of care and earlier detection and prevention of disease. HRSA has designated several counties or census tracts within counties in Maryland as Health Professional Shortage Areas (HPSAs) for primary care. The criteria for (HPSA) designation includes having a shortage of primary medical care, special population groups or a shortage of medical or other public facilities such as community health centers.<sup>97</sup> Ten counties or parts of counties in Maryland are designated federal primary care HPSAs. Nine of the ten counties with primary care HPSA status are in Western Maryland (Allegany and Garrett counties) or on the Eastern Shore (Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, and Worcester counties), and one (Calvert county) is located in Southern Maryland. (See Appendix H for HPSA designations)

In addition to HPSAs there are federal designations for Medically Underserved Areas (MUA) or Populations (MUP) with inadequate access to primary health care services using several factors in addition to the availability of health care providers. These include infant mortality rates, poverty rates, percentages of population aged 65 or over, and the ratio of primary care physicians per 1,000 population for the area examined. Seven counties in Maryland are designated as federal MUA/MUP (five are located on the Eastern Shore in Caroline, Dorchester, Kent, Somerset, and Worcester counties; one is in Western Maryland in Garrett county; and one is in Southern Maryland in Calvert county).

While a shortage of physicians and practitioners in remote areas has been an obstacle to access in the past, the advancement of telecommunication technology makes use of telemedicine to improve access more feasible in the future. Currently, the Maryland Rural Broadband Cooperative is being established in order to offer broadband service to the Eastern Shore, Southern Maryland, and Western Maryland.<sup>98</sup> The implementation

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<sup>97</sup> Available at <http://bhpr.hrsa.gov/shortage/>.

<sup>98</sup> Rural Maryland Council Winter 2006 Newsletter, p 2.

of these infrastructure improvements will technologically enable Maryland's rural regions to efficiently integrate telemedicine services.

### **Efficacy of Telemedicine to Improve Cost, Quality and Access**

Current research on the efficacy of telemedicine services is mixed and varies with the application of the technology. The use of telemedicine to deliver health care services has the potential to result in "lower costs, particularly if telemedicine technology is used for an extended period of time, likely improves or maintains quality, and increases access."<sup>99</sup> This section will review the effect of various telemedicine applications on the cost, quality and access to healthcare.

In 2004, it was found that the two most commonly reported telemedicine clinical applications were management of patient condition and diagnostic exam interpretation.<sup>100</sup> Some of the most common clinical services include mental health, radiology, pediatrics and dermatology.<sup>101</sup>

### **Cost**

An important determinant to the implementation of telemedicine services is cost. The correct determination of the costs and benefits of telemedicine can be challenging and, as a result, there is some disagreement regarding the evidence for cost-effectiveness of telemedicine.<sup>102</sup> Some drawbacks of existing studies include small sample size, restricted geographic location, poor methodological design such as lack of a control group and restricted practice area. Also, most studies of cost effectiveness fail to take into account externalities such as transportation costs and loss of productivity and economies of scale. In 2001, an evidence review conducted by AETNA for AHRQ concluded there was not enough evidence to support reimbursement for telemedicine<sup>103</sup>. Since then, more definitive studies have been published. There is some convincing evidence that teleradiology is cost effective.<sup>104</sup> Studies of teleradiology show while the fixed costs were higher than for a conventional dermatology consultation, as the equipment costs go down with use, the cost effectiveness increases.<sup>105</sup>

Some studies and various on-going clinical telemedicine programs have reported on telemedicine's potential for cost-effectiveness. For example, a recent study conducted by the University of Maryland School of Medicine, found that telepsychiatry consultations had "comparable outcomes and equivalent levels of patient adherence,

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<sup>99</sup> Kirsten Rabe Smolensky. "Telemedicine Reimbursement: Raising the Iron Triangle to a New Plateau." *Health Matrix: Journal of Law Medicine* 2003, 13(2): 371-413.

<sup>100</sup> 2004 TRC Report , p 19.

<sup>101</sup> Ibid. p 20.

<sup>102</sup> Smolensky, p 386.

<sup>103</sup> David Brantley, K Laney-Cummings, R. Spivackl. *Innovation, Demand and Investment in Telehealth*. US Department of Commerce. February 2004.

<sup>104</sup> Ibid.

<sup>105</sup> Ibid.

patient satisfaction, and health care cost” to in-person treatment.<sup>106</sup> Other studies have concluded that psychiatric services can be effectively offered to rural patients or to the underserved by way of telemedicine’s videoconferencing technology.<sup>107,108</sup> Still others have shown cost effectiveness of telemedicine in treatment of high risk pregnancy by reducing premature births<sup>109</sup> and in managing patients with congestive heart failure<sup>110</sup> by lowering hospital admission rates.

Studies conducted with the prison population have also documented the cost-effectiveness of telemedicine services in the correctional setting. A study conducted at the facilities of the Virginia Department of Corrections reported that a treatment program which consisted of conventional outpatient clinical and telemedicine settings achieved a “sharp decrease in viral load levels among HIV-positive inmates, treatment compliance has improved, and there has been a reduction in all HIV-related morbidities except malignancies. Overall, care of HIV-positive inmates is improving and approaching standard levels of care”<sup>111</sup> and the use of telemedicine “increased access to care for HIV-positive inmates and generated cost savings in transportation and care delivery.”<sup>112, 113</sup> Another telemedicine demonstration project conducted at three correctional facilities indicated that “based on data from the study, the cost-benefit analysis concluded that a telemedicine consultation would cost an average of \$71, compared with \$173 for a conventional (face-to-face) health care consultation—a savings of nearly 60%.”<sup>114</sup>

Studies on the use of telemedicine services for asthma management also have implications for reducing health care costs by reducing hospitalizations, emergency department visits as well as improving the quality of care. Statistics from the Maryland Department of Health and Mental Hygiene indicate that approximately 11.9% of Maryland adults and 11.1% of Maryland children have a history of asthma. Additionally, persons at increased risk for asthma and its complications include the elderly, the very young, African-Americans, low-income individuals, and individuals in some jurisdictions, particularly Baltimore City. In 2003, charges for hospitalizations due to asthma totaled \$41 million and charges for emergency department visits due to asthma totaled an additional \$28 million.<sup>115</sup>

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<sup>106</sup> Paul E Ruskin, et al., “Treatment Outcomes in Depression: Comparison of Remote Treatment Through Telepsychiatry to In-Person Treatment.” *American Journal of Psychiatry* 2004, 161(8): p 1471.

<sup>107</sup> Betty L. Charles. “Telemedicine Can Lower Costs and Improve Access.” *Healthcare Financial Management* April 2000; p 66-69.

<sup>108</sup> Barbara M. Rohland. “Telepsychiatry in the Heartland: If We Build It, Will They Come?” *Community Mental Health Journal*, 2001, 37(5): 449-459.

<sup>109</sup> John Morrison, et al. “Telemedicine and Cost Effective Management of High Risk Pregnancy” *Managed Care*, 2001 Nov; 10(11) 42-6, 48-9.

<sup>110</sup> C. Burgess, et al., (2001) – See page 5 of Chap. I.

<sup>111</sup> Michael T. Wong. “HIV Care in Correctional Settings is Cost-Effective and Improves Medical Outcomes.” *Infectious Diseases in Clinical Practice*, 2001, 10(3 Suppl): S9.

<sup>112</sup> M. J. McCue, et al. “The case of Powhatan Correctional Center/Virginia Department of Corrections and Virginia Commonwealth University/Medical College of Virginia.” *Telemedicine Journal*, 1997, Spring; 3(1):11-7.

<sup>113</sup> Statistics indicate that at year end 2004, there were 792 HIV-positive inmates in Maryland, which accounts for 3.4 percent of the total custody population. See HIV in Prisons, 2004, 11/06. U.S. Department of Justice - Office of Justice Programs Bureau of Justice Statistics. Available at <http://www.ojp.usdoj.gov/bjs/pub/pdf/hivp00.pdf>.

<sup>114</sup> *Implementing Telemedicine in Correctional Facilities*. U.S. Department of Justice—U.S. Department of Defense.

May 2002, p. 7. Available at <http://www.ncjrs.gov/pdffiles1/nij/190310.pdf>.

<sup>115</sup> Available at [http://www.fha.state.md.us/mch/asthma/data\\_surv.html](http://www.fha.state.md.us/mch/asthma/data_surv.html).

Various studies on the impact of asthma management using telemedicine have been undertaken. For example, the Packard Children's Hospital designed an intervention strategy at several urban schools in California which included patient consultations through videoconferencing.<sup>116</sup>

In 1998, the University of Maryland School of Medicine in partnership with Shore Health System's Regional Cancer Center in Easton, initiated a teleoncology pilot program. This program was supported by an internal medical school grant and provided videoconferencing equipment and the services including tumor boards, physician consultations, and multidisciplinary cancer conferences. The telehealth system was also used to set up virtual meetings among ministers in Baltimore City and on the Eastern Shore.

In 2003 the UMSOM developed a "3D remote treatment planning system" for developing radiation therapy treatment plans for cancer patients in both Howard and Montgomery Counties. Part of the leading technology was supported by the University of Maryland Statewide Health Network, through Maryland Cigarette Restitution Fund Program.

## **Quality**

Quality of care is another important factor. Like cost, quality can be difficult to measure. Most studies of quality are either studies of patient satisfaction, clinician satisfaction or outcome comparison studies.<sup>117</sup> The term 'quality' is difficult to define, although as a general guideline, experts look to whether the appropriate structure, process or outcome was achieved. Structure includes such variables as characteristics of the providers of care, tools or resources and organizational setting, process includes the technical management of care.<sup>118</sup> Measures of outcome include mortality rates, hospital length of stay and quality of life.<sup>119</sup>

Most available studies compare patient or clinician satisfaction with services provided via telemedicine compared to traditional sources of care.<sup>120, 121</sup> Generally, patient satisfaction rates are high.<sup>122</sup> However, it should be noted that some of these studies have methodological problems because the patient intermittently saw the provider in person. Studies of clinician satisfaction are more mixed with some studies reporting clinicians felt telemedicine increased their workload, mental effort and technical skills.<sup>123</sup>

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<sup>116</sup> Pamela S. Whitten and DJ Cook, "School-based telemedicine: using technology to bring health care to inner-city children." *Journal of Telemedicine and Telecare*. 1999; 5 Supplement I:S23-25.

<sup>117</sup> Smolensky, p.390

<sup>118</sup> Ibid.

<sup>119</sup> Ibid.

<sup>120</sup> Pamela Whitten and F Mair. "Systematic Review of Studies of Patient Satisfaction with Telemedicine," *British Journal of Medicine*, 2000, p. 1517.

<sup>121</sup> R. Roine, et al. "Assessing Telemedicine :A Systematic Review of the Literature." *Journal of the Canadian Medical Association*, 2001, p. 765.

<sup>122</sup> Smolensky, 2002, p.393.

<sup>123</sup> Supra 110.

Outcome comparative studies are perhaps the most useful in determining quality of care.<sup>124</sup> Various studies evaluating the Department of Veterans Affairs (VA) Care Coordination Home Telehealth (CCHT) program have compared the success of telemedicine services to their traditional (face-to-face) medical counterparts.<sup>125</sup> For instance, one study assessed the healthcare use among veterans with diabetes mellitus enrolled in the VA CCHT program found a reduction in “avoidable healthcare services for diabetes mellitus, such as hospitalizations, and reduced care coordinator-initiated primary care clinic visits.”<sup>126</sup> Another study evaluating the VA CCHT program indicated a statistically significant reduction in hospitalizations, emergency room use, average number of bed days of care, and improvement in the health-related quality of life role-physical functioning, bodily pain, and social functioning.<sup>127</sup> More studies in this area with a large database are underway. The efficacy of telehealth in managing cardiovascular disease has been shown in smaller studies<sup>128,129</sup> and will be assessed by the VA.

In the area of dermatology, a study evaluating the reliability and accuracy of dermatologists’ diagnoses and treatment plans resulting from telemedicine consultations compared to clinic-based found that diagnostic accuracy is comparable among clinic-based examiners and digital image examiners.<sup>130</sup>

The use of telemedicine as a way to deliver pediatric care has grown rapidly<sup>131</sup> and, as such, an increasing number of studies relating to quality of care for this clinical specialty have been undertaken. One study reported that an Internet-based “store and forward” pediatric consultation system had “improved the quality of patient care by providing expeditious specialty consultation...to a population of underserved children.”<sup>132</sup> An additional study, assessing the impact of telemedicine on absence from child care due to illness in an urban setting, concluded that “telemedicine holds substantial potential to reduce the impact of illness on health and education of children, on time lost from work in parents, and on absenteeism in the economy.”<sup>133</sup> It would seem that telemedicine is able to maintain or improve the quality of patient care.<sup>134</sup>

## **Access**

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<sup>124</sup> Ibid. p 390.

<sup>125</sup> Ibid. p395

<sup>126</sup> T. E. Barnett, et al. “The effectiveness of a care coordination home telehealth program for veterans with diabetes mellitus: a 2-year follow-up.” *American Journal of Managed Care*, Aug. 2006. 12(8): p. 467.

<sup>127</sup> N. R. Chumbler, et al., “Evaluation of a care coordination/home-telehealth program for veterans with diabetes: health services utilization and health-related quality of life.” *Evaluation and the Health Professions*, 2005 Dec; 28(4): p. 464.

<sup>128</sup> Knox et al. *Journal of Cardiovascular Nursing*, 1999.

<sup>129</sup> Burgiss et al. “Cost of Care Reductions Using Telehealth: A Comparative Analysis”, University of Tennessee Medical Center , Knoxville, Tenn.

<sup>130</sup> Available at [http://www.research.va.gov/resources/pubs/docs/mb12\\_telemed.pdf](http://www.research.va.gov/resources/pubs/docs/mb12_telemed.pdf).

<sup>131</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity, p 9.

<sup>132</sup> Charles W. Callahan, et al., “Effectiveness of an Internet-Based Store-and-Forward Telemedicine system for Pediatric Subspecialty Consultation.” *Arch Pediatr Adolesc Med*, April 2005, 159, p. 389.

<sup>133</sup> K. M. McConnochie, et al. “Telemedicine Reduces Absence Resulting From Illness in Urban Child Care: Evaluation of an Innovation.” *Pediatrics*, 2005; 115(5): p 1273.

<sup>134</sup> Smolensky, p. 397.

Lastly, access to healthcare is another important factor to consider. As mentioned earlier, an estimated 14% of Maryland's population is uninsured. Additionally, many rural or non-MSA regions face critical shortages of specialists due to health manpower shortages. Teleradiology, one of the most common clinical applications, illustrates telemedicine's ability to provide specialty expertise to a rural region. An advanced application of teleradiology is telemammography. This application has the ability to improve access to mammography for women in remote areas that lack radiology or mammography machines.<sup>135</sup> Furthermore, this can be accomplished by providing a digital system to the remote area or by equipping a bus in order to visit several regions.

In 1999, the University of Maryland's Express Care was the first in the nation to use mobile telemedicine to assess a stroke patient's condition during an ambulance ride, for accelerated pre-hospital evaluation. Maryland Express Care ambulances equipped with telemedicine enable neurologists in the hospital office to see a stroke patient in real time video and speak to the emergency medical personnel on the ambulance as they transport the patient to the hospital.

Teledentistry is another application in which telemedicine is able to provide access to specialized care in underserved regions in Maryland. In a survey conducted in 2000-2001 of the oral health status of Maryland school children, the Eastern Shore region had the highest percentage of untreated dental decay (54%) followed by the Central Baltimore region (48%).<sup>136</sup> The oral cancer mortality rate in Maryland is among the highest in the United States and ranks sixth for African-American males. These findings were attributed to a lack of dental providers in rural areas, lack of public health clinics to serve the uninsured and underinsured.

Teledentistry can be a resource for dental consulting and referral for specialized care for underserved regions. In a recent article in the *Journal of Telemedicine and Telecare*, the University of Rochester, NY, presented their findings on a teledentistry project established in six inner-city elementary schools and seven child-care centers.<sup>137</sup> By using an intraoral camera, telehealth assistants recorded digital images of children's teeth and sent the images to a computer at the expert dental site. The authors found that almost 40% of the children screened had active dental caries and that "for the first time, many children attending inner-city child-care centers have had their teeth examined at an early age and been given prompt feedback on the need for dental care."<sup>138</sup>

It is estimated that by the year 2025, 16.4% of Maryland's residents will have reached 65 years of age.<sup>139</sup> Approximately 50% of the elderly will be affected by a chronic disease and "for every nursing home patient, there are three to four times as many

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<sup>135</sup> Roberta A. Jong and Martin J. Yaffe. "Digital Mammography: 2005." *Canadian Association of Radiology Journal*, 2005; 56 (5): 319-323.

<sup>136</sup> [http://www.fha.state.md.us/oralhealth/pdf/Final\\_5-Year\\_Plan-2004.pdf](http://www.fha.state.md.us/oralhealth/pdf/Final_5-Year_Plan-2004.pdf)

<sup>137</sup> Dorota T. Kopycka-Kedzierawski and Ronald J. Billings. "Teledentistry in inner-city child-care centres." *J Telemed Telecar*, 2006, 12(4):176-81.

<sup>138</sup> *Ibid.* p 176.

<sup>139</sup> Available at <http://www.census.gov/population/projections/state/9525rank/mdprsrel.txt>.

patients residing at home with similar needs.”<sup>140</sup> Whether living in a rural or urban setting, the elderly can have various health care access issues resulting from decreased mobility due to motor skill or visual impairment, isolation from a support network or family members, or suffering from a chronic illness. Remote patient monitoring uses special devices to remotely collect and send data to a monitoring station for interpretation. Monitoring applications can include checking vital signs, such as blood glucose or heart ECG, or a variety of indicators for homebound patients. This can be accomplished with specialty hardware devices and with fixed/integrated communications capabilities.<sup>141</sup> The University of Maryland School of Medicine currently has telemedicine evaluation trials underway in several areas of chronic diseases. These include 1) an evaluation of home automated telemanagement of chronic obstructive pulmonary disease (COPD), 2) hypertension telemanagement in African Americans, 3) home automated telemanagement of ulcerative colitis, and 4) feasibility of home rehabilitation in multiple sclerosis.<sup>142</sup> The current home telehealth project of the Department of Veterans Affairs involving about 22,000 veterans shows promise in demonstrating the efficacy of this type of application of telehealth/telemedicine, which the AETNA study in 2001 called into question (see section on cost).

### **Bioterrorism**

Since September 11, 2001, the United States has faced the possibility of large-scale health crises resulting from terrorist activity. Because of its proximity to Washington, DC, Maryland could be particularly vulnerable to terrorist attacks. Telemedicine has the potential to assist by allowing access to medical services in a remote or unreachable location. For example, in 2004, a telemedicine multi-state bioterrorism exercise using telehealth technology to diagnose a case of the smallpox and to plan a public health response was conducted. Participants in this exercise included the states of Florida, Kentucky, Missouri and Virginia along with the Centers for Disease Control and Prevention.<sup>143</sup>

### **Non-Clinical Applications**

Another important application for use of videoconferencing/telecommunication technology is for continuing education of health care providers, patients or the public. The most common educational application reported is continuing medical education (CME), continuing nursing education (CE), training, “virtual” conferences, patient education, tumor boards and grand rounds. (See Chapter III for a description of the University of Maryland Statewide Health Network’s effort to provide CMEs to community health centers.)

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<sup>140</sup> Karen Rheuban. “The role of telemedicine in fostering health-care innovations to address problems of access, specialty shortages and changing patient care needs.” *Journal of Telemedicine and Telecare*, 2006. 12 (suppl. 2): p 47.

<sup>141</sup> Available at <http://www.wiredred.com/video-conferencing/video-telemedicine.html>.

<sup>142</sup> Email from Joseph Finkelstein MD, PhD, University of Maryland School of Medicine Director, Chronic Disease Informatics Group, 1/24/07.

<sup>143</sup> Available at <http://www.healthsystem.virginia.edu/internet/telemedicine/news/index.cfm>.

### **Reimbursement and Access to Care**

Specific studies on the influence of reimbursement for telemedicine services and increased usage could not be located. However, there is evidence that there is greater use of telemedicine in states where there is reimbursement for services from Medicaid and mandated coverage from private payers. These states also tend to have more telemedicine programs with more sites. California, Hawaii, Kansas, New York and Texas—states with the greatest amount of reported telemedicine activity—reimburse services under Medicaid and private payers. Florida which also has high usage does not have public or private mandates.<sup>144</sup>

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<sup>144</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity, p.8.

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## V. Barriers to Reimbursement for Telemedicine Services in Maryland and Strategies to Facilitate Access to Telemedicine

The use of clinical telemedicine services in Maryland is less well developed than for other more rural or frontier states. This could be related in part to a lack of reimbursement for clinical telemedicine services through the state Medicaid program and private payers as evidenced by a lack of claims data. Moreover, Medicare reimbursement for clinical services provided via telemedicine in Maryland is limited due to Federal policies that narrow the availability of Medicare reimbursement to *rural* Health Professional Service Areas (HPSAs) and non-Metropolitan Service Areas (non-MSAs). This means that Medicare does not cover clinical services provided by way of telemedicine for beneficiaries in much of the state.

The state's two major academic health centers (University of Maryland School of Medicine and Johns Hopkins School of Medicine and their affiliated hospitals) have telemedicine activities underway in many clinical specialties. Some of these provide services nationally or internationally. Most of these are supported by grants from government agencies or non-profit foundations, not from traditional sources of third party payment.

Failure to develop formal reimbursement structures may be due to Maryland's relatively small geographic size as compared to other states. States that are geographically larger (typically those in the Southern and Western United States) are more likely to be receiving Medicare reimbursement for telemedicine services in rural areas, have authorized Medicaid reimbursement and have private payers willing to reimburse. All of these factors may help improve access to health care, since states with Medicaid and private payer reimbursement report more activity via telemedicine.<sup>145</sup>

Maryland patients commute to major academic centers from rural areas for specialty clinical care although this can lead to delaying or foregoing care and adds additional transportation costs. In addition there are 13 counties or parts of counties and Baltimore City that are identified by the federal government as HPSAs for primary care providers, dentists, or mental health providers in the state. People in these areas, which may be urban, must also travel distances to get the appropriate care. For some of them, accessing transportation may also be a barrier.

There are several developments that make the issue of reimbursement for telemedicine/telehealth services in Maryland even more salient to the issue of improved access to care in the future. These are:

1. The Maryland Rural Broadband Cooperative is making the infrastructure improvements needed to convey images clearly and efficiently by telecommunications thus improving the feasibility of telemedicine services;

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<sup>145</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity. Civic Research Institute, Kingston, NJ, 2004, pg 8.

2. In addition to clinical care and consultations, emerging issues for telemedicine such as chronic disease management, home monitoring of patients with chronic diseases are increasing in popularity and may increase favorable patient outcomes while controlling health care expenditures;
3. The threat of bioterrorism is making it necessary to develop contingency plans for providing emergency medical care especially in remote areas; and
4. Telemedicine/Telehealth is being used as a medium to effectively educate providers through continuing medical education programs and to foster adherence to clinical guidelines and evidence guided care. It is also used to inform consumers in all regions of the state and in their local communities about health promotion and disease prevention strategies.

Agreements such as the one between the University of Maryland Statewide Health Network (UMSHN) and the Mid-Atlantic Association of Community Health Centers (CHCs), as well as rural hospitals show promise in improving the quality of care for uninsured, underserved and remote populations who receive care in these facilities.

### **Barriers**

In general, barriers to the growth of telemedicine in Maryland are the same as those identified nationally. These include financial, quality issues, infrastructure, legal and regulatory barriers, as follows:

- Lack of telemedicine/telehealth reimbursement (i.e., through Medicaid, Medicare) is a deterrent to health care provider participation. Moreover, stable sources of third party payment are essential to the sustainability of telemedicine services. This is particularly true for telemedicine with its high fixed costs for entry which require an investment in equipment, maintenance, training and infrastructure. Further these fixed costs can only be recouped over a long period of time.<sup>146</sup>
- Medicare's geographic and service policies are restrictive. The definition for reimbursable telehealth services includes the word "interactive" which limits reimbursement for store and forward health services.<sup>147</sup> Moreover, reimbursement is limited to rural HPSAs and non MSAs as originating sites. This rules out coverage for underserved and uninsured in urban areas. In addition, current Medicare policy does not include a residence as an "originating site" for telemedicine ruling out the use of telemedicine to monitor chronic conditions as a reimbursable service.
- According to Center for Medicaid Services (CMS) and Agency for Health Research and Quality (AHRQ), there is a lack of quality clinical efficacy and cost-benefit research that supports telehealth services.<sup>148</sup> HRSA's Office for the Advancement of Telehealth (OAT) has many pilot projects to demonstrate the usefulness of telehealth underway in states. Also, the Department of Veterans

<sup>146</sup> Kirsten Rabe Smolensky. "Telemedicine Reimbursement: Raising the Iron Triangle to a New Plateau." *Health Matrix: Journal of Law Medicine*. 13(2) (2003): 371-413.

<sup>147</sup> Brantly, pg. 73.

<sup>148</sup> Ibid. pg. 79.

Affairs (VA) has been a leader in demonstrating the effectiveness of telemedicine in multiple clinical specialties and with a promising demonstration project for managing disease at home with conclusive findings expected next year.

- Lack of uniformity exists among the states. No two states share the same policy, coverage or even definition of telemedicine.<sup>149</sup> This could make it more difficult for insurance carriers who operate throughout the nation to develop policy regarding reimbursement since they would need to comply with many different state requirements.
- Liability is a relevant issue for telemedicine. Providers may not be paid for consultation or monitoring via telemedicine, but may still be responsible for poor patient outcomes.
- Licensure requirements for providers of telemedicine services vary among the states. Health care practitioners are licensed in the state in which they practice; telemedicine/ telehealth may extend the practice into a different jurisdiction. State licensing boards may prohibit, permit or decline to take a position on telemedicine.<sup>150</sup>
- The reasons for restricting licensure for telemedicine include: patient safety, application and imposition of sanctions, fear of patients being drawn away by out of state providers, boards have difficulty policing and disciplining physicians who are not licensed in their state.
- Providers may be slow or reluctant to adopt new technologies, although evidence of this concern varies.<sup>151</sup>

This report has shed some light on the current status of telemedicine and telehealth in Maryland and other states as well as the barriers as noted above and may be useful in supporting future policy development in this area. The Maryland General Assembly may consider additional studies, including pilot telehealth/telemedicine studies, to further support the development, expansion and reimbursement for clinical telemedicine services in Maryland.

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<sup>149</sup> Ibid. pg. 82.

<sup>150</sup> Brantly, pg. 84

<sup>151</sup> Ibid. pg. 89.

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## Executive Summary

During the 2006 legislative session, the Maryland General Assembly passed Senate Bill 728 “Telemedicine –Use and Reimbursement -Study” (Chapter 266 of the Laws of Maryland) requiring the University of Maryland School of Medicine, in consultation with the University of Maryland School of Nursing and other stakeholders, to conduct a study of telemedicine and report to the Senate Finance Committee and House Health and Government Operations Committee on or before January 1, 2007(See Appendix A). This study on the use of and reimbursement for telemedicine is required to include the following:

- (i) The use of and reimbursement for telemedicine in other states;
- (ii) The current use of telemedicine in the State;
- (iii) The potential for telemedicine to improve access to health care in underserved areas of the State;
- (iv) How any reimbursement for telemedicine in other states has increased access to health care in those states; and
- (v) Any current barriers in the State to reimbursement for telemedicine.

This report is intended to fulfill the requirements of the study. The report is organized into five chapters to address the topics specified in the legislation.

The American Telemedicine Association (ATA), a nonprofit association that is a leading resource on telemedicine issues, defines telemedicine as “the use of medical information exchanged from one site to another via electronic communications to improve patients’ health.<sup>1</sup>” The term “telehealth” is an alternative term used in a broader sense to define health care or health information/education delivered remotely that does not always involve clinical services. Continuing medical education, remote monitoring of patients’ vital signs, videoconferencing for patient consultation, transmission of radiology and other images, e-health portals for patient education and nursing call centers are all part of telehealth.<sup>2</sup>

Our research and interviews indicate Maryland relies less on telemedicine to provide clinical care than many other states. This could be related to a lack of reimbursement for clinical telemedicine services through the state Medicaid program and private payers, as evidenced by a lack of claims data with modifiers indicating the service was provided via telemedicine. Moreover, Medicare reimbursement for clinical services provided through telemedicine in Maryland is limited due to federal policies that narrow the availability of Medicare reimbursement to *rural* Health Professional Shortage Areas (HPSAs) and non-Metropolitan Statistical Areas (MSAs). This means that Medicare does not cover clinical services provided by way of telemedicine for beneficiaries in much of the state.

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<sup>1</sup> The American Telemedicine Association Website at [www-atmedia.org](http://www-atmedia.org)

<sup>2</sup> IBID

The state's two major academic medical centers (University of Maryland School of Medicine and Johns Hopkins School of Medicine and their affiliated hospitals) have telemedicine activities underway in a number of clinical specialties. Some of these services are provided nationally or internationally. Most of these are supported by grants from federal agencies or non-profit foundations, not from traditional sources of third party payment.

To date, Maryland patients commute to major academic centers from rural areas for specialty clinical care although this can lead to delaying or foregoing care and adds additional transportation costs. This is mainly due to a lack of specialty physicians located in remote areas. In addition there are 13 counties or parts of counties and Baltimore City that are identified by the federal government as HPSAs for primary care providers, dentists or mental health providers in the state. People in these areas, which may be urban, must also travel distances to get the appropriate care. For some of them, accessing transportation may also be a barrier.

There are several developments that make the issue of reimbursement for telemedicine/telehealth services in Maryland more relevant in the future. These are:

1. The Maryland Rural Broadband Cooperative is expected to make the infrastructure improvements needed to convey images clearly and efficiently by telecommunications thus improving the feasibility of telemedicine services in Western and Southern Maryland and on the Eastern Shore;
2. In addition to traditional specialty clinical care and consultations, emerging issues for telemedicine such as managing chronic disease and home monitoring of patients are increasing in popularity and may increase favorable patient outcomes while controlling health care expenditures;
3. Providing emergency medical care including monitoring and responding to bioterrorism, especially in remote areas, is a prominent issue since "9/11"; and
4. Telemedicine/Telehealth is being used to educate providers through continuing medical education (CME) and to inform consumers in the local communities where they reside to improve the quality of care in all regions of the state and reduce health disparities. Agreements such as the one between the University of Maryland Statewide Health Network (UMSHN) and the Mid-Atlantic Association of Community Health Centers (CHCs), as well as rural hospitals, show promise in improving the quality of care for uninsured, underserved and remote populations who receive care in these facilities.

### **Barriers**

In general, barriers to the growth of telemedicine in Maryland are the same as those identified nationally. These include financial and quality issues, infrastructure, legal and regulatory barriers, as follows:

- Lack of telemedicine /telehealth reimbursement (i.e., through Medicaid, Medicare) is a deterrent to health care provider participation. Moreover, stable

sources of third party payment are essential to the sustainability of telemedicine services. This is particularly true for telemedicine with its high fixed costs for entry which require an investment in equipment, training and infrastructure. Further these fixed costs can only be recouped over a long period of time.

- Medicare's geographic and service policies are restrictive. The definition for reimbursable telehealth services includes the word "interactive" which excludes reimbursement for store and forward health services.<sup>3</sup> Moreover, reimbursement is limited to rural HPSAs and non-MSAs as originating sites. This rules out coverage for underserved and uninsured in urban areas. In addition, current Medicare policy does not include a residence as an "originating site" for telemedicine ruling out the use of telemedicine to monitor chronic conditions as a reimbursable service.
- According to the Centers for Medicare and Medicaid Services (CMS) and the Agency for Health Care Research and Quality (AHRQ), there is a lack of quality clinical efficacy and cost-benefit research that supports telehealth services.<sup>4</sup> HRSA's Office for the Advancement of Telehealth (OAT) has many pilot projects to demonstrate the usefulness of telehealth underway in states. Also, the Department of Veterans Affairs (VA) has been a leader in demonstrating the effectiveness of telemedicine in several clinical specialties, including retinal screenings and dermatology, with a promising demonstration project for managing disease at home with conclusive findings expected next year.
- Lack of uniformity exists among the states. No two states share the same policy, coverage or even definition of telemedicine.<sup>5</sup>
- Liability is a relevant issue for telemedicine. Providers may not be paid for consultation or monitoring via telemedicine but may still be sued.
- Licensure requirements for providers of telemedicine services vary among the states. Health care practitioners are licensed in the state in which they practice; telemedicine/telehealth may extend the practice into a different jurisdiction. State licensing boards may prohibit, permit or decline to take a position on telemedicine.<sup>6</sup>
- Providers may be slow or reluctant to adopt new technologies, although evidence of this concern varies.<sup>7</sup>

Based on the numerous barriers identified, it is understandable that telemedicine has been slow to develop in Maryland and many other states. However, it may be speculated that as issues of equipment availability, provider training and infrastructure, including improved connectivity, evolve more attention will be focused on reimbursement provided by Medicare, Medicaid, and private payers in Maryland. The State government may also look to employing telemedicine to reduce the cost of providing specialty clinical care in remote areas or containing employee health care costs through better management of chronic disease, as is being studied in the

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<sup>3</sup> David Brantly et al, *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, Feb. 2004, pg. 73.

<sup>4</sup> Ibid. pg. 79.

<sup>5</sup> Ibid. pg. 82.

<sup>6</sup> Ibid. pg. 84.

<sup>7</sup> Ibid. pg. 89.

Department of Veterans Affairs. Hopefully, this report has shed some light on the current status of telemedicine and telehealth in Maryland and other states and will be useful in making future policy decisions in this area.

## I. Introduction

During the 2006 legislative session, the Maryland General Assembly passed Senate Bill 728 “Telemedicine-Use and Reimbursement Study” (Chapter 266 of the Laws of Maryland) requiring the University of Maryland School of Medicine, in consultation with the University of Maryland School of Nursing and other stakeholders, to conduct a study of telemedicine use and reimbursement and report the results to the Senate Finance Committee and House Health and Government Operations Committee on or before January 2007 (See Appendix A). As detailed in the legislation, the study must include the following:

- (i) The use of and reimbursement for telemedicine in other states;
- (ii) The current use of telemedicine in the State;
- (iii) The potential for telemedicine to improve access to health care in underserved areas of the State;
- (iv) How any reimbursement for telemedicine in other states has increased access to health care in those states; and
- (v) Any current barriers in the State to reimbursement for telemedicine.

This report is intended to fulfill the requirements of this legislation. The report is organized into five chapters. The first chapter provides an introduction and overview. Chapters two through five address the specific topics enumerated in the legislation. The last chapter identifies barriers to the use of telemedicine and telehealth services in Maryland.

### **Background**

Historically concerns for access to health care have driven the development and interest in telemedicine. Originally developed to provide access to specialty and primary care for very remote, frontier areas, with the passage of time, and the improvements in telecommunications infrastructure, new uses for telemedicine have emerged.

Telemedicine can be defined in a number of ways. In the Institute of Medicine’s (IOM) report, telemedicine is the use of information and telecommunication technologies to provide and support health care when distance separates the participants.<sup>1</sup> Similarly, telemedicine has been defined as “the use of medical information exchanged from one site to another via electronic communications to improve patients’ health.”<sup>2</sup>

Another term “telehealth” is closely associated with telemedicine and is used in the broader sense to define health care or health information/education delivered remotely that does not always involve clinical services. Distance continuing medical education (CME), remote monitoring of patients in home, ambulance or hospital, videoconferencing between providers for clinical consultations to discuss patients,

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<sup>1</sup> Institute of Medicine (US): Committee on Evaluating Clinical Applications of Telemedicine. Telemedicine: A Guide to Assessing Telecommunications in Health Care. Marilyn J. Field, Editor. National Academy Press, Washington, D.C. 1996.

<sup>2</sup> The American Telemedicine Association. Available at <http://www.atmeda.org/>

transmission of images, e-health portals for patient education, and nursing call centers are all part of telehealth.<sup>3</sup> Both terms emphasize “remote” location of either the patient or provider.

Reimbursement fee structures do not always distinguish between services provided on site and those provided remotely. Some carriers use the modifier “TM” or “tm” for the Current Procedural Technology (CPT) codes for billing to distinguish the means of providing the service.

There are a variety of applications for telemedicine and telehealth including those listed below:

- a) Clinical services (may be primary care or specialty referral services);
- b) Administrative uses;
- c) Educational such as continuing education for health professionals;
- d) Clinical consultations to discuss patient care between two or more clinicians;
- e) Remote patient monitoring; and
- f) Consumer medical and health information.

Specialty referrals generally involve a physician specialist at a remote location assisting another health professional often a primary care physician or other specialist with a diagnosis real-time, remote consultation, or the transmission of patient data and images to a specialist for review at a later time. Radiology, dermatology, psychiatry, as well as ophthalmology, cardiology and pathology are examples of established telemedicine applications. In addition, applications are being used for remote patient monitoring in the home or in an ambulance remotely collecting and transferring data to a monitoring station for interpretation. Increasingly, home telehealth applications are being used for chronic disease management for patients with congestive heart failure (CHF), diabetes mellitus (DM), post-stroke, and other conditions. Home telemanagement of patients often are used to supplement care provided by visiting nurses.

Videoconferencing may be used to provide continuing education to health professionals in remote locations. Finally, advanced telecommunication technologies are used to provide specialized health information and on-line discussion and support groups. While all of the above are growing uses of telehealth, the focus of this study is confined primarily to telemedicine where clinical services, including consultations, are provided to patients remotely. These types of clinical services would usually be reimbursable, if provided through live and direct contact between a physician and patient.

A report by the United States Department of Health and Human Services (US DHHS) on telemedicine for the Medicare population classifies telemedicine services slightly differently.<sup>4</sup> This report assessed telemedicine services with a focus on those that would substitute for face-to-face medical diagnosis and treatment of the Medicare

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<sup>3</sup> Ibid.

<sup>4</sup> W. Hersh, JA Wallace, PK Patterson, et al., *Telemedicine for the Medicare Population*, Agency for Healthcare Research and Quality, US Department of Health and Human Services, July 2001.

population (adults with disabilities and those ages 65 and older) and identified health care services that could be provided through telemedicine. The US DHHS report organized telemedicine into three areas:

1. Store and forward: collects clinical data, stores it, then forwards it for interpretation later; the physician and patient need not be together at the same time (non-interactive);
2. Self-monitoring / testing (home based): physicians and health care providers can monitor physiological measurements, test results, images, and sounds collected in a patient's residence or care facility; this is beneficial to patients that have problems with mobility or where travel is costly and may allow better care due to early detection of problems and possible reduction of health care costs because of early intervention; and
3. Clinician-interactive (office/hospital based): real time interactions, such as online office visits, consultations, hospital visits and home visits, specialized exams and procedures.

For the purpose of reimbursement, the Centers for Medicare & Medicaid Services (CMS) define telemedicine as "professional services given to a patient through an *interactive* telecommunications system by a practitioner at a distant site."<sup>5</sup> Because this definition includes the term *interactive*, reimbursement is limited to telemedicine activities that occur real-time while the patient and practitioner are interacting. However, CMS demonstration projects in Alaska and Hawaii have been granted authority to submit for reimbursement for store and forward activities.<sup>6</sup> Store and forward activities are not interactive. Instead, these activities involve the collection of data at one point in time, storage of that data, and then forwarding of the data to a physician to be interpreted later.

Additionally, CMS has unique reimbursement policies for the originating site and the distant site. The originating site is defined as "the location of an eligible Medicare beneficiary at the time the service being furnished via a telecommunications system occurs."<sup>7</sup> Reimbursement to the originating site is the "lesser of 80% of the actual charge or the originating site facility fee of \$20."<sup>8</sup> This amount is set by statute, but is updated annually according to the Medicare Economic Index.<sup>9</sup>

Beneficiaries are eligible for Medicare services delivered via telemedicine only at originating sites (where the enrollee presents) located in a *rural* Health Professional Shortage Areas (HPSAs) or in counties in a non-metropolitan statistical area (MSA). The Medicare Benefit Policy Manual is included in the Appendix (Appendix B).

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<sup>5</sup> Medicare.gov, searchable glossary. Available at <http://www.medicare.gov/Glossary/search.asp?SelectAlphabet=T&Language=English#Content> Accessed December 4, 2006.

<sup>6</sup> David Brantly, K Laney-Cummings, R Spivack, *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, Feb 2004.

<sup>7</sup> CMS Internet Only Manual 100-02, Medicare Benefit Policy Manual, Chapter 15 Covered Medical and Other Health Services, Sections 270-275.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

“The Centers for Medicare and Medicaid (CMS) has not formally defined telemedicine for the Medicaid program and Medicaid law does not recognize telemedicine as a distinct service.”<sup>10</sup> However, states, at their option, are permitted to reimburse for telemedicine services. At least 36 state Medicaid programs do reimburse for some telemedicine activities (see Chapter II for detailed information).

Telemedicine can be viewed from two perspectives as either 1) facilitating geographic access, (which seems to be the focus of federal programs) or 2) facilitating access to care and efficiency in delivery of care, especially for the elderly and underserved. Telemedicine allows community and rural hospitals to offer more advanced care by providing access to clinical specialties and subspecialties that would not otherwise be available locally. This can help some patients avoid being transferred to a major medical center which can save health care costs and keep the patient closer to family and friends. Currently under Medicare, only designated *rural* HPSAs, counties, non-MSAs, and approved Federal demonstration projects are eligible for coverage of telemedicine services.

The Department of Veterans Affairs (VA) has been a leader in use and advancement of telemedicine services. In addition to the traditional clinical uses, the VA recently initiated use of telecommunication equipment to home-monitor the conditions of 22,000 chronically ill patients nationwide.<sup>11</sup> Complete data from this initiative, due in about a year, is likely to provide the most conclusive evidence to date of the efficacy of telemedicine in this area. Unlike other payer programs in the federal government, the VA provides services directly to eligible persons through its own facilities; the VA is both payer and provider (See Chapter II and IV).

One other source of federal funding for telemedicine is the Office for the Advancement of Telehealth (OAT) in the Health Resources and Services Administration (HRSA). HRSA defines “telehealth” broadly as “use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration”. Dr. Dena Puskin, an internationally recognized leader, heads this office. HRSA works to increase and improve the use of telehealth to meet the needs of the underserved, including those living in remote and rural areas with low incomes and who are uninsured or enrolled in Medicaid<sup>12</sup> (See Appendix C for a list of OAT-HRSA Awardees). Other federal agencies that fund telehealth programs include: the Department of Defense (DOD), the National Aeronautic and Space Agency (NASA), the National Institutes of Health (NIH), and the Agency for Healthcare Research and Quality (AHRQ).

The efficacy of telehealth and telemedicine services continues to be assessed. Telehealth was applied to high risk pregnancies in one study, which showed significant reduction in premature births.<sup>13</sup> In Tennessee, another study showed hospital

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<sup>10</sup> CMS, Medicaid & Telemedicine, Overview. Updated 12/14/05, Available at [http://www.cms.hhs.gov/Telemedicine/01\\_Overview.asp#TopOfPage](http://www.cms.hhs.gov/Telemedicine/01_Overview.asp#TopOfPage) (Accessed August 10, 2006)

<sup>11</sup> <http://www.hopkinsmedicine.org/medialII/enevs/picture.html>

<sup>12</sup> <http://www.hrsa.gov/telehealth>

<sup>13</sup> John Morrison, et al., (2001) “Telemedicine Cost Effective Management of High Risk Pregnancy” *Managed Care*.

readmission rates for congestive heart failure were lower after a sustained program of telehome care monitoring and patient education.<sup>14</sup> Whitten et al. observes “Preliminary research well documents the fact that telemedicine is a feasible alternative to traditional healthcare.”<sup>15</sup> Studies demonstrate that patients have reported good acceptance rates and satisfaction with technologies and treatment via telemedicine and care has been shown to be efficacious.<sup>16,17,18</sup> However, some studies have yielded contradictory conclusions.<sup>19</sup> Studies of the efficacy of the use of telemedicine services and telehealth have been limited. Part of the limitation on research is due to a lack of a critical mass of programs to make an assessment. An Aetna “evidence review” funded by the Agency for Healthcare Research and Quality (AHRQ) in 2001 to determine the efficacy of certain telehealth specialties suggested the quality of efficacy studies was insufficient to reimburse any telehomecare application.<sup>20</sup>

It is important to emphasize again the difference between telehealth and telemedicine. Telehealth can encompass a wide variety of applications while telemedicine is essentially a clinical service or consultation that occurs via telecommunications instead of in person. Studies of telehomehealth fall under telehealth services which are new and still under review. Clinical applications of telemedicine are more conclusive in their efficacy.

### **Barriers to Use of Telemedicine**

The number of telemedicine programs has grown rapidly since the 1990’s. However, telemedicine is still viewed as not being widely used for consultations and clinical care. Telehealth is used even less for quality improvement activities, such as continuing medical education.

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<sup>14</sup> S. Burgess, et al., (2001) “Costal Care Reductions Using Telehealth: A Comparative Analyst” Paper presented at American Telemedicine Association Annual meeting

<sup>15</sup> Pamela Whitten, et al., (2006) “Private Payer Reimbursement for Telemedicine Services in the United States” Department of Telecommunication, Michigan State University

<sup>16</sup> J. Finkelstein, et al.’ (2003) “Home Automated Telemanagement (H.A.T.) System to facilitate Self-Care of Patients with Chronic Diseases.” *Journal of Systemics, Cybernetics and Informatics*, 1(3) e5.

<sup>17</sup> S. S. Gustke, et al., (2000). “Patient Satisfaction with Telemedicine,” *Telemedicine Journal* 6(1), 5-13.

<sup>18</sup> Woods, K.F. et al., (1999). “Sickle Cell Telemedicine and Standard Clinical Encounters. A comparison of Patient Satisfaction.” *Telemedicine Journal*, 5(4), 349-356.

<sup>19</sup> <http://archfami.ama-assn.org/issues/v9n1/fful/foc8072>

<sup>20</sup> David Brantly, K Laney-Cummings, R. Spivack. *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, February 2004, pg 82-83.

Three main barriers to the advancement of telemedicine/telehealth can be identified:

1. Cost of the equipment and cost of line charges (for ISDN lines);
2. Access to and cost of the infrastructure required for connectivity; and
3. Practitioner reimbursement.<sup>21</sup>

Today, the cost of telemedicine/telehealth equipment is decreasing. At the same time, broadband infrastructure, which had previously only been available in urban areas for high quality video streaming necessary for conferencing and to adequately treat patients, is becoming more available in rural areas.

In Maryland, legislation was enacted in the 2006 legislative session (Chapter 269 of the Laws of Maryland sponsored by Senator Pipkin, and Delegate Jameson) to establish a rural broadband cooperative office in the Maryland Department of Business and Economic Development for the establishment of rural broadband telecommunications services. The State has committed \$10 million to the building of this Network between 2007 and 2010. Senator Mikulski added to the project by securing federal funds to build a fiber optic loop between NASA's Wallops Island Space Facility to the Patuxent River Naval Air Station River in St. Mary's county<sup>22</sup>. W.L. Gore and Associates will share fiber optic resources in the Elkton area. This Network will give the Maryland Broadband Cooperative an immediate presence in all rural regions of Maryland. The formation of a Rural Broadband Cooperative was recently announced at the annual Rural Health Summit. This Cooperative will give broadband internet service to all seeking residential or business applications, including telemedicine. The Cooperative will be owned by the rate payers much like an electric cooperative.

### **Reimbursement for Telemedicine**

Reimbursement for telemedicine services is a barrier to widespread use. A survey of states that do not require reimbursement for telemedicine services was conducted by the ATA and AMD Medicine, a supplier of medical devices used in telemedicine, and indicated the following reasons for not providing reimbursement though the Medicaid program:<sup>23</sup>

- Lack of compelling evidence of efficacy and cost/benefit needed in order to consider reimbursement (Alabama, DC, Florida, Idaho, New York);
- Transportation costs are not a major cost factor to Medicaid (Alabama, Connecticut, Maryland, Rhode Island);
- Budget concerns/limitations (Idaho, Mississippi);
- Geography – all citizens are close to medical facilities (Delaware);
- Fear of over utilization, fraud and abuse (Idaho); and
- No requests for reimbursement have been submitted (New Hampshire, Rhode Island).

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<sup>21</sup> Carrie Vaughan (2006) "Is Telemedicine in your Strategic Plan." *Health Leaders*, Available at [http://www.healthleadersmedia.com/crhlc/view\\_news.cfm?Content\\_id=81764](http://www.healthleadersmedia.com/crhlc/view_news.cfm?Content_id=81764).

<sup>22</sup> E-mail – J. Dillman III, Executive Director, Upper Shore Regional Council to Dr. Claudia Baquet, 10.24.06

<sup>23</sup> *Telemedicine Reimbursement Report*, Center for Telemedicine Law, October 2003, pg. 39-44.

It should be noted that several states did express interest in moving forward (Pennsylvania, Florida, and Idaho) with providing reimbursement through the Medicaid program.<sup>24</sup>

### **Policy Issues**

There are also broader policy issues to be considered. According to the American Telemedicine Association (ATA), “Nonpayment of telemedicine services that are reimbursed if provided in person creates a disparity and inequity for remote based populations, and often times, is in direct conflict with legislated language”(to facilitate access).<sup>25</sup> According to one article, “Most states are carrying the burden of transportation costs, which are simply eliminated when telemedicine technologies are employed to provide access to care for which the patient otherwise would have to travel long distances.”<sup>26</sup>

On the positive side, according to the ATA, the “rationale for payment of services is “Care delivered by the right practitioner at the right time results in:

1. Reduction in cost of care and improved clinical outcomes;
2. Reduction of transportation costs to the Medicaid agency with budgetary constraints; and
3. Reduction in the utilization of emergency care for chronic care or primary care.”<sup>27</sup>

This report discusses the applicability of the identified barriers to Maryland and ways to overcome these barriers and expand access to telehealth and telemedicine. Areas of variability among the states include Medicaid reimbursement, state licensure requirements for practicing medicine via telemedicine, state mandates for reimbursement and scope of reimbursement and the presence of third party payers willing to reimburse for telemedicine services. It is also important to obtain buy-in from medical practitioners and their staff in remote areas, provide training to facilitators at the originating sites.

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<sup>24</sup> *Ibid.*

<sup>25</sup> *Telemedicine Reimbursement Report*, pg. 9.

<sup>26</sup> N. M. Antoniotti, J Linkous, S. Speedie, et. al., *Medical Assistance and Telehealth: An Evolving Partnership*, American Telemedicine Association, Available at [http://atmeda.org/new/policy\\_issues](http://atmeda.org/new/policy_issues), Accessed on August 18, 2006.

<sup>27</sup> *Ibid.* pg. v.

## II. Overview of Reimbursement Policies for Telemedicine

The lack of consistent and comprehensive reimbursement policies remains one of the biggest obstacles to the integration of telemedicine/telehealth into health care in the United States. Currently, both the public payer (Medicare and Medicaid) and the private payers have not addressed the prospect of universal reimbursement (for telemedicine services).<sup>1</sup> Despite this, many states are embracing the health care opportunities presented by telemedicine and are taking various steps for public and private payer reimbursement of telemedicine services. This section presents an overview of reimbursement policies for Federal, state and private payers for telemedicine.

### **Medicare**

Medicare is the federal health insurance program that covers approximately 43 million elderly and disabled Americans. Medicare has traditionally paid for some of the telemedicine services that do not require face-to-face interactions with patients, such as teleradiology and telepathology, as long as they occur in real time.<sup>2</sup>

In 1997, Congress passed the Balanced Budget Act (BBA) which authorized Medicare payments for specific telemedicine services, effective January 1, 1999, and for the funding of telemedicine demonstration projects.<sup>3</sup> The BBA provided for very limited reimbursable telemedicine services, limited providers who could be reimbursed and required fees to be split between the distant and originating sites. Many of these constraints were removed by the Benefits Improvement and Protection Act of 2000 (BIPA) which expanded coverage for telehealth services, loosened presenter requirements at the originating site to allow a non-medical person to present a patient and revised payment policy. Still, Medicare maintains substantial limitations regarding rural geographic location of originating sites, and eligible telehealth services.<sup>4</sup> After the passage of BIPA, the American Telemedicine Association estimates that Medicare payments for telemedicine services rose from \$20,000 in the year 2000 to \$1.5 million in the year 2005.<sup>5</sup>

As noted in Chapter 1, the Centers for Medicare & Medicaid Services (CMS) define telemedicine as “professional services given to a patient through an *interactive* telecommunications system by a practitioner at a distant site.”<sup>6</sup> Because this definition includes the term “interactive,” reimbursement is limited to telemedicine activities that occur while the patient and practitioner are interacting. However, CMS demonstration

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<sup>1</sup> Pamela S. Whitten. *Telemedicine in Indiana Policy Report*, Purdue University. March 2006.

<sup>2</sup> Ibid.

<sup>3</sup> *Telemedicine Reimbursement Report*. The Center for Telemedicine Law. October 2003. Available at <http://www.hrsa.gov/telehealth/pubs/reimbursement.htm>.

<sup>4</sup> Ibid.

<sup>5</sup> Pamela Whitten, 2006.

<sup>6</sup> Medicare.gov, searchable glossary. Available at <http://www.medicare.gov/Glossary/search.asp?SelectAlphabet=T&Language=English#Content>. Accessed December 04, 2006.

projects in Alaska and Hawaii have been granted authority to submit for reimbursement for store and forward activities.<sup>7</sup>

CMS has unique reimbursement policies for the originating site and the distant site. The originating site is defined as “the location of an eligible Medicare beneficiary at the time the service being furnished via a telecommunications system occurs.”<sup>8</sup> Reimbursement to the originating site is the “lesser of 80 percent of the actual charge or the originating site facility fee of \$20.”<sup>9</sup> This amount is set by statute, but is updated annually according to the Medicare Economic Index.<sup>10</sup>

The distant site is defined as “the site where the physician or practitioner providing the professional service is located at the time the service is provided” and reimbursement is equal to the current fee schedule for the service provided.<sup>11</sup> Beneficiaries are eligible for Medicare services delivered via telemedicine only at originating sites (where the enrollee presents) located in a *rural* Health Professional Shortage Areas (HPSAs) or in counties in non-metropolitan statistical areas (MSAs).

Facilities eligible to receive reimbursement as the originating site include<sup>12</sup>:

- Office of physician or practitioner
- Hospital
- Critical access hospital
- Rural health clinic
- Federally qualified health center (FQHC)

The following services are eligible for reimbursement (excluding the demonstration projects):<sup>13</sup>

- Consultations
- Office or outpatient visits
- Individual psychotherapy
- Pharmacologic management
- Psychiatric diagnostic interview examination
- End state renal disease related services
- Individual medical nutrition therapy

Providers eligible for reimbursement include:<sup>14</sup>

- Physician
- Nurse practitioner

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<sup>7</sup> David Brantly, et al. *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, Feb 2004.

<sup>8</sup> CMS Internet Only Manual 100-02, *Medicare Benefit Policy Manual*, Chapter 15, Covered Medical and Other Health Services, Sections 270-275.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> CMS Internet Only Manual 100-02.

- Physician assistant
- Nurse midwife
- Clinical nurse specialist
- Clinical psychologist
- Clinical social worker
- Registered dietitian or nutrition professional

With the exception of demonstration projects, Medicare reimbursement for telemedicine services appears consistent between the states. However, because Medicare essentially authorizes reimbursement only in designated rural areas, policy favors more extensive coverage in rural states. The Medicare Benefit Policy Manual is included in the Appendix (Appendix B).

### **Medicaid**

Since its enactment in 1965, the Medicaid program has been the nation's major public health insurance program for low-income Americans. Medicaid is jointly financed by federal and state government and each state administers the program within broad federal guidelines. Each state may establish its own eligibility standards; determine the type, amount, duration, and scope of services; set the rate of payment for services; and administer its own program."<sup>15</sup>

However, state Medicaid programs must follow several mandatory requirements for federal matching funds to be received. For example, each state's Medicaid program is required to provide specific basic services to the categorically needy populations, such as: "inpatient hospital services, outpatient hospital services, prenatal care, vaccines for children, physician services, nursing facility services for persons aged 21 or older, family planning services and supplies, rural health clinic services, home health care for persons eligible for skilled-nursing services, laboratory and x-ray services, pediatric and family nurse practitioner services, nurse-midwife services, FQHC services, ambulatory services of an FQHC that would be available otherwise, and early periodic screening, diagnostic, and treatment services for children under age 21."<sup>16</sup>

CMS has not formally defined telemedicine for the Medicaid program and Medicaid law does not recognize telemedicine as a distinct service.<sup>17</sup> However, CMS does recognize that telemedicine has the potential to reduce Medicaid expenditures and has encouraged states to "create innovative payment methodologies for services that incorporate telemedicine services."<sup>18</sup> Thus, states are permitted, at their option, to reimburse for telemedicine activities.

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<sup>15</sup> *Telemedicine Reimbursement Report*.

<sup>16</sup> *Ibid.*

<sup>17</sup> CMS, Medicaid & Telemedicine, Overview. Available at [http://www.cms.hhs.gov/Telemedicine/01\\_Overview.asp#TopOfPage](http://www.cms.hhs.gov/Telemedicine/01_Overview.asp#TopOfPage) . Accessed August 10, 2006.

<sup>18</sup> Available at [http://www.cms.hhs.gov/Telemedicine/02\\_Considerations.asp#TopOfPage](http://www.cms.hhs.gov/Telemedicine/02_Considerations.asp#TopOfPage), Accessed December 14, 2006.

Since 2002, there have been several studies and surveys published that describe Medicaid reimbursement for telemedicine. The studies include: 2002 Survey of State Medicaid Directors,<sup>19</sup> 2003 Survey of State Medicaid Offices,<sup>20</sup> 2003 Telemedicine Reimbursement Report<sup>21</sup>, 2004 Innovation, Demand and Investment in Telehealth (US Department of Commerce)<sup>22</sup>, and 2006 State Medicaid and Private Payer Reimbursement for Telemedicine: An Overview.<sup>23</sup> Additionally, there are three national data sources that publish information about Medicaid reimbursement for telemedicine: CMS Medicaid Telemedicine “State Profiles”<sup>24</sup>, Association of Telehealth Providers – The State of Medicaid Reimbursement in the U.S.,<sup>25</sup> and National Conference of State Legislatures.<sup>26</sup> Unfortunately, these data are not updated regularly. In fact, the data on the CMS website only describes 17 of the 36 known Medicaid reimbursement policies.

Our research indicates 36 states, as of 2005, have Medicaid programs that have formally begun using telemedicine services and are currently reimbursing for some telemedicine activities. Of those 36 states, at least 20 have Medicaid reimbursement policies as a result of legislation (TIE and other sources). These states include: Arkansas, California, Colorado, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Minnesota, Montana, Nebraska, North Carolina, North Dakota, Oklahoma, South Dakota, Texas, Utah, and West Virginia (See Table 1.). However, due to the challenges involved with telemedicine reimbursement, these state Medicaid programs vary in terms of what and who are covered, which sites are reimbursed and whether the service is live or a store-and-forward consultation.<sup>27</sup> The following is a brief overview of a few state Medicaid programs.

### **State Medicaid Programs Reimbursing for Telemedicine**

In Arkansas, physician consultations using interactive video teleconferencing can be reimbursed. Although payments are only to physicians, Arkansas does reimburse facilities (community health centers) for certain services provided by qualified mental health professionals via telemedicine. In this instance, Arkansas does not reimburse the mental health professionals, as they are non-physicians, but instead

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<sup>19</sup> S Palsbo. “Medicaid payment for telerehabilitation.” *Arch Phys Med Rehabil* 2004, 85:1188-91.

<sup>20</sup> G. Gray. *Exploratory study of telemedicine Medicaid reimbursement status: participating and non-participating states and its impact on Idaho’s policy-making process* (in press).

<sup>21</sup> *Telemedicine Reimbursement Report*.

<sup>22</sup> David Brantly, et al. *Innovation, Demand and Investment in Telehealth*, US Department of Commerce, Office of Technology Policy, February 2004.

<sup>23</sup> Nancy A. Brown, “State Medicaid and private payer reimbursement for telemedicine: an overview.” *Journal of Telemedicine and Telecare*, 2006; 12 (Suppl. 2): S2:32-39.

<sup>24</sup> CMS, Medicaid & Telemedicine, State Profiles. Available at [http://www.cms.hhs.gov/Telemedicine/03\\_StateProfiles.asp](http://www.cms.hhs.gov/Telemedicine/03_StateProfiles.asp), Accessed August 10, 2006.

<sup>25</sup> Telemedicine and Telehealth Database, Association of Telehealth Providers. Available at <http://tie.telemed.org/professional/state.asp>, Accessed December 5, 2006.

<sup>26</sup> Telemedicine Legislation, National Conference of State Legislatures, September 2005. Available: <http://www.ncsl.org/programs/health/teleleg.htm>, Accessed December 11, 2006.

<sup>27</sup> Lise Youngblade, et al. *Telemedicine for CSHCN: A State-by-State Comparison of Medicaid Reimbursement Policies and Title V Activities*, July 2005. Institute for Child Health Policy, Univ. of FL.

reimburses the community mental health facilities where those professionals work.<sup>28</sup> Hospital outpatient departments and ambulatory surgical centers may be reimbursed for services that are, by definition “telemedicine,” but the state currently has no means by which to track payments.

The California Medicaid program reimburses for physician consultations (medical and mental health) using interactive video teleconferencing. In addition, any provider that can bill for traditional services provided face-to-face may bill for telemedicine services. Telemedicine is billed no differently than face-to-face at both the distant (hub) site and the originating (spoke) site are reimbursed. If provider is out-of-state, a valid license from the state of origin is required.

In Louisiana, physician consultations using interactive video teleconferencing are reimbursable through Medicaid; however, the Mental Health program will reimburse only live consultations (no store and forward). Tertiary care facilities do provide telemedicine services and bill as if face to face. Registered nurses and other allied health professionals, as well as physician assistants, are allowed to perform the service using telemedicine if they are authorized by a primary physician.

The Nebraska Medicaid program will reimburse most Medicaid services when using interactive video teleconferencing. These services are generally covered provided a comparable service is not available within a 30-mile radius of the patient’s home. Payments can be made to non-physicians, certified nurse practitioners, physician assistants, mental health providers, dentists, and ancillary services/therapists. The provider of service must comply with the licensure requirements of the state where the procedure is occurs.

To illustrate the Medicaid reimbursement policies throughout the United States are summarized and presented Table 1.

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<sup>28</sup> Youngblade, p.10.

**Table 1. State Medicaid Programs - Reimbursement for Telemedicine**

	State	Interactive	Store and Forward	Reimburse Hub site (consulting)	Reimburse Spoke site (originating)	Other
1.	Alabama					Pilot project to transmit vital signs from patient's homes to medical personnel.
2.	Alaska	X	X	X	X	
3.	Arizona	X	X	X	X	Non-emergency transportation to and from the spoke site
4.	Arkansas*	X		X	X	
5.	California*	X		X	X	Medical and mental health
6.	Colorado*	X	X			
7.	Georgia*	X		X	X	
8.	Hawaii	X	X			
9.	Illinois*	X	Limited	X	X	
10.	Indiana	X		X	X	
11.	Iowa*	X		X	X	
12.	Kansas*	X		X	No	
13.	Kentucky*	X				
14.	Louisiana*	X	No	X	X	
15.	Maine*	X				
16.	Michigan	X				Only in the upper peninsula, other regions to do not reimburse through Medicaid
17.	Minnesota*	X	X	X	X	
18.	Missouri	X	No			
19.	Montana*	X		X	X	
20.	Nebraska*	X	X	X	X	Available to patients who cannot access comparable service within 30 miles of their home
21.	Nevada	X				
22.	New York	X	X	No	No	
23.	North Carolina*	X	No	75%	25%	
24.	North Dakota*	X	No	X	Only if a medical service is provided	
25.	Oklahoma*	X	X	X	X	
26.	Oregon	X		X	X	
27.	South Carolina	X	No	X	X	
28.	South Dakota*	X	X limited to "near real-time" such as email, phone and fax.	X	X	
29.	Tennessee	X				
30.	Texas*	X	X (imaging services)	X	X	

31.	Utah*	X		X (mental health covered)	X (mental health excluded)	
32.	Virginia	X		X	X	
33.	Washington	X				
34.	West Virginia*	X		X	X	
35.	Wisconsin	X				
36.	Wyoming	X				

Medicaid reimbursement enacted by law or legislation.

Source: Office of Policy and Planning, University of Maryland School of Medicine, December, 2006

Note: An empty cell does not necessarily mean the item is not reimbursable, although that assumption is highly likely, it may also be that the published reports did not state one way or another if these items were eligible for reimbursement.

In summary, all of the 36 states that reimburse through their Medicaid programs cover interactive services except for Alabama, which has a pilot project. Ten states specifically provide for reimbursement using store and forward technology. Almost all states reimbursing specify reimbursing the distant site where professional services are provided; fewer specify reimbursing the originating site. States vary as to whether mental health services are covered. The remaining 14 states do not appear to have Medicaid reimbursement policies:

- 1) Connecticut
- 2) Delaware
- 3) Florida
- 4) Idaho
- 5) Maryland
- 6) Massachusetts
- 7) Mississippi
- 8) New Hampshire
- 9) New Jersey
- 10) New Mexico (Reimbursement program is tentative, based on a verbal agreement, but there have been no reimbursements made to date)<sup>29</sup>
- 11) Ohio
- 12) Pennsylvania
- 13) Rhode Island
- 14) Vermont

The report “Medical Assistance and Telehealth: An Evolving Partnership”<sup>30</sup> describes several strategies for gaining Medicaid reimbursement via telehealth. These include: encouraging the Medicaid agency to make an internal determination for payment, an executive order to Medicaid to reimburse for telemedicine services, legislation or regulation mandating payment for services, working with the Office of the Insurance Commissioner for a regulatory decree barring discrimination in payment for services delivered via telehealth technologies, and authorizing reimbursement on a program by program basis for SCHIP, waiver programs or Medicaid, as determined by each program through contracts with providers. The authors suggest an analysis of

<sup>29</sup> Brown, S2:32-39.

<sup>30</sup> Nina M Antoniotti et al. *Medicaid Handbook - Medical Assistance and Telehealth: An Evolving Partnership*. June 2006. Available at [www.americantelemed.org/news/policy\\_issues/2006\\_medicaid\\_handbook2.pdf](http://www.americantelemed.org/news/policy_issues/2006_medicaid_handbook2.pdf).

how previous amendments were made to Medicaid policy, Medicaid coverage of transportation costs and costs of treating the chronically ill to determine appropriate action.

### **Department of Veterans Affairs**

The Department of Veterans Affairs (VA), a closed medical system for veterans (as noted in chapters I and III), has been a leader in the use of telemedicine services for clinical care. The first recorded use of telemedicine in VA occurred in 1977, for a telemental health project in Nebraska. Twenty years later, the VA began its major systematic implementation of telemedicine in 1997. By 1999, the VA was performing 300,000 telemedicine service episodes per year.

There are over 32 different clinical specialties and home telehealth services for chronically ill and/or disease management. The telemedicine activities are constantly evolving and new activities are being reported to the national office. Services are organized as follows:

- A) Home Telehealth: programs exist in all 21 designated regions for the delivery of care, that provide home telehealth monitoring of chronically ill patients and those needing disease management (i.e. diabetes, chronic heart failure, chronic obstructive pulmonary disease, post traumatic stress disorder, depression, and spinal cord injury).
- B) General Telehealth: videoconferencing technologies with supportive peripheral devices between clinics and hospitals and other hospitals. Services include telemental health, teleradiology, teleendocrinology and telesurgery (specialist consultations).
- C) Store and Forward: primary care based program that assesses veterans with diabetes for retinopathy using teleretinal imaging that expedites referral for treatment and provides health information.

Of an estimated 25 million veterans, 5.5 million receive health services through the United States Department of Veterans Affairs. In Fiscal Year 2006, approximately 22,000 veterans were monitored through home telehealth services, and another 38,000 received general telehealth services, and over 17,000 received store and forward services (e.g., 7,500 received teleretinal screenings). It is important to note that these numbers represent the number of veterans served and not the number of telemedicine episodes per year.

According to Telehealth Program Analyst, Office of Care Coordination, Department of Veterans Affairs (VA), although the VA does not have definitive research, there is anecdotal evidence to date that suggests that telemedicine has increased access health care to the veterans.<sup>31</sup> The VA is about one year away from publishing studies that will most likely support that telemedicine has increased access. Past studies have shown that telemedicine can help with patient compliance, that patients find telemedicine more convenient, and that some activities increase efficiencies (i.e. teleretinal screenings usually take 30 minutes in the office, but through store and forward, a

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<sup>31</sup> John Peters, Telehealth Program Analyst, Office of Coordination of Care, VA, Personal communication: December 22, 2006.

nurse can review data form 100 patients a day, then schedule appointments with the ones who need to see the ophthalmologist).

### **Payers**

With over 68% of Americans insured through private or employer-sponsored health plans,<sup>32</sup> private payers are a substantial force in the health care market. Current data regarding private payer reimbursement policies are difficult to obtain. The results reported here were obtained from a 2003 survey conducted by the American Telemedicine Association and AMD Telemedicine<sup>33</sup> and from articles gathered through researching legislation.<sup>34</sup>

Because Medicare and Medicaid reimbursement for telemedicine has been limited, many private payers have been reluctant to reimburse telemedicine services at the same level as face-to-face services. The concerns expressed by private payers are similar to the public payers and included fear of duplication of services, concerns about quality of images, tort liability and stimulating inappropriate demand or fraud and abuse.<sup>35</sup>

Based upon the available data, private payers are reimbursing for telemedicine in 29 states, as displayed in Table 2. All of these states also reimburse for telemedicine through their Medicaid program. Eight of these states (California, Colorado, Georgia, Hawaii, Kentucky, Louisiana, Oklahoma, and Texas) have legislation prohibiting private insurance payers from excluding coverage of medical services provided by telehealth.<sup>36</sup> The following is a description of the legislation regarding telemedicine reimbursement for a sampling of these states.<sup>37</sup>

The **California** law (SB 1665) approved in 1996 prohibits insurers from requiring face-to-face contact between a clinician and patient for services appropriately provided through telemedicine, subject to the terms of the contract.

In **Colorado** (Chapter 300 of the Laws of Colorado 2001) the legislation limits the applicability of the mandate for coverage of telemedicine services to health plans insuring a person residing in a county with 150,000 or less residents.

**Georgia** law (HB291) states that every policy shall include payment for services provided through telemedicine.

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<sup>32</sup> Pamela Whitten and L. Buis. *Private Payer Reimbursement for Telemedicine Services in the United States*. Michigan State University. November 2006. Available at

<http://www.amricantelemed.org/news/Whitepapers/2006%20Private%20Payer%20Report.pdf>.

<sup>33</sup> AMD Telemedicine. Private payer reimbursement information directory. Available at [http://www.amdtelemedicine.com/private\\_payer/index.cfm](http://www.amdtelemedicine.com/private_payer/index.cfm).

<sup>34</sup> Brown, pg. S2:32-39.

<sup>35</sup> Kirsten R. Smolensky. "Telemedicine Reimbursement: Raising the Iron Triangle to a New Plateau." *Health Matrix: Journal of Law Medicine* 2003, 13(2): 371-413.

<sup>36</sup> Available at [www.amdtelemedicine.com](http://www.amdtelemedicine.com).

<sup>37</sup> Note: State mandates even differ in how they require coverage. While some are direct in requiring coverage, others are indirect prohibiting discrimination in coverage by how the service is provided. Others include qualifiers such as provider distance or county size.

Approved in 2000, **Kentucky** law (HB177) prohibits Medicaid and private insurers from excluding coverage for services provided through telemedicine.

Approved in 1995, **Louisiana** law (SB 773) states that a health care provider participating at the originating terminus of a telemedicine transmission shall be reimbursed at a rate of not less than 75% of the amount of reimbursement for an office visit. The bill prohibits provisions in health and accident policies that discriminate against services provided by telemedicine.

Approved in 1997, **Oklahoma** law (SB 48) provides that health care plans cannot deny coverage for services provided through audio, video, or data communications. This allows compensation for patient consultations and diagnoses and the transfer of medical information through telecommunication technology. The law excludes telephone and fax communications from the term “telemedicine.”

Approved in 1997, **Texas** law (HB 2033) prohibits certain health benefit plans from excluding a medical service solely because the service is provided through telemedicine. Telemedicine services may be subject to deductible, copayment or coinsurance requirements not to exceed requirement for the same face-to-face services.

The majority of the bills state that no health care service plan may require face to face or person to person contact for the medical service to be considered reimbursable; however most bills also exclude standard telephone, facsimile transmission and unsecured email from reimbursable telemedicine activities. See Table below. Copies of the state statutes are included as Appendix D.

**Table 2. States with Private Payer reimbursement for telemedicine**

	State	Private Payer
1	Alaska	BCBS
2	Arizona	BCBS, Mailhandlers, FHP, Aetna, Cigna, United Partners, Pacificare, Premier Healthcare, Health Net Intergroup, First Health Group
3	Arkansas	Aetna
4	California*	All
5	Colorado*	Unknown
6	Georgia*	59 payers
7	Hawaii*	Unknown
8	Indiana	Anthem, Commercial, Sagamore
9	Kansas	BCBS
10	Kentucky*	All
11	Louisiana*	All
12	Maine	Guardian, NYL, Aetna, Maine Health Plan, Cigna, BCBS
13	Michigan	Upper Peninsula Health Plan, BCBS, United Health Care, Preferred Provider
14	Minnesota	Medica, Preferred One, BCBS
15	Missouri	HealthNet, Alliance BCBS, FirstHealth, United Health Care, Health Link
16	Montana	BCBS, Cigna
17	New York	Blue Shield of NE NY
18	North Carolina	Medcost, Tricare, HealthChoice, BCBC
19	North Dakota	BCBS
20	Oklahoma*	All
21	Oregon	Lifewise, Regence BCBS, Providence Health System, Greater Oregon Behavioral Health, Oregon Health Plan Fee For Service
22	South Dakota	Avera Health Plans, Cigna, Dakota Care, Wellmark BCBS, Sioux Valley Health Plan

23	Tennessee	Cariten Pref, Cigna, Dvocare, Tricare, BCBS, Blucare
24	Texas*	All
25	Utah	United Health Care
26	Virginia	Trigon BCBS
27	Washington	Champ, Cigna, Mutual of Omaha, Regence BCBS, Premera Blue Cross, Tricare, Basic Health Plan
28	West Virginia	BCBS
29	Wisconsin	Wausau, Wisconsin Physician Services, WEA Insurance Trust, Group Health

\*Reimbursement required by enacted law.

Source: Private Payer Reimbursement Information Directory:

[http://www.amdtelemedicine.com/private\\_payer/searchform\\_private.cfm](http://www.amdtelemedicine.com/private_payer/searchform_private.cfm)

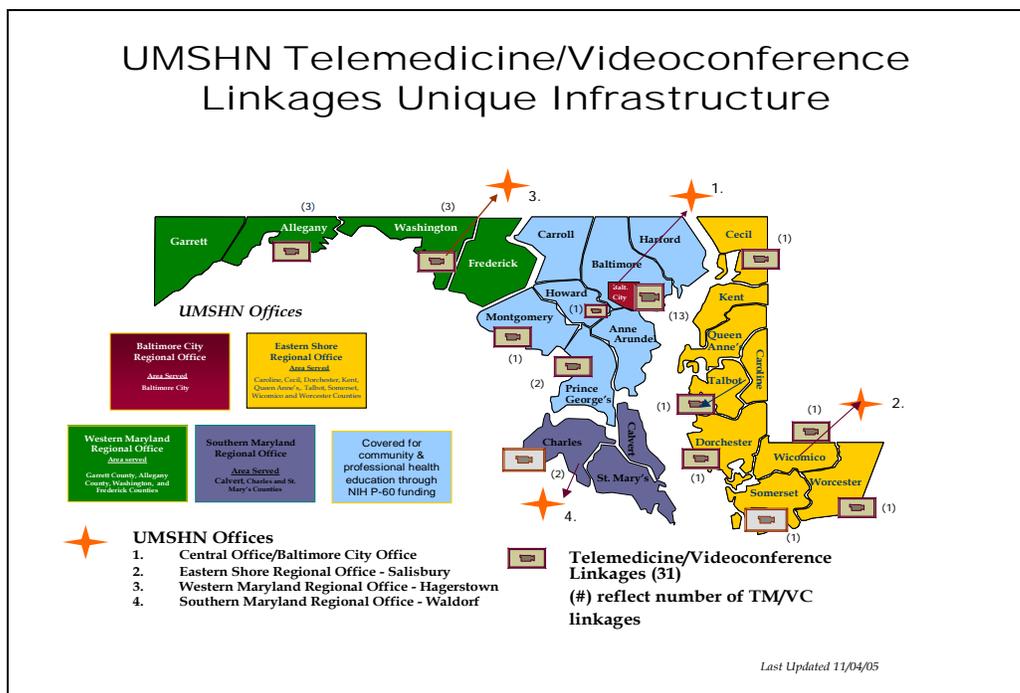
### III. Reimbursement for Telemedicine Services in Maryland

This section provides an overview of the current status of telemedicine/telehealth in Maryland: telemedicine programs, reimbursement for services by Medicare, Medicaid and private payers, utilization of telemedicine services and licensure requirements for practitioners who provide telemedicine services in Maryland and outside the state. The information provided here is based on national surveys, telemedicine data exchanges, and personal interviews conducted with key informants in the state including providers of clinical telemedicine services, health insurance carriers, and state officials at the Maryland Department of Health and Mental Hygiene.

#### Telemedicine Programs in Maryland

The use of telemedicine for clinical services in place of a direct practitioner/patient encounter or for consultation usually involves a center where specialists are located (the hub or distant site) and designated sites in outlying rural areas or in underserved areas of the state (the spokes or originating site) near where the patient resides.

Surveys were sent to 25 of the statewide telemedicine sites of the University of Maryland Statewide Health Network (UMSHN) and to selected physicians in departments where telemedicine is likely to be employed for delivering clinical care by faculty in the University of Maryland School of Medicine and the University of Maryland Medical System (UMMS). Interviews were also conducted with the administrator for the Mid-Atlantic Association of Community Health Centers, where the University of Maryland School of Medicine, through its formal telemedicine partnership through the UMSHN, has provided telemedicine equipment and training.



Key informants from these organizations were asked to respond to a brief questionnaire (by telephone, in person, or via email). Respondents were asked to report whether they were offering clinical telemedicine or telehealth services, the type of service being offered, whether the service was being billed to a third party payer and what payers were being billed. Respondents were also asked about whether lack of insurance coverage (i.e. reimbursement) was an issue in the delivery of services via telemedicine and perceived barriers to reimbursement (see interview schedule in Appendix E).

In general, the results of the survey indicate that two academic medical centers use telemedicine to offer clinical services in Maryland. Additional sources for locating telemedicine programs in the state were also examined, including the Telemedicine Information Exchange (TIE), the Association of Telemedicine Service Providers (ATSP) and the 2004 report of the Telemedicine Research Center (TRC). The TIE lists only two programs in Maryland: the Maryland Brain Attack Center at the University of Maryland Medical Center and the Global Access Program at Johns Hopkins Medicine.<sup>1</sup> Although the ATSP has a membership of 140 individuals and seven organizations, a representative from the ATSP confirmed that there are no organizational members and only two individual members from Maryland, as noted above (telephone interview conducted December 13, 2006). The TRC report, in collaboration with the TIE (which reports results of an online survey of telemedicine networks) confirms this information as well.<sup>2</sup> It should be noted that while these national reports and associations only report two programs in Maryland, other medical departments and associated offices of these two medical centers are employing telemedicine for clinical care although they have not registered with the national association of providers of telemedicine. Some of this telemedicine activity may be supported by specific grants.

All of the responses to the University of Maryland School of Medicine (UMSOM) survey were received from the University of Maryland Medical System (UMMS) or the University of Maryland Statewide Health Network (UMSHN) and its affiliates. Three responses were received from community health centers, four from clinical departments, and one from a community hospital. Of the eight respondents to the survey, more than half (n=5) were offering clinical telemedicine services. However, none of the respondents were billing for these services. Examples of the types of clinical services provided included stroke assessment case conferences with child psychiatrists, direct clinical care for mental health in selected school systems in the state. The Maryland Brain Attack Center has an innovative pilot study on the use of telemedicine for accelerated pre-hospital evaluation of stroke to reduce time to treatment for better patient outcome.

Five providers said they considered lack of insurance coverage/reimbursement for clinical telemedicine services to be a problem; however, providers differed as to the nature of the problem. In general, providers agreed on a lack of understanding about the use of telemedicine services among both insurers and providers. Some felt

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<sup>1</sup> Available at <http://tie.telemed.org/programs-t2/showprogram-t2.asp?item=2642>.

<sup>2</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity. Civic Research Institute, Kingston, NJ, 2004.

providers were unaware of how to code billing for telemedicine services, others felt the billing rates for these services would be too low. Still, others felt that insurers would resist billing for other than face-to-face encounters because they feared an escalation of their costs. Several suggested the need for better outcome measurement tools and the need to establish consensus among providers and insurers on the economic value of telemedicine/telehealth services.

In addition to clinical services provided via telemedicine, the University of Maryland Statewide Health Network (UMSHN), in collaboration with the various clinical departments, offers ongoing continuing medical education (CME) courses for physicians and other health care professionals using its telehealth/videoconferencing linkages throughout the state. The continuing education programs include surgery grand rounds, tumor boards, and case conferences on disease management and prevention as well as lectures on specific diseases as requested by community health centers (CHCs) and community hospitals in the state.

Providing access to education on advances in prevention, current guidelines for treatment, disease management and patient care, serves an important role in keeping providers of underserved patients abreast of advances in a convenient way while not having to take off work to travel to a University for educational credits. The 2006 CME series included the following programs: Smoking Cessation in May (2006); Chronic Kidney Disease in June (2006); Cardiovascular Disease - Management of Heart Failure in October (2006); New Therapies for the Management of Diabetes in January (2007) and a program on Pediatric Obesity and Diabetes is planned for February (2007). Additional programs are being planned for Spring 2007 on Mental Health and Health Disparities. Community Health Center physicians and other health care professionals - nurse practitioners, physician assistants, pharmacists, nurses and dentists at Total Health Care (THC); Greater Baden Medical Services, Inc.; Park West Health System; and South Baltimore Family Health Centers have participated to date, as well as physicians and other clinical staff at University Care at Edmondson Village; and physicians in Southern Maryland meeting at the UMSHN regional office in Waldorf.

According to Miguel McInnis, MPH, Chief Executive Office (CEO) of the Regional Primary Care Association: "In partnership with the UMSHN, the Mid-Atlantic Association of Community Health Centers now has the ability to develop telemedicine clinical education training centers throughout the region which provide clinicians in rural and underserved areas the ability to receive access to critical training remotely and improve the quality of care to patients who are economically disadvantaged, uninsured and underinsured."<sup>3</sup> The CME program of UMSHN is supported by the Maryland Cigarette Restitution Fund Program. Topics for the series were solicited from the community health centers (CHCs).

Also, the Psychiatry department at the University of Maryland School of Medicine has successfully piloted educational programming to the Worcester County mental health

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<sup>3</sup> Center for Health Disparities, *Partners*, Volume 1, Number 7, December 2006.

center staff and has with Hopkins psychiatry department initiated best practice conferences with seven sites across the state.<sup>4</sup>

A number of attempts were made to reach a representative of Johns Hopkins Medicine; however, information was obtained from the Johns Hopkins International website. While Johns Hopkins has developed an extensive network for consultation with its specialists, most of the consultations are either in other states or outside of the United States according to Alexander Nason, PhD (Johns Hopkins International Senior Manager of Business Development and Chair of the newly formed Committee on Telemedicine at Johns Hopkins Medicine).<sup>5</sup> The Committee on Telemedicine is designated to coordinate the many growing telemedicine programs at Johns Hopkins Medicine, including the Johns Hopkins Global Access Lecture Series, which allows overseas physicians to participate in live presentations by Hopkins specialists. The Emergency Access program at Johns Hopkins is working with the International SOS to provide air-to-ground medical consultations. Johns Hopkins also collaborates with Medical Missions for Children, a non-profit group that peer reviews complex medical cases in developing nations.

Locally, Hopkins works with the Maryland Department of Corrections to provide some clinical services remotely to prisoners in the state system. The Wilmer Eye Institute also has a project that allows community physicians to digitally transmit retinal images to specialists for evaluation. Other pioneering projects use robotics with telemedicine technology for post-operative evaluation of patients and for monitoring of surgical intensive care patients.<sup>6</sup>

Dr. Nason cited connecting physicians to technology and program opportunities as one of the challenges to advancing telemedicine. In addition, he added that funding is also an issue and most of the funding for seed grant projects has been targeted to rural areas limiting the efforts to put together telemedicine projects for Baltimore City, such as a two-way video-based health screening.<sup>7</sup>

Activities of the Department of Veterans Affairs (VA) in Maryland should also be noted. As stated earlier, the VA has been a national leader in the use of telemedicine services for clinical care and the management of chronic disease (see Chapter II). In 1993, the Baltimore VA Medical Center (VAMC) implemented through faculty of the University of Maryland School of Medicine, the first completely film-less radiology department in the United States which uses digital radiology systems (PACS) for teleradiology. Dermatologists at the Baltimore VAMC have used teledermatology and store and forward imaging to assess skin conditions<sup>8</sup> and psychiatrists have assessed the use of telepsychiatry to treat depression.<sup>9</sup>

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<sup>4</sup> Rob White, *Telepsychiatry White Paper*, University of Maryland School of Medicine, January 17, 2007.

<sup>5</sup> Available at <http://www.jhintl.net/JHI/English/Doctors/Publications/IPU-Nov02-Videoconferencing>.

<sup>6</sup> Available at <http://www.hopkinsmedicine.org/mediaII/enews/picture.html>.

<sup>7</sup> Available at <http://www.hopkinsmedicine.org/mediaII/enews/picture.html>.

<sup>8</sup> VA, *HSR&D Management Brief*, Nov. 1999, Available at [http://www1.va.gov/resdev/resources/pubs/docs/mb12\\_telemed.pdf](http://www1.va.gov/resdev/resources/pubs/docs/mb12_telemed.pdf).

<sup>9</sup> Paul E Ruskin, et al, "Treatment Outcomes in Depression: Comparison of Remote Treatment Through Telepsychiatry to In-Person Treatment." *American Journal of Psychiatry*. 161(8) (2004): p 1471.

## **Utilization of Clinical Telemedicine Services**

One method of assessing clinical telemedicine activity in Maryland would be to look at billable services. The Maryland Medical Care Database of the Maryland Health Care Commission (MHCC) is based on claims data, indicating activity for which providers are seeking reimbursement. The MHCC database shows little evidence of claims filed through private and public payers for services provided through telemedicine in the state. No claims with a modifier “TM or tm” were reported for 2004 and only two claims coded in this way were filed by private payers in 2005-2006 (as compiled). One claim was filed by Optimum Choice and one by CareFirst. (See payer section).<sup>10</sup> While Optimum Choice, a subsidiary of United Healthcare does cover telemedicine, CareFirst of Maryland does not. Results may indicate miscoding or lack of understanding of payment policy.

The Telemedicine Research Center (TRC) is the only central source of information on volume of telemedicine services in the United States. The TRC surveyed 88 organizations offering services by way of telemedicine connections in 2003. Findings in the 2004 report of the Telemedicine Research Center indicate 48,194 teleconsultations, excluding radiology, took place in 2003 in 46 states.<sup>11</sup> The two Maryland networks, identified previously as the Maryland Brain Attack Center and the Johns Hopkins Global Access Lectures, responded to this survey but did not respond to questions concerning volume of activity. While the report indicates the number of teleconsultations is growing, consultations via this medium still represent a small amount of all consultations.

Among the 88 telemedicine networks responding to the TRC survey, the most common clinical specialties were mental health, cardiology, pediatrics, dermatology, neurology, and orthopedics.<sup>12</sup> The five states with the most telemedicine programs and the greatest number of sites were California, Florida, Hawaii, New York and Texas. California, Hawaii, Kansas, New York, Tennessee, Texas and Florida had the greatest amount of reported activity.<sup>13</sup>

## **Payers**

As noted earlier, Medicare reimburses for certain interactive, “live” clinical services and consultations provided in designated *rural* Health Professional Shortage Areas (HPSA) and in counties in non-metropolitan services areas (non-MSAs). The originating sites (spokes) in Maryland eligible for reimbursement are: the office of a practitioner, a hospital, a rural health clinic and a federally qualified health center (FQHC). Reimbursable services include consultations (including radiology), outpatient visits, individual psychotherapy, pharmacologic management, psychiatric diagnostic interview

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<sup>10</sup> Maryland Health Care Commission, Email communication: January 2, 2007.

<sup>11</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity. Civic Research Institute, Kingston, NJ, 2004.

<sup>12</sup> Ibid. pg. 9.

<sup>13</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity, pg. 8.

examination, end-stage renal disease related services, and individual medical nutrition therapy.<sup>14</sup>

Applying these reimbursement requirements to Maryland, Medicare beneficiaries are eligible for telemedicine services only if they present from a rural Health Professional Shortage Area (HPSA) or a non-metropolitan service area (MSA) county as the originating (spoke) site for service. According to the Director of the Federal Office for the Advancement of Telehealth, there are seven designated counties that are non-MSAs in Maryland that receive Medicare reimbursement. Five counties are on the Eastern Shore (Caroline, Dorchester, Kent, Talbot and Worcester), one is in Southern Maryland (St. Mary's), and one is in Western Maryland (Garrett).<sup>15</sup> Some of these counties are also rural HPSAs. There are other federally designated HPSAs located through out the state, even in Baltimore City. However, because they are not designated "rural", they do not qualify for reimbursement. To further complicate the situation, Medicare has ruled that a beneficiary can be reimbursed if the beneficiary resides in the qualifying rural area even if the originating site, where the beneficiary presents for service, is outside the area. (See Appendix F for HRSA explanation of reimbursement under Medicare in rural areas).<sup>16</sup>

While reimbursement by Medicare is usually a driver for reimbursement in other payer markets, the narrow geographic focus of Medicare reimbursement for telemedicine services does not encourage the policies of reimbursement in other markets.

Further while the distant site, where the specialist is located, receives reimbursement equal to what Medicare would have paid for a face to face encounter, the originating site, where the patient is, only receives the lesser of 80% of the payment for the services or \$20 as a facility fee, leaving little incentive for a local provider to refer. It should be noted, however, that changes in Medicare reimbursement policy in 2000 make it less burdensome for a local practitioner to refer a patient for telemedicine. Unless medically necessary, a non-medical staff person may be present with the patient at the originating site so the cost of services, in terms of medical manpower required, is minimal.

It is understandable that without a core base of Medicare eligible patients, other providers have been reluctant to invest in telemedicine equipment and other payers have declined to reimburse for these services. Information from Medicaid and several large commercial insurers in Maryland confirms policies of non-reimbursement for clinical medical services provided via telemedicine that was reported by practitioners above. As noted earlier in Chapter I, the federal Medicaid program does not require or prohibit reimbursement for services delivered by means of telemedicine and leaves the decision on reimbursement to the states. The Maryland Medicaid program does not have a policy of reimbursement for telemedicine in its fee for service population or

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<sup>14</sup> CMS, Medicare Policy Manual #100-02, Chapter 15, Covered Medical and Other Health Services, Available at <http://www.cms.hhs.gov/Manuals/IOM/list.asp>

<sup>15</sup> Dena Puskin, Sc. D., Director of the Office for the Advancement of Telehealth, Health Research and Services Administration (HRSA), US Department of Health and Human Services, Telephone interview and e-mail communication: December 20, 2006.

<sup>16</sup> Available at <http://www.hrsa.gov/telehealth/pubs/reimb.htm>.

capitulated MCO population.<sup>17</sup> At least thirty-six states do reimburse for some telemedicine or telehealth services through Medicaid programs (See Chapter II for a complete discussion of states that reimburse for telemedicine under their Medicaid program and types of covered services).

Studies by national organizations indicate several states mandate coverage for telemedicine services in the private market (see Chapter II) and, furthermore, that even when coverage is not mandated, some carriers provide coverage or, at least, do not exclude coverage for telemedicine services.<sup>18</sup> Two major carriers in Maryland were interviewed. CareFirst does not cover services delivered via telemedicine in the private payer market. CareFirst also does not cover transportation unless medically necessary such as ambulance transport.<sup>19</sup> A spokesperson for Optimum Choice and Mid-Atlantic Medical Services, LLC (MAMSI), subsidiaries of UnitedHealth Group, indicated United Healthcare covers telemedicine in accordance with Medicare policy as established by CMS<sup>20</sup>.

Given that the Maryland Health Care Commission's medical care database did not show any other claims activity among private payers for telemedicine, as noted above, we did not conduct interviews with other private payers in Maryland.

### **Maryland Licensure Requirements for Practitioners who use Telemedicine to Provide Clinical Care or Consultations**

The issue of lack of uniformity of state licensure laws plays a role in limiting the national market for telemedicine and is thought to be a factor in slowing the adoption of telemedicine technologies.<sup>21</sup> Ironically, it is easier for a U.S. physician to practice telemedicine in some foreign countries where there are few regulatory restrictions than in the United States where each state has its own licensure requirements.

In general, physicians are subject to licensure laws in the state where they practice medicine. Licensure laws are designed to protect the citizens of the state. In the case of telemedicine, the situation may arise where practitioners who are licensed in their home state where their practice is located, care for patients in another state. Therefore, they are required to be licensed to practice medicine in the patient's state as well. The issue of state licensure has become even more complicated with the use of the Internet to give medical advice, especially when the advice is given for a fee. The Center for Telemedicine Law (CTL) surveyed the 50 states to identify laws, policies, and practices related to licensure. According to the CTL survey, 33 states require a license to practice telehealth and three other states have regulations. Twenty-four states require full licensure for out-of-state physicians who practice telemedicine while seven have a special purpose license for those who consult on an irregular basis. Maryland is one of

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<sup>17</sup> Susan Steinberg, Acting Deputy Secretary for Health Care Financing, Maryland Department of Health and Mental Hygiene, Personal Interview: December 18, 2006.

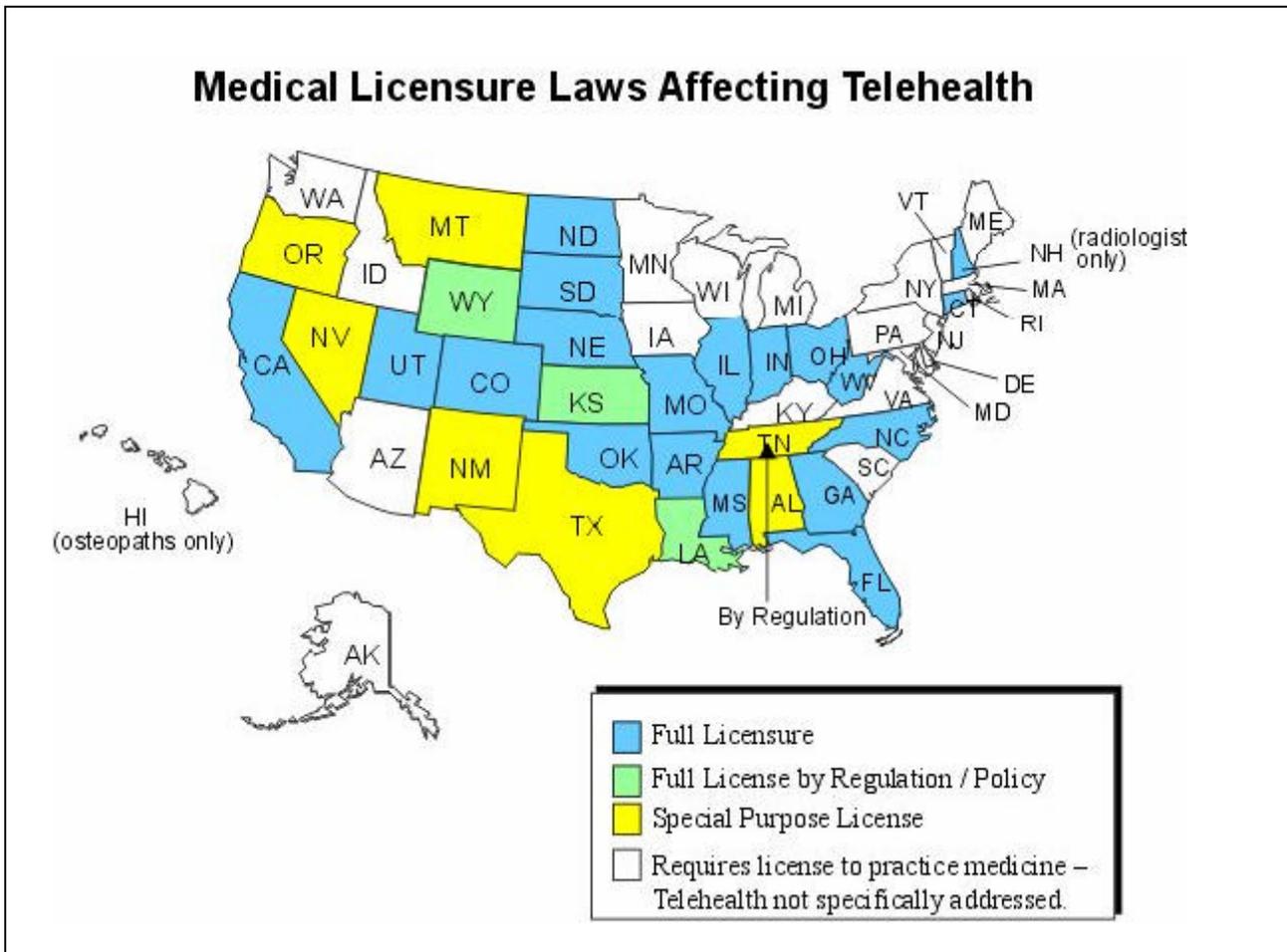
<sup>18</sup> HRSA, Center for Telemedicine Law, 2003.

<sup>19</sup> Patti Ciotti, Coordinator of Legislative Affairs, Carefirst Blue Cross Blue Shield, Personal interview: December 12, 2006.

<sup>20</sup> Beth Sammis, PhD., United Healthcare, Governmental Affairs, Mid-Atlantic Region, Personal Interview: January 3, 2007.

<sup>21</sup> David Brantley, K Laney-Cummings, R. Spivackl. *Innovation, Demand and Investment in Telehealth*. US Department of Commerce. February 2004.

17 states that does not have specific laws regarding telehealth or telemedicine. This means that physicians practicing telehealth or telemedicine are treated exactly the same as physicians with practices in state, therefore, all licensure requirements must be met and a license to practice medicine issued.<sup>22</sup> It is interesting to note that many of the states that have provisions for special purpose licensure are located west of the Mississippi River where states are larger and specialists may be at a greater distance (See Appendix G for a summary of state telemedicine licensure provisions<sup>23</sup>).



As noted above, Maryland has no special provisions for out-of state physicians wanting to practice telemedicine or telehealth in the State. Conversely, Maryland physicians wishing to practice telemedicine elsewhere must comply with relevant laws and regulations of the state where the patient being treated is located. According to Karen Wolfe, Policy Analyst at the Maryland Board of Physicians, the Board will issue new regulations in early January 2007 to clarify its position with regard to medical advice

<sup>22</sup> Brantley, February 2004.

<sup>23</sup> Ibid.

given via websites for compensation. The regulations will reiterate the need for a Maryland license.<sup>24</sup>

Maryland law does not require an out-of-state physician to have a Maryland license to consult with a Maryland physician if the Maryland physician is actually treating the patient [Health Occupations 14-302(2)]. Also, a physician who resides in another state or jurisdiction adjoining Maryland whose practice extends into this state but who does not have an office in this state does not need a license if the same privileges are extended to physicians of Maryland by the adjoining state or jurisdiction [Health Occupations 14-302(4)]. In practice, this means physicians in the District of Columbia do not need a Maryland license to practice in Maryland. There is also an exception from full Maryland licensure requirement for an “eminent physician” from outside the state. This usually refers to foreign physicians, according to Karen Wolfe. Some standards still apply (Health Occupations 14-319).<sup>25</sup>

There has been a movement toward greater uniformity in examination requirements for physicians in recent years. Physicians are licensed by a national examination and efforts are underway to promote less restrictive rules by the Federation of State Licensure Boards. Congress has also expressed interest in the topic. States differ in the number of failures of the licensure exam permitted, the exceptions process and the time allowed for completion of requirements. Also, credentialing is required for licensure in many states including Maryland which entails providing documentation of fulfillment of educational requirements on a state by state basis.

Other Maryland health professions who are eligible to receive reimbursement for telemedicine services under Medicare do not have special provisions in their licensure statute concerning telemedicine. Registered nurses and licensed practical nurses may be licensed through an endorsement process to practice in other states though an interstate compact among states that agree to similar licensing requirements. However, advanced practice nurses (nurse practitioners, nurse midwives) who are the only nurses eligible for Medicare reimbursement for telemedicine services must be certified by the state of Maryland to practice (Health Occupations 8-301d).<sup>26</sup> The Boards of Social Work<sup>27</sup>, Pharmacy<sup>28</sup>, and Dental Examiners<sup>29</sup> indicated their statutes did not refer to telemedicine or telehealth services.

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<sup>24</sup> Karen Wolfe, Maryland Board of Physicians, Personal communication and verbal interview: December 13, 2006.

<sup>25</sup> Ibid.

<sup>26</sup> Available at <http://www.mbon.org>.

<sup>27</sup> Gloria Hammel, Staff Social Worker, Board of Social Work Examiners, Personal communication: January 5, 2007.

<sup>28</sup> Shirley A. Costley, Licensing Program Manager, Board of Pharmacy, Communication by e-mail, January 5, 2007.

<sup>29</sup> Murray Sherman, Legal Assistant, Maryland Board of Dental Examiners, Personal communication: January 5, 2007.

#### IV. Telemedicine's Potential to Improve Health Care Access in Maryland

The advancement in telecommunications technology provides innovative methods of delivering healthcare. Telemedicine can successfully assist in providing medical services to Maryland's residents in underserved regions.

##### Maryland's Underserved Regions

Maryland is a mid-Atlantic state comprised of 23 counties and Baltimore City with a total land area of 9,774 square miles. According to the 2000 United States Census, the population ranges from nearly 900,000 in Montgomery County, to approximately 650,000 in Baltimore City, to 30,000 in more rural counties throughout the State. Maryland is 86% urban and 14% rural.<sup>1</sup> In 2000, the racial distribution of the State was 64% white, 27.9% African American, and the remainder Asian, Hispanic, and Native American. More recent projections (2005 estimated census) estimate the non-Caucasian population at close to 40%. Baltimore, the largest metropolitan area in the State, has a population that is 64% African American and has a poverty rate of approximately 22.9%.<sup>2</sup>

For many Americans, lack of insurance is a major barrier to health care access on a routine basis. *Care Without Coverage: Too Little, Too Late*, a 2002 report from the Institute of Medicine<sup>3</sup>, found that millions of working Americans would live longer and better if they obtained health insurance. Nearly 14.6% or 41.2 million people of the total US population of 282 million people lacked health coverage for the year 2000. In Maryland from 1996-2001, four areas exceeded a cumulative 15% health care non-coverage rate: Baltimore City (17.3%), Caroline County (20.9%), Somerset County (19.4%), and Garrett County (23.7%). Nine other counties, eight of which were either in Western Maryland or in the Eastern Shore region, had a health care non-coverage rate exceeding 10%. Reimbursement for telemedicine services by private payers and Medicaid will not directly benefit the uninsured population. However, for those uninsured in remote areas of the state who do have to pay for care out-of-pocket, the ability to access services via telemedicine might at least result in less lost productivity in terms of absence from work, travel time and transportation costs. There may also be some potential for expanding services to the uninsured through community health centers, which are resources for care, by using telemedicine to access specialists or consultants.

Telemedicine may also be a vehicle for providing access where a shortage of physicians and other practitioners exists. The United States Department of Health and Human Service's (DHHS) Health Research and Services Administration (HRSA) measures the availability of health care professionals overall and specifically primary care providers, mental health providers, and dentists by census tract. HRSA designates

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<sup>1</sup> US Census Bureau 2000.

<sup>2</sup> Ibid.

<sup>3</sup> Institute of Medicine, 2002.

health professional shortage areas (HPSAs) which can include entire counties or specific census tracts within a county. According to the HRSA website, there are HPSAs or shortage areas in 13 counties or parts of counties in Maryland and in areas of Baltimore City. Entire counties that are designated HPSAs are Calvert, Garrett, Kent, and St. Mary's counties.

It is important to note that for the purpose of reimbursement for telemedicine services, the Centers for Medicare and Medicaid Services (CMS) distinguishes between rural and urban HPSAs reimbursing only those HPSAs in designated rural areas and reimbursing non-MSAs. Current Medicare policies for telemedicine do not focus on practitioner manpower shortages and, instead, rely on rural designations as a proxy for lack of access. This results in some rural counties being allowed reimbursement for telemedicine under Medicare that are not designated shortage areas. The policy also downplays access issues experienced by urban uninsured populations. (See Chapters II and III)

The availability of primary care services has been shown to lead to greater continuity of care and earlier detection and prevention of disease. HRSA has designated several counties or census tracts within counties in Maryland as Health Professional Shortage Areas (HPSAs) for primary care. The criteria for (HPSA) designation includes having a shortage of primary medical care, special population groups or a shortage of medical or other public facilities such as community health centers.<sup>4</sup> Ten counties or parts of counties in Maryland are designated federal primary care HPSAs. Nine of the ten counties with primary care HPSA status are in Western Maryland (Allegany and Garrett counties) or on the Eastern Shore (Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, and Worcester counties), and one (Calvert county) is located in Southern Maryland. (See Appendix H for HPSA designations)

In addition to HPSAs there are federal designations for Medically Underserved Areas (MUA) or Populations (MUP) with inadequate access to primary health care services using several factors in addition to the availability of health care providers. These include infant mortality rates, poverty rates, percentages of population aged 65 or over, and the ratio of primary care physicians per 1,000 population for the area examined. Seven counties in Maryland are designated as federal MUA/MUP (five are located on the Eastern Shore in Caroline, Dorchester, Kent, Somerset, and Worcester counties; one is in Western Maryland in Garrett county; and one is in Southern Maryland in Calvert county).

While a shortage of physicians and practitioners in remote areas has been an obstacle to access in the past, the advancement of telecommunication technology makes use of telemedicine to improve access more feasible in the future. Currently, the Maryland Rural Broadband Cooperative is being established in order to offer broadband service to the Eastern Shore, Southern Maryland, and Western Maryland.<sup>5</sup> The implementation

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<sup>4</sup> Available at <http://bhpr.hrsa.gov/shortage/>.

<sup>5</sup> Rural Maryland Council Winter 2006 Newsletter, p 2.

of these infrastructure improvements will technologically enable Maryland's rural regions to efficiently integrate telemedicine services.

### **Efficacy of Telemedicine to Improve Cost, Quality and Access**

Current research on the efficacy of telemedicine services is mixed and varies with the application of the technology. The use of telemedicine to deliver health care services has the potential to result in "lower costs, particularly if telemedicine technology is used for an extended period of time, likely improves or maintains quality, and increases access."<sup>6</sup> This section will review the effect of various telemedicine applications on the cost, quality and access to healthcare.

In 2004, it was found that the two most commonly reported telemedicine clinical applications were management of patient condition and diagnostic exam interpretation.<sup>7</sup> Some of the most common clinical services include mental health, radiology, pediatrics and dermatology.<sup>8</sup>

### **Cost**

An important determinant to the implementation of telemedicine services is cost. The correct determination of the costs and benefits of telemedicine can be challenging and, as a result, there is some disagreement regarding the evidence for cost-effectiveness of telemedicine.<sup>9</sup> Some drawbacks of existing studies include small sample size, restricted geographic location, poor methodological design such as lack of a control group and restricted practice area. Also, most studies of cost effectiveness fail to take into account externalities such as transportation costs and loss of productivity and economies of scale. In 2001, an evidence review conducted by AETNA for AHRQ concluded there was not enough evidence to support reimbursement for telemedicine<sup>10</sup>. Since then, more definitive studies have been published. There is some convincing evidence that teleradiology is cost effective.<sup>11</sup> Studies of teledermatology show while the fixed costs were higher than for a conventional dermatology consultation, as the equipment costs go down with use, the cost effectiveness increases.<sup>12</sup>

Some studies and various on-going clinical telemedicine programs have reported on telemedicine's potential for cost-effectiveness. For example, a recent study conducted by the University of Maryland School of Medicine, found that telepsychiatry consultations had "comparable outcomes and equivalent levels of patient adherence,

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<sup>6</sup> Kirsten Rabe Smolensky. "Telemedicine Reimbursement: Raising the Iron Triangle to a New Plateau." *Health Matrix: Journal of Law Medicine* 2003, 13(2): 371-413.

<sup>7</sup> *2004 TRC Report*, p 19.

<sup>8</sup> *Ibid.* p 20.

<sup>9</sup> Smolensky, p 386.

<sup>10</sup> David Brantley, K Laney-Cummings, R. Spivackl. *Innovation, Demand and Investment in Telehealth*. US Department of Commerce. February 2004.

<sup>11</sup> *Ibid.*

<sup>12</sup> *Ibid.*

patient satisfaction, and health care cost” to in-person treatment.<sup>13</sup> Other studies have concluded that psychiatric services can be effectively offered to rural patients or to the underserved by way of telemedicine’s videoconferencing technology.<sup>14,15</sup> Still others have shown cost effectiveness of telemedicine in treatment of high risk pregnancy by reducing premature births<sup>16</sup> and in managing patients with congestive heart failure<sup>17</sup> by lowering hospital admission rates.

Studies conducted with the prison population have also documented the cost-effectiveness of telemedicine services in the correctional setting. A study conducted at the facilities of the Virginia Department of Corrections reported that a treatment program which consisted of conventional outpatient clinical and telemedicine settings achieved a “sharp decrease in viral load levels among HIV-positive inmates, treatment compliance has improved, and there has been a reduction in all HIV-related morbidities except malignancies. Overall, care of HIV-positive inmates is improving and approaching standard levels of care”<sup>18</sup> and the use of telemedicine “increased access to care for HIV-positive inmates and generated cost savings in transportation and care delivery.”<sup>19,</sup><sup>20</sup> Another telemedicine demonstration project conducted at three correctional facilities indicated that “based on data from the study, the cost-benefit analysis concluded that a telemedicine consultation would cost an average of \$71, compared with \$173 for a conventional (face-to-face) health care consultation—a savings of nearly 60%.”<sup>21</sup>

Studies on the use of telemedicine services for asthma management also have implications for reducing health care costs by reducing hospitalizations, emergency department visits as well as improving the quality of care. Statistics from the Maryland Department of Health and Mental Hygiene indicate that approximately 11.9% of Maryland adults and 11.1% of Maryland children have a history of asthma. Additionally, persons at increased risk for asthma and its complications include the elderly, the very young, African-Americans, low-income individuals, and individuals in some jurisdictions, particularly Baltimore City. In 2003, charges for hospitalizations due to asthma totaled

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<sup>13</sup>Paul E Ruskin, et al., “Treatment Outcomes in Depression: Comparison of Remote Treatment Through Telepsychiatry to In-Person Treatment.” *American Journal of Psychiatry* 2004, 161(8): p 1471.

<sup>14</sup> Betty L. Charles. “Telemedicine Can Lower Costs and Improve Access.” *Healthcare Financial Management* April 2000; p 66-69.

<sup>15</sup> Barbara M. Rohland. “Telepsychiatry in the Heartland: If We Build It, Will They Come?” *Community Mental Health Journal*, 2001, 37(5): 449-459.

<sup>16</sup> John Morrison, et al. “Telemedicine and Cost Effective Management of High Risk Pregnancy” *Managed Care*, 2001 Nov; 10(11) 42-6, 48-9.

<sup>17</sup> C. Burgess, et al., (2001) – See page 5 of Chap. I.

<sup>18</sup> Michael T. Wong. “HIV Care in Correctional Settings is Cost-Effective and Improves Medical Outcomes.” *Infectious Diseases in Clinical Practice*, 2001, 10(3 Suppl): S9.

<sup>19</sup> M. J. McCue, et al. “The case of Powhatan Correctional Center/Virginia Department of Corrections and Virginia Commonwealth University/Medical College of Virginia.” *Telemedicine Journal*, 1997, Spring; 3(1):11-7.

<sup>20</sup> Statistics indicate that at year end 2004, there were 792 HIV-positive inmates in Maryland, which accounts for 3.4 percent of the total custody population. See HIV in Prisons, 2004, 11/06. U.S. Department of Justice - Office of Justice Programs Bureau of Justice Statistics. Available at <http://www.ojp.usdoj.gov/bjs/pub/pdf/hivp00.pdf>.

<sup>21</sup> *Implementing Telemedicine in Correctional Facilities*. U.S. Department of Justice–U.S. Department of Defense. May 2002, p. 7. Available at <http://www.ncjrs.gov/pdffiles1/nij/190310.pdf>.

\$41 million and charges for emergency department visits due to asthma totaled an additional \$28 million.<sup>22</sup>

Various studies on the impact of asthma management using telemedicine have been undertaken. For example, the Packard Children's Hospital designed an intervention strategy at several urban schools in California which included patient consultations through videoconferencing.<sup>23</sup>

In 1998, the University of Maryland School of Medicine in partnership with Shore Health System's Regional Cancer Center in Easton, initiated a teleoncology pilot program. This program was supported by an internal medical school grant and provided videoconferencing equipment and the services including tumor boards, physician consultations, and multidisciplinary cancer conferences. The telehealth system was also used to set up virtual meetings among ministers in Baltimore City and on the Eastern Shore.

In 2003 the UMSOM developed a "3D remote treatment planning system" for developing radiation therapy treatment plans for cancer patients in both Howard and Montgomery Counties. Part of the leading technology was supported by the University of Maryland Statewide Health Network, through Maryland Cigarette Restitution Fund Program.

## **Quality**

Quality of care is another important factor. Like cost, quality can be difficult to measure. Most studies of quality are either studies of patient satisfaction, clinician satisfaction or outcome comparison studies.<sup>24</sup> The term 'quality' is difficult to define, although as a general guideline, experts look to whether the appropriate structure, process or outcome was achieved. Structure includes such variables as characteristics of the providers of care, tools or resources and organizational setting, process includes the technical management of care.<sup>25</sup> Measures of outcome include mortality rates, hospital length of stay and quality of life.<sup>26</sup>

Most available studies compare patient or clinician satisfaction with services provided via telemedicine compared to traditional sources of care.<sup>27, 28</sup> Generally, patient

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<sup>22</sup> Available at [http://www.fha.state.md.us/mch/asthma/data\\_surv.html](http://www.fha.state.md.us/mch/asthma/data_surv.html).

<sup>23</sup> Pamela S. Whitten and DJ Cook, "School-based telemedicine: using technology to bring health care to inner-city children." *Journal of Telemedicine and Telecare*. 1999; 5 Supplement I:S23-25.

<sup>24</sup> Smolensky, p.390

<sup>25</sup> Ibid.

<sup>26</sup> Ibid.

<sup>27</sup> Pamela Whitten and F Mair. "Systematic Review of Studies of Patient Satisfaction with Telemedicine," *British Journal of Medicine*, 2000, p. 1517.

<sup>28</sup> R. Roine, et al. "Assessing Telemedicine :A Systematic Review of the Literature." *Journal of the Canadian Medical Association*, 2001, p. 765.

satisfaction rates are high.<sup>29</sup> However, it should be noted that some of these studies have methodological problems because the patient intermittently saw the provider in person. Studies of clinician satisfaction are more mixed with some studies reporting clinicians felt telemedicine increased their workload, mental effort and technical skills.<sup>30</sup>

Outcome comparative studies are perhaps the most useful in determining quality of care.<sup>31</sup> Various studies evaluating the Department of Veterans Affairs (VA) Care Coordination Home Telehealth (CCHT) program have compared the success of telemedicine services to their traditional (face-to-face) medical counterparts.<sup>32</sup> For instance, one study assessed the healthcare use among veterans with diabetes mellitus enrolled in the VA CCHT program found a reduction in “avoidable healthcare services for diabetes mellitus, such as hospitalizations, and reduced care coordinator-initiated primary care clinic visits.”<sup>33</sup> Another study evaluating the VA CCHT program indicated a statistically significant reduction in hospitalizations, emergency room use, average number of bed days of care, and improvement in the health-related quality of life role-physical functioning, bodily pain, and social functioning.<sup>34</sup> More studies in this area with a large database are underway. The efficacy of telehealth in managing cardiovascular disease has been shown in smaller studies<sup>35,36</sup> and will be assessed by the VA.

In the area of dermatology, a study evaluating the reliability and accuracy of dermatologists’ diagnoses and treatment plans resulting from telemedicine consultations compared to clinic-based found that diagnostic accuracy is comparable among clinic-based examiners and digital image examiners.<sup>37</sup>

The use of telemedicine as a way to deliver pediatric care has grown rapidly<sup>38</sup> and, as such, an increasing number of studies relating to quality of care for this clinical specialty have been undertaken. One study reported that an Internet-based “store and forward” pediatric consultation system had “improved the quality of patient care by providing expeditious specialty consultation...to a population of underserved children.”<sup>39</sup> An additional study, assessing the impact of telemedicine on absence from child care due to illness in an urban setting, concluded that “telemedicine holds substantial potential to reduce the impact of illness on health and education of children, on time lost from work

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<sup>29</sup> Smolensky, 2002, p.393.

<sup>30</sup> Supra 110.

<sup>31</sup> Ibid. p 390.

<sup>32</sup> Ibid. p395

<sup>33</sup> T. E. Barnett, et al. “The effectiveness of a care coordination home telehealth program for veterans with diabetes mellitus: a 2-year follow-up.” *American Journal of Managed Care*, Aug. 2006. 12(8): p. 467.

<sup>34</sup> N. R. Chumbler, et al., “Evaluation of a care coordination/home-telehealth program for veterans with diabetes: health services utilization and health-related quality of life.” *Evaluation and the Health Professions*, 2005 Dec; 28(4): p. 464.

<sup>35</sup> Knox et al. *Journal of Cardiovascular Nursing*, 1999.

<sup>36</sup> Burgiss et al. “Cost of Care Reductions Using Telehealth: A Comparative Analysis”, University of Tennessee Medical Center, Knoxville, Tenn.

<sup>37</sup> Available at [http://www.research.va.gov/resources/pubs/docs/mb12\\_telemed.pdf](http://www.research.va.gov/resources/pubs/docs/mb12_telemed.pdf).

<sup>38</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity, p 9.

<sup>39</sup> Charles W. Callahan, et al., “Effectiveness of an Internet-Based Store-and-Forward Telemedicine system for Pediatric Subspecialty Consultation.” *Arch Pediatr Adolesc Med*, April 2005, 159, p. 389.

in parents, and on absenteeism in the economy.”<sup>40</sup> It would seem that telemedicine is able to maintain or improve the quality of patient care.<sup>41</sup>

## **Access**

Lastly, access to healthcare is another important factor to consider. As mentioned earlier, an estimated 14% of Maryland’s population is uninsured. Additionally, many rural or non-MSA regions face critical shortages of specialists due to health manpower shortages. Teleradiology, one of the most common clinical applications, illustrates telemedicine’s ability to provide specialty expertise to a rural region. An advanced application of teleradiology is telemammography. This application has the ability to improve access to mammography for women in remote areas that lack radiology or mammography machines.<sup>42</sup> Furthermore, this can be accomplished by providing a digital system to the remote area or by equipping a bus in order to visit several regions.

In 1999, the University of Maryland’s Express Care was the first in the nation to use mobile telemedicine to assess a stroke patient’s condition during an ambulance ride, for accelerated pre-hospital evaluation. Maryland Express Care ambulances equipped with telemedicine enable neurologists in the hospital office to see a stroke patient in real time video and speak to the emergency medical personnel on the ambulance as they transport the patient to the hospital.

Teledentistry is another application in which telemedicine is able to provide access to specialized care in underserved regions in Maryland. In a survey conducted in 2000-2001 of the oral health status of Maryland school children, the Eastern Shore region had the highest percentage of untreated dental decay (54%) followed by the Central Baltimore region (48%).<sup>43</sup> The oral cancer mortality rate in Maryland is among the highest in the United States and ranks sixth for African-American males. These findings were attributed to a lack of dental providers in rural areas, lack of public health clinics to serve the uninsured and underinsured.

Teledentistry can be a resource for dental consulting and referral for specialized care for underserved regions. In a recent article in the *Journal of Telemedicine and Telecare*, the University of Rochester, NY, presented their findings on a teledentistry project established in six inner-city elementary schools and seven child-care centers.<sup>44</sup> By using an intraoral camera, telehealth assistants recorded digital images of children’s teeth and sent the images to a computer at the expert dental site. The authors found that almost 40% of the children screened had active dental caries and that “for the first time, many children attending inner-city child-care centers have had their teeth

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<sup>40</sup> K. M. McConnochie, et al. “Telemedicine Reduces Absence Resulting From Illness in Urban Child Care: Evaluation of an Innovation.” *Pediatrics*, 2005; 115(5): p 1273.

<sup>41</sup> Smolensky, p. 397.

<sup>42</sup> Roberta A. Jong and Martin J. Yaffe. “Digital Mammography: 2005.” *Canadian Association of Radiology Journal*, 2005; 56 (5): 319-323.

<sup>43</sup> [http://www.fha.state.md.us/oralhealth/pdf/Final\\_5-Year\\_Plan-2004.pdf](http://www.fha.state.md.us/oralhealth/pdf/Final_5-Year_Plan-2004.pdf)

<sup>44</sup> Dorota T. Kopycka-Kedzierawski and Ronald J. Billings. “Teledentistry in inner-city child-care centres.” *J Telemed Telecar*, 2006, 12(4):176-81.

examined at an early age and been given prompt feedback on the need for dental care.”<sup>45</sup>

It is estimated that by the year 2025, 16.4% of Maryland’s residents will have reached 65 years of age.<sup>46</sup> Approximately 50% of the elderly will be affected by a chronic disease and “for every nursing home patient, there are three to four times as many patients residing at home with similar needs.”<sup>47</sup> Whether living in a rural or urban setting, the elderly can have various health care access issues resulting from decreased mobility due to motor skill or visual impairment, isolation from a support network or family members, or suffering from a chronic illness. Remote patient monitoring uses special devices to remotely collect and send data to a monitoring station for interpretation. Monitoring applications can include checking vital signs, such as blood glucose or heart ECG, or a variety of indicators for homebound patients. This can be accomplished with specialty hardware devices and with fixed/integrated communications capabilities.<sup>48</sup> The University of Maryland School of Medicine currently has telemedicine evaluation trials underway in several areas of chronic diseases. These include 1) an evaluation of home automated telemanagement of chronic obstructive pulmonary disease (COPD), 2) hypertension telemanagement in African Americans, 3) home automated telemanagement of ulcerative colitis, and 4) feasibility of home rehabilitation in multiple sclerosis.<sup>49</sup> The current home telehealth project of the Department of Veterans Affairs involving about 22,000 veterans shows promise in demonstrating the efficacy of this type of application of telehealth/telemedicine, which the AETNA study in 2001 called into question (see section on cost).

### **Bioterrorism**

Since September 11, 2001, the United States has faced the possibility of large-scale health crises resulting from terrorist activity. Because of its proximity to Washington, DC, Maryland could be particularly vulnerable to terrorist attacks. Telemedicine has the potential to assist by allowing access to medical services in a remote or unreachable location. For example, in 2004, a telemedicine multi-state bioterrorism exercise using telehealth technology to diagnose a case of the smallpox and to plan a public health response was conducted. Participants in this exercise included the states of Florida, Kentucky, Missouri and Virginia along with the Centers for Disease Control and Prevention.<sup>50</sup>

### **Non-Clinical Applications**

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<sup>45</sup> Ibid. p 176.

<sup>46</sup> Available at <http://www.census.gov/population/projections/state/9525rank/mdprsrel.txt>.

<sup>47</sup> Karen Rheuban. “The role of telemedicine in fostering health-care innovations to address problems of access, specialty shortages and changing patient care needs.” *Journal of Telemedicine and Telecare*, 2006. 12 (suppl. 2): p 47.

<sup>48</sup> Available at <http://www.wiredred.com/video-conferencing/video-telemedicine.html>.

<sup>49</sup> Email from Joseph Finkelstein MD, PhD, University of Maryland School of Medicine Director, Chronic Disease Informatics Group, 1/24/07.

<sup>50</sup> Available at <http://www.healthsystem.virginia.edu/internet/telemedicine/news/index.cfm>.

Another important application for use of videoconferencing/telecommunication technology is for continuing education of health care providers, patients or the public. The most common educational application reported is continuing medical education (CME), continuing nursing education (CE), training, “virtual” conferences, patient education, tumor boards and grand rounds. (See Chapter III for a description of the University of Maryland Statewide Health Network’s effort to provide CMEs to community health centers.)

### **Reimbursement and Access to Care**

Specific studies on the influence of reimbursement for telemedicine services and increased usage could not be located. However, there is evidence that there is greater use of telemedicine in states where there is reimbursement for services from Medicaid and mandated coverage from private payers. These states also tend to have more telemedicine programs with more sites. California, Hawaii, Kansas, New York and Texas—states with the greatest amount of reported telemedicine activity—reimburse services under Medicaid and private payers. Florida which also has high usage does not have public or private mandates.<sup>51</sup>

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<sup>51</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity, p.8.

## **V. Barriers to Reimbursement for Telemedicine Services in Maryland and Strategies to Facilitate Access to Telemedicine**

The use of clinical telemedicine services in Maryland is less well developed than for other more rural or frontier states. This could be related in part to a lack of reimbursement for clinical telemedicine services through the state Medicaid program and private payers as evidenced by a lack of claims data. Moreover, Medicare reimbursement for clinical services provided via telemedicine in Maryland is limited due to Federal policies that narrow the availability of Medicare reimbursement to *rural* Health Professional Service Areas (HPSAs) and non-Metropolitan Service Areas (non-MSAs). This means that Medicare does not cover clinical services provided by way of telemedicine for beneficiaries in much of the state.

The state's two major academic health centers (University of Maryland School of Medicine and Johns Hopkins School of Medicine and their affiliated hospitals) have telemedicine activities underway in many clinical specialties. Some of these provide services nationally or internationally. Most of these are supported by grants from government agencies or non-profit foundations, not from traditional sources of third party payment.

Failure to develop formal reimbursement structures may be due to Maryland's relatively small geographic size as compared to other states. States that are geographically larger (typically those in the Southern and Western United States) are more likely to be receiving Medicare reimbursement for telemedicine services in rural areas, have authorized Medicaid reimbursement and have private payers willing to reimburse. All of these factors may help improve access to health care, since states with Medicaid and private payer reimbursement report more activity via telemedicine.<sup>1</sup>

Maryland patients commute to major academic centers from rural areas for specialty clinical care although this can lead to delaying or foregoing care and adds additional transportation costs. In addition there are 13 counties or parts of counties and Baltimore City that are identified by the federal government as HPSAs for primary care providers, dentists, or mental health providers in the state. People in these areas, which may be urban, must also travel distances to get the appropriate care. For some of them, accessing transportation may also be a barrier.

There are several developments that make the issue of reimbursement for telemedicine/telehealth services in Maryland even more salient to the issue of improved access to care in the future. These are:

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<sup>1</sup> 2004 TRC report on US telemedicine activity: with an overview of non-US activity. Civic Research Institute, Kingston, NJ, 2004, pg 8.

1. The Maryland Rural Broadband Cooperative is making the infrastructure improvements needed to convey images clearly and efficiently by telecommunications thus improving the feasibility of telemedicine services;
2. In addition to clinical care and consultations, emerging issues for telemedicine such as chronic disease management, home monitoring of patients with chronic diseases are increasing in popularity and may increase favorable patient outcomes while controlling health care expenditures;
3. The threat of bioterrorism is making it necessary to develop contingency plans for providing emergency medical care especially in remote areas; and
4. Telemedicine/Telehealth is being used as a medium to effectively educate providers through continuing medical education programs and to foster adherence to clinical guidelines and evidence guided care. It is also used to inform consumers in all regions of the state and in their local communities about health promotion and disease prevention strategies.

Agreements such as the one between the University of Maryland Statewide Health Network (UMSHN) and the Mid-Atlantic Association of Community Health Centers (CHCs), as well as rural hospitals show promise in improving the quality of care for uninsured, underserved and remote populations who receive care in these facilities.

### **Barriers**

In general, barriers to the growth of telemedicine in Maryland are the same as those identified nationally. These include financial, quality issues, infrastructure, legal and regulatory barriers, as follows:

- Lack of telemedicine/telehealth reimbursement (i.e., through Medicaid, Medicare) is a deterrent to health care provider participation. Moreover, stable sources of third party payment are essential to the sustainability of telemedicine services. This is particularly true for telemedicine with its high fixed costs for entry which require an investment in equipment, maintenance, training and infrastructure. Further these fixed costs can only be recouped over a long period of time. A single remote monitoring unit may cost as much as \$3000 - \$5000.<sup>2</sup>
- Medicare's geographic and service policies are restrictive. The definition for reimbursable telehealth services includes the word "interactive" which limits reimbursement for store and forward health services.<sup>3</sup> Moreover, reimbursement is limited to rural HPSAs and non MSAs as originating sites. This rules out coverage for underserved and uninsured in urban areas. In addition, current Medicare policy does not include a residence as an "originating site" for telemedicine ruling out the use of telemedicine to monitor chronic conditions as a reimbursable service.

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<sup>2</sup> Kirsten Rabe Smolensky. "Telemedicine Reimbursement: Raising the Iron Triangle to a New Plateau." *Health Matrix: Journal of Law Medicine*. 13(2) (2003): 371-413.

<sup>3</sup> Brantly, pg. 73.

- According to Center for Medicaid Services (CMS) and Agency for Health Research and Quality (AHRQ), there is a lack of quality clinical efficacy and cost-benefit research that supports telehealth services.<sup>4</sup> HRSA's Office for the Advancement of Telemedicine (OAT) has many pilot projects to demonstrate the usefulness of telehealth underway in states. Also, the Department of Veterans Affairs (VA) has been a leader in demonstrating the effectiveness of telemedicine in multiple clinical specialties and with a promising demonstration project for managing disease at home with conclusive findings expected next year.
- Lack of uniformity exists among the states. No two states share the same policy, coverage or even definition of telemedicine.<sup>5</sup> This could make it more difficult for insurance carriers who operate throughout the nation to develop policy regarding reimbursement since they would need to comply with many different state requirements.
- Liability is a relevant issue for telemedicine. Providers may not be paid for consultation or monitoring via telemedicine, but may still be responsible for poor patient outcomes.
- Licensure requirements for providers of telemedicine services vary among the states. Health care practitioners are licensed in the state in which they practice; telemedicine/ telehealth may extend the practice into a different jurisdiction. State licensing boards may prohibit, permit or decline to take a position on telemedicine.<sup>6</sup>
- The reasons for restricting licensure for telemedicine include: patient safety, application and imposition of sanctions, fear of patients being drawn away by out of state providers, boards have difficulty policing and disciplining physicians who are not licensed in their state.
- Providers may be slow or reluctant to adopt new technologies, although evidence of this concern varies. Without provider demand, the market is not responding to cover reimbursement.<sup>7</sup>

This report has shed some light on the current status of telemedicine and telehealth in Maryland and other states as well as the barriers as noted above and may be useful in supporting future policy development in this area. The Maryland General Assembly may consider additional studies, including pilot telehealth/telemedicine studies, to further support the development, expansion and reimbursement for clinical telemedicine services in Maryland.

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<sup>4</sup> Ibid. pg. 79.

<sup>5</sup> Ibid. pg. 82.

<sup>6</sup> Brantly, pg. 84

<sup>7</sup> Ibid. pg. 89.