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TELEMEDICINE STRATEGIC PLANNING DOCUMENT

1. PURPOSE: This Veterans Health Administration (VHA) Notice outline a national strategy for VHA telemedicine. It provides recommendations for the development, evaluation and optimization of telemedicine to improve health care for veterans. This planning document primarily addresses those VHA telemedicine activities that provide or facilitate direct health care services or clinical telemedicine. It is a framework for action to optimize the overall development and implementation of telemedicine in VHA.

2. BACKGROUND

a. Telemedicine has been defined by the Institute of Medicine as “the use of electronic information and communications technologies to provide and support health care when distance separates the participants.”¹

b. Telemedicine has the potential to serve the health care needs of veterans by building bridges with Department of Veterans Affairs (VA) health care providers across barriers of distance and time. In remote areas, travel distances represent a significant barrier for veterans to access timely care. Telemedicine has the potential to improve the overall continuity of care processes and availability of specialty consultation access when most needed. Telemedicine has the potential to enhance care for veterans with special needs, veterans who may be isolated from necessary care and to augment health services in home and community based care locations.

c. To fully realize this potential, however, there must be a more thorough evaluation and demonstration of the efficacy, safety, reliability and outcomes of clinical telemedicine. Despite over 3 decades of telemedicine activities in different health care sectors, few clinical studies in telemedicine have comprehensively documented these results. Factors that impede clinical telemedicine development include human, technical, evaluation and policy issues.

d. VHA has a history of leadership in the overall use of information technology to improve health care for veterans. A number of successful demonstration projects have been initiated in VHA in such diverse clinical areas as teleradiology, telepathology, telephone liaison care, telenuclear medicine, and cardiac pacemaker monitoring programs. Current research and demonstration initiatives are underway in telemental health, teledermatology and telecare for diabetes projects.

e. Information regarding VHA telemedicine programs was collected in a system wide inventory conducted by the Office of the Chief Information Office (OCIO) in 1996. A number of telemedicine demonstration projects were implemented through the Hybrid Open Systems Technology (HOST) Program. In 1997, the Telemedicine Strategic Health care Group (SHG) was established to further coordinate VHA activities in telemedicine. This group conducted a

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VHA wide survey in mid-1997 to further identify the status of clinical telemedicine activities.

NOTE: Survey results are available on the Department of Veterans Affairs (VA) Internet at <http://www.va.gov/telemed>. In general, the survey indicated that clinical telemedicine, with the exception of telephone based services, remains in an early stage of development and implementation overall. Clinical telemedicine activities must have further specific demonstrations and evaluation of clinical efficacy and impact on outcomes, access, service, and costs.

f. The overall goal for telemedicine is to increase VHA health care value for veterans. Telemedicine must be proven to improve VA health care through the VHA Domains of Health Care value identified in the Journey of Change. They are:

(1) **Technical Quality.** Technical quality represents the successful application and appropriateness of the techniques and technologies to treat medical conditions and the outcomes of these interventions

(2) **Cost and/or Price.** Cost and/or price represents the efficient management of appropriated and other funds to operate the VA health care system

(3) **Service Satisfaction.** Service satisfaction represents the views of veterans and their families about their care

(4) **Access.** Access represents the time, distance, and ease of obtaining VA medical care and services

(5) **Functional Status.** Functional status represents the ability of patients to perform usual and accustomed activities after medical interventions.

NOTE: $Value = \frac{Technical\ Quality + Service\ Satisfaction + Access + Functional\ Status}{Cost}$

g. A representative sample of actions which can further this effort includes:

(1) Implement and evaluate clinical telemedicine as identified in the Veterans Integrated Service Network (VISN) strategic plans for fiscal year (FY) 1998 through 2002; the telemedicine SHG will consult with and support the VISN leadership in this area.

(2) Develop a national VHA telemedicine evaluation, development, research and education center to rigorously evaluate and develop clinical telemedicine.

(3) Produce a detailed status report from each clinical area regarding current activities and needs for further development, research, and guidelines.

(4) Increase support for expansion of successful clinical telemedicine demonstrations and/or projects.

(5) Create telemedicine demonstration projects within different clinical areas which verify reliability, accuracy, and efficacy regarding clinical processes of care which are impacted by distance and access issues.

(6) Create telemedicine demonstration projects to meet identified clinical needs and/or improve access to care for veterans in each special emphasis program by the year 2000.

(7) Increase VHA clinician education and training in telemedicine technologies and applications.

(8) Sponsor and/or develop a national consensus conference on telemedicine.

(9) Enhance collaboration efforts in telemedicine between VHA and the Department of Defense (DOD) as well as with other Federal agencies and partners.

(10) Integrate telemedicine planning with clinical and information office planning efforts.

(11) Develop a model for cost and/or cost effectiveness analyses of different clinical telemedicine activities.

(12) Ensure privacy, confidentiality, and security of information transfer.

***NOTE:** There are a number of unresolved challenges and obstacles that must be solved if telemedicine is to develop optimally. Clinical telemedicine remains in an early stage and must be guided by the leadership of clinicians and information management specialists as well as by our patients' needs.*

h. Successful telemedicine is characterized by:

(1) Strong clinical leadership,

(2) Well identified clinical and business needs assessments,

(3) Strong evaluation and quality components, and

(4) Flexible, user friendly, technology design.

i. Telemedicine must not be seen as something separate or somehow different from medical or health care but, rather as simply a process which enables clinicians to use different information technology tools to treat patients when distance and access to care represent barriers. As these processes gradually become part of clinical care delivery, the ultimate potential of telemedicine to improve care for veterans will be achieved.

j. **Goal 1.0:** The primary goal is to identify and distribute a common definition of telemedicine throughout VHA.

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(1) In 1995, a VHA Task Force on Telemedicine adopted the following definition of telemedicine: "Telemedicine involves the use of telecommunications technology as a medium for the provision of medical services to sites that are at a distance from the provider. The concept encompasses everything from the use of standard telephone service through high-speed wide bandwidth transmission of digitized signals in conjunction with computers, fiber optics, satellites and other sophisticated peripheral equipment and software."

(2) The Institute of Medicine definition of telemedicine published in its 1996 report has been increasingly accepted: "the use of electronic information and communications technologies to provide and support health care when distance separates the participants."

(3) **Action 1.0:** The primary action is to recommend adoption of the Institute of Medicine definition of telemedicine by VHA. This definition includes both direct health care services, e.g., teleradiology, telepathology, telemental health, as well as activities which support health care activities, such as: distance learning, remote access capabilities, and other applied information technologies.

3. EXTERNAL ASSESSMENT

a. Strategic Context of Telemedicine in Health Care in the United States (U.S.)

(1) Telemedicine is believed to have significant potential to improve problems in access to health care created by distance.

(2) Despite over 3 decades of telemedicine project activities and considerable investment by over thirty-five Federal organizations, ten state governments, and private sector health care systems in over forty states, clinical telemedicine is characterized by overall limited utilization.

(3) A comprehensive review of telemedicine in 1995 notes that "with the exception of image-oriented subspecialties, such as teleradiology and telepathology, few clinical studies have documented the accuracy, reliability or clinical utility of most applications of telemedicine as a primary diagnostic or therapeutic modality."²

(4) According to a survey by Grigsby and Allen³, there were 34,927 clinical teleconsultations in the United States (U.S.) in 1996. Teleradiology is responsible for over a third (38.8 percent) of this activity with the next most frequently reported telemedicine clinical area, telemental health, reporting only 3460 consults during 1997.

b. **Factors Impeding Clinical Telemedicine Development**

(1) **Human Factors.** Human factors described by focus groups of clinicians in a report for VHA⁴ by the Center for Public Services Communications include:

- (a) Lack of proof of benefit.
- (b) Lack of ease with which technology can be incorporated into existing practice patterns.
- (c) Inadequate performance of needs assessment.
- (d) Lack of critical mass of experience and information.
- (e) Lack of active involvement of leadership clinicians.

(2) **Technical Factors.** Technical factors include:

- (a) The complexity and constant change of hardware, software and telecommunications products which directly affect both the feasibility and costs of telemedicine.
- (b) Difficulties in integration of data across differing systems.
- (c) Telecommunications infrastructure variability with undeveloped infrastructure in remote and rural areas where the need for telemedicine is often greatest.

(3) **Evaluation Factors.** Evaluation factors include:

- (a) The relative lack of systematic analysis, outcomes and evidence of effectiveness of various clinical telemedicine applications.
- (b) Few comprehensive cost and/or cost effectiveness analyses of telemedicine service delivery.
- (c) Lack of widely accepted clinical and technical standards and guidelines.

(4) **Policy Factors.** Policy factors include:

- (a) Lack of reimbursement policy.
- (b) Credentialing and licensing issues across state boundaries.
- (c) Unresolved issues involving privacy and confidentiality and liability.

c. **Telemedicine Planners.** In a 1997 General Accounting Office (GAO) report, Telemedicine, Federal Strategy is Needed to Guide Investments, recommendations for Federal

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agency telemedicine planners were to:

- (1) Establish a means to formally exchange information technology among the Federal Government, state organizations and private sector.
- (2) Foster collaborative partnerships to take advantage of other investments.
- (3) Identify needed technologies that are not being developed by the public or private sector.
- (4) Promote interoperable system designs that would enable telemedicine technologies to be compatible, regardless of where they are developed.
- (5) Encourage adoption of appropriate standardized medical records and data systems so that information may be exchanged among sectors.
- (6) Overcome barriers so that investments can lead to better health care.
- (7) Encourage Federal agencies and departments to develop and implement individual strategic plans to support national goals and objectives

4. INTERNAL ASSESSMENT

a. VHA has a significant history of leadership in the overall use of information technology in health care. An overall review of these accomplishments is beyond the scope of this plan but is well described by Kolodner⁵ and colleagues.

b. A brief and limited historical timeline of VHA activities in telemedicine includes:

- (1) Connecting with the first interactive telemedicine project in the U.S. in Nebraska in 1968 that created the Nebraska Veterans Administration Television (TV) Network and used closed circuit TV to link VA hospitals in Omaha, Lincoln and Grand Island with the psychiatric department of the University of Nebraska Medical Center.
- (2) Development of telenuclear medicine networks in the late 1970s providing nuclear medicine imaging services from hub sites to smaller VA medical centers.
- (3) Development and implementation of cardiac pacemaker home monitoring programs at the Washington, DC and San Francisco VA medical centers in 1982.
- (4) Development of the first interface of a commercial PACS with a hospital information system and the development and implementation of a filmless digital teleradiology service in the Maryland VA Health care System.
- (5) Development, testing and implementation of a unique hybrid dynamic-store and forward telepathology system between Milwaukee and Iron Mountain VA medical centers in 1996.

(6) Development and implementation of telephone liaison care programs at every VA medical center in 1997.

(7) Development of the Veterans Health Information Systems Technology Architecture (VISTA) imaging system, the first health information system to integrate medical images from all disciplines (cardiology, radiology, pulmonary, dentistry, dermatology, etc.) into the electronic patient records, i.e., VISTA.

c. Information regarding VHA telemedicine initiatives was collected in a system wide survey conducted by the OCIO in 1996.

(1) Telemedicine demonstration projects sponsored by the HOST Program have been implemented and evaluated. The Telemedicine SHG conducted a cross sectional survey of clinical telemedicine activities in mid 1997. **NOTE:** *The complete results of these surveys are available on the VA Internet at <http://www.va.gov/telemed>.*

(2) The data from the survey reveals that, of the limited number of clinical telemedicine applications, teleradiology was the most common application reported followed by telenuclear medicine, telepathology, and telemental health.

(a) Clinical telemedicine in VHA, with the exception of telephone based telemedicine services, remains in an early stage of development and implementation.

(b) All clinical telemedicine activities must have further specific demonstrations and evaluations of clinical efficacy and impact on outcomes, access, service, and costs.

5. OVERVIEW AND GUIDING PRINCIPLES

a. Telemedicine in VHA is guided by the overall mission goals and objectives outlined by the Under Secretary for Health in the Prescription for Change and Journey of Change.

"The patient is the center of the health care universe, not the hospital. Information systems of the future have to be built around the patient - what his or her needs are, what services he or she receives, and what are the outcomes of our interventions and other efforts. We have to be able to track all these things across geography and across time."⁶

(1) The twenty-two VISNs have the operational and implementation responsibilities for telemedicine activities in VHA. All twenty-two VISNs have identified telemedicine plans in their strategic plan documents for FY 1998 through FY 2002.

(2) The Telemedicine SHG was created by the Under Secretary for Health in 1997 within the Office of Patient Care Services (see Attachment A) to optimize telemedicine evaluation and development in VHA.

b. **Guiding Principles.** Telemedicine will be guided in its ongoing development and implementation by the core VHA values.

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(1) These are:

(a) Trust,

(b) Respect,

(c) Commitment,

(d) Compassion, and

(e) Excellence.

(2) Telemedicine must be centered on the needs of our veteran patients and their health care professionals.

(3) Clinical telemedicine is in an early stage and must be guided by evidence based principles, i.e., data from demonstrations, evaluation, and research efforts to determine clinical efficacy, outcomes, and costs.

(4) Telemedicine has the potential to expand the relationship between patients and VHA health care providers when distance and time are the primary barriers to care delivery.

(5) Clinicians and planners must be supported by continuing education and training regarding information technology and its application in telemedicine.

(6) Telemedicine seeks to empower veterans and their families by enhancing education, prevention of illness, coordinated care management and shared decision-making.

(7) A measure of success will be the integration of what is now known as telemedicine within the ongoing clinical practices of VA health care professionals.

(8) Telemedicine will particularly strive to serve veterans in remote areas and otherwise isolated groups of veterans, rural and urban, as well as veterans with special needs, disadvantaged veterans, and veterans in minority groups.

(9) Telemedicine must provide value enhancement for the VA health care system.

6. GOALS AND ACTION: OVERALL

a. Telemedicine is identified in the Journey of Change as an operational strategy that supports the overall VHA Mission Goal I – To Provide Excellence in Health care Value.

b. Telemedicine must be proven to improve VA health care through the VHA Domains of Health care value identified in the Journey of Change. They are:

(1) **Technical Quality.** Technical quality represents the successful application and appropriateness of the techniques and technologies to treat medical conditions and the outcomes of these interventions.

(2) **Cost and/or Price.** Cost and/or price represents the efficient management of appropriated and other funds to operate the VA health care system.

(3) **Service Satisfaction.** Service satisfaction represents the views of veterans and their families about their care.

(4) **Access.** Access represents the time, distance, and ease of obtaining VA medical care and services.

(5) **Functional Status.** Functional status represents the ability of patients to perform usual and accustomed activities after medical interventions.

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c. Technical quality would include measures, such as: clinical efficacy and reliability, technology functionality, ease of operability, and compatibility of telemedicine with identified clinical tasks.

d. Service satisfaction measures would include satisfaction surveys of veterans seen via telemedicine, satisfaction measures of providers.

e. Access measures would need to carefully identify how the availability of service via telemedicine compares to the alternative in terms of travel, timesavings, and convenience.

f. Functional measures would utilize existing measures of health care function within well-designed studies to examine the impact of care received by telemedicine consultation with alternatives.

g. Telemedicine costs (infrastructure, clinical staffing, personnel) within VHA have generally been met within already existing budgetary items, with the exception of HOST projects and Office of Research projects. It has been difficult to estimate specific overall VHA costs for telemedicine as well as for reasons of lack of common definition and the complexity of apportioning clinical telemedicine costs out of overall information investments.

h. **Goal 2.0:** To increase VHA health care value by the continued appropriate development and use of clinical telemedicine.

(1) **Action 2.1:** The VISNs will implement and evaluate clinical telemedicine as described in their strategic plans.

(2) **Action 2.2:** The Telemedicine Strategic Health care Group will consult and support the

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VISNs in determining the needs for evaluation, development and implementation of telemedicine applications.

(3) **Action 2.3:** The Telemedicine SHG activated a national field advisory group for telemedicine during FY 1998. This group will serve to coordinate, advise and further develop recommendations regarding telemedicine to VHA leadership and the Under Secretary for Health.

(4) **Action 2.4:** The Telemedicine SHG will consult with VISN clinical managers, VISN CIO (VCIO), Patient Care Services, clinical program leadership, and the VHA National Leadership Board to identify support needs regarding telemedicine planning, evaluation and implementation.

i. Additional goals and actions for VHA telemedicine are outlined in following paragraphs of this document; they include:

- (1) Evaluation,
- (2) Clinical issues,
- (3) Education,
- (4) Collaboration,
- (5) Technology, and
- (6) Unresolved challenges.

***NOTE:** Many of the goals and actions assessed in these paragraphs will rapidly evolve and will certainly require further updates, analysis and modification. White papers, presentations, summaries and status reports produced by the Telemedicine SHG and VISNs will supplement this planning document.*

7. GOALS AND ACTIONS: EVALUATION

Given the many unresolved questions regarding clinical efficacy, impact, and costs of telemedicine applications, further evaluation, demonstration projects, and research in telemedicine must be a top priority.

a. **Goal 3.0:** Collect and analyze systemwide clinical telemedicine data via demonstration projects and/or implemented services which confirm efficacy, cost and benefit, and patient satisfaction as compared to alternative methods of service delivery.

(1) **Action 3.1:** VISN offices will collect and evaluate data regarding VISN telemedicine activities.

(2) The Telemedicine SHG will work with VISN offices and VHA Headquarters regarding

strategy and resources necessary to support national data collection and analysis.

b. **Goal 4.0:** Optimize systemwide telemedicine evaluation, development, research, and education.

(1) **Action 4.1:** VHA to develop a national telemedicine evaluation, development, research, and education center. The Telemedicine Working Group in consultation with the CIO, Office of Research and Development, Office of Employee Education, and the VISNs, will provide proposal to executive leadership with options and recommendations for decision.

(2) **Action 4.2:** Develop new telemedicine demonstration proposals sponsored and/or endorsed by VISNs, OCIO, and Patient Care Services (PCS) program offices for review and consideration by the VHA Executive Leadership Board and the Under Secretary for Health.

(3) **Action 4.3:** The Telemedicine SHG will consult with and support telemedicine initiatives from Office of Research and Development.

c. **Goal 5.0:** Measure telemedicine value for VHA.

(1) **Action 5.1:** The Telemedicine SHG and Telemedicine Field Group in consultation with VISNs, the Office of Performance, and the Quality and Office of Research and Development, will develop a telemedicine value model for use by VISNs and other VHA offices.

(2) The model should identify appropriate measures for each of the items in VHA value equation using the Institute of Medicine framework for telemedicine evaluation⁷ with modification specific to VHA.

8. GOALS AND ACTIONS: CLINICAL ISSUES

Clinical telemedicine applications remain in an early stage of implementation and development with the possible exception of telephone based care activities.

a. Teleradiology has had the most development and implementation thus far both in VHA and in other health care sectors. The American College of Radiology has developed guidelines regarding telemedicine practice for teleradiology. Teleimaging projects, such as teleradiology, telepathology, telenuclear medicine have been initiated and implemented at different VHA facilities. The need for overall evaluation and outcomes in imaging areas pertinent to telemedicine is discussed in a recent report by the Office of Research and Development Management Decision and Research Center.⁸ All clinical areas must continue to be carefully evaluated and decisions informed by data from demonstrations, evaluation and research.

b. To reach the overall goal of quality clinical telemedicine development, the following four interim goals are recommended:

c. **Goal 6.0:** Integrate planning, development and evaluation of clinical telemedicine applications within existing clinical service programs.

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(1) **Action 6.1:** A detailed report will be produced from each clinical program area describing status of clinical telemedicine, review of existing literature, clinical needs analysis and costs with recommendations for further action.

(2) The Telemedicine SHG, in consultation with Patient Care Services SHGs and program offices, VISN Clinical Managers, CIOs, Office of Research and Development, and the Office of Public Health and Environmental Hazards will produce this report.

d. **Goal 7.0:** Continue and build upon demonstrated successes such as telephone care programs and telemedicine clinical demonstrations.

(1) Telephone based programs in VHA include telephone liaison care programs at each VA medical center, cardiac pacemaker monitoring programs as well as remote telephone access and interactive telephone systems. These programs provide timely, cost effective services which utilize reliable technologies with high satisfaction ratings.

(2) Newly evolving case management programs and software frequently use telephone linkage.

(3) A systematic review of studies of distance medicine technology⁹ confirmed the utility of telephone based technologies in significantly improved outcomes of care in studies of preventive care, management of osteoarthritis, cardiac rehabilitation and diabetes care.

(4) **Action 7.1:** These programs have been developed and implemented in all VA medical centers and by Patient Care Services, Ambulatory and Primary Care, Acute Care, Nursing and Mental Health SHGs. The Telemedicine SHG will consult as needed to facilitate continuing development and expansion of telephone based services.

***NOTE:** Clinical demonstration projects, either HOST, VISN, or facility sponsored, involving a variety of different applications have been implemented or are planned. It will be important to rapidly disseminate information and results from these activities throughout VHA to guide other sites/locations regarding telemedicine applications.*

(5) **Action 7.2:** Increase support for expansion of successful clinical telemedicine demonstrations and projects.

e. **Goal 8.0:** Develop and evaluate telemedicine projects that improve processes of care and/or clinical reengineering.

(1) **Action 8.1:** Target new support for telemedicine demonstration projects that enhance services via clinical reengineering. VISN sponsorship and/or clinical program leadership with consultation from Telemedicine SHG will provide proposals.

(2) Examples could include:

(a) Enhanced consultation from specialists at centers of excellence to primary care providers at remote sites. This could involve enhanced service from national consultation programs or centers of excellence to identified VA medical centers or other points of care.

(b) Use of store and forward techniques for consultative purposes, e.g., teleradiology, telepathology, telenuclear medicine and other imaging areas, integrated within VISTA.

(c) Utilization of telemedicine for direct provision and/or enhancement of team delivered services-examples may include: assertive community treatment, primary care teams.

(d) Consultative support to contract providers of care. **NOTE:** *VA specialty professionals could utilize telemedicine to provide consultative support to contract providers and/or CBOCs.*

(e) Support of providers along the continuum of care by enhanced clinical consultation, e.g., consultative services to nursing homes, Vet Centers, CBOCs, etc.

(f) Support of home based services and providers, e.g., increased home provider capability via telemedicine.

(g) Enhanced integration of health care services within primary care clinics, e.g., nutrition counseling, speech and audiology assessment, pharmacy consultation, eye care, dental services, rehabilitation, social work, chaplaincy services, etc.

(h) Optimize use of telemedicine and telehealth technology using "One-VA" principles. The costs and benefits of videoconferencing for clinical telemedicine activities may be greatly enhanced by coordination of clinical uses with those for distance learning, for benefits of information and interviews, for use by veterans and veterans' families for meetings and patient support groups, and administrative planning meetings.

(i) Enhanced provision of services via collaborative or sharing arrangements, i.e., DOD, state, and Federal correctional institutions, academic affiliates, etc.

f. **Goal 9.0:** Develop and evaluate telemedicine projects that improve access to care, continuity of care and quality of life for veterans in special emphasis programs.

(1) The Journey of Change identifies 12 special emphasis programs:

(a) Blind Rehabilitation.

(b) Geriatrics and Long-term Care Programs.

(c) Homeless Veterans Treatment and Assistance Programs.

(d) Persian Gulf Veterans Programs.

(e) Post-traumatic Stress Disorder Programs.

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- (f) Preservation Amputation Care and Treatment Programs.
- (g) Prosthetic and Sensory Aids Programs.
- (h) Readjustment Counseling Programs.
- (i) Seriously Mentally Ill Veterans Programs.
- (j) Spinal Cord Injury and Dysfunction Programs.
- (k) Substance Abuse Services and Programs.
- (l) Women's Veterans Health Program

(2) Telemedicine has a significant potential to benefit veterans receiving services in special emphasis program areas, particularly veterans living in remote and isolated areas or at considerable distance from treatment centers. The focus for development of telemedicine demonstrations should be enhanced delivery of home based services, enhanced continuity of disease management, frail elderly care and end of life care, shared decision making and enhanced consultations between specialty centers of excellence and other VHA sites of care providers.

(3) **Action 9.1:** Create new telemedicine demonstration projects to meet identified clinical needs in each special emphasis program by FY 2000.

(4) **Action 9.11:** The Telemedicine SHG will provide consultative assistance to each special emphasis program area and/or VISN to further develop specific proposals with a status report to the Chief Patient Care Services Officer.

(5) **Action 9.12:** Continue implementation and evaluation of Readjustment Counseling Services project. Readjustment Counseling Services will continue development with implementation by Vet Centers, VA medical centers, and VISNs. Telemedicine SHG will provide consultative and evaluative assistance as requested to facilities and Vet Centers involved in implementation of Readjustment Counseling Services project.

(6) **Action 9.13:** Chief Patient Care Services Officer, Chief Consultant, Spinal Cord Injury, and the Telemedicine SHG will develop a demonstration project for care enhancement for spinal cord injury patients using telemedicine during FY 1998 - 1999.

(7) **Action 9.14:** Chief Patient Care Services Officer, Mental Health Services SHG, Telemedicine SHG and VISNs will develop a demonstration project for telemental health services.

(8) **Action 9.15:** The Telemedicine SHG will work with the Mental Health SHG and VISN mental health service leadership regarding implementation and evaluation of identified

telemental health projects planned for FY 1998-99.

(9) **Action 9.16:** The Telemedicine SHG will provide guidelines for telemental health services for inclusion in revisions of appropriate Mental Health Service directives.

9. GOALS AND ACTIONS: EDUCATION

a. Education of clinicians regarding clinical telemedicine is essential. Wide dissemination of telemedicine lessons learned, demonstration project results, evaluation and research information is critical to overall success.

b. Every telemedicine demonstration project or application must contain a strong training component for clinicians and staff. There are telemedicine specific training programs developing in academic and/or university centers. Telemedicine training and education can enhance the collaborative relationships with DOD and other organizations that have telemedicine training needs.

c. The principles of planning, implementation, design and evaluation of telemedicine do not differ fundamentally from principles for other clinical programs.^{10,11} However, rapid changes in both technology and clinical environments make ongoing education essential for telemedicine planners and evaluators.

d. **Goal 10.0:** Increase VHA clinician education and training in telemedicine technologies and applications.

(1) **Action 10.1:** The Telemedicine SHG in coordination with Office of Employee Education, Office of Academic Affairs, DOD telemedicine office, and Joint Working Group on Telemedicine will develop proposals regarding telemedicine training and education activities for VHA in conjunction with DOD, academic medical centers, and other agencies.

(2) **Action 10.2:** The Telemedicine SHG, in coordination with CIO and Employee Education offices, will develop a proposal for a national conference on telemedicine. VHA will also actively participate in and support, as possible, joint meetings regarding telemedicine.

(3) **Action 10.3** The Telemedicine SHG and Office of Employee Education offices will develop an at home CME program for telemedicine.

e. **Goal 11.0:** Rapid dissemination of results and lessons learned from telemedicine implementation both within and outside VHA. **Action 11.1:** The Telemedicine SHG will function as a clearinghouse to disseminate telemedicine information via Internet and/or Intranet, meetings, system wide audioconferences, papers, reports, newsletters.

f. **Goal 12.0:** Increase education specific to telemedicine planning, implementation, design and evaluation. **Action 12.1:** The Telemedicine SHG will work with Employee Education and VISNs to assess telemedicine educational needs, ongoing throughout the planning period.

10. GOALS AND ACTIONS: COLLABORATION

a. Successful telemedicine applications will increase collaboration between VHA and its partners, including DOD, other Federal agencies, state and local organizations, Veterans Service Organizations, academic affiliates, and industry.

b. Telemedicine should be considered when distance obstacles are significant barriers to the enhancement of collaborative relationships for clinical services.

c. **Goal 13.0:** Collaboration, planning, implementation and development of joint telemedicine activities with DOD will be optimized.

(1) **Action 13.1:** Under the Reinventing Government II (REGO II) initiatives, planning meetings between the telemedicine offices and information offices of VHA and DOD have been conducted and are ongoing. A draft of overall joint objectives and strategies regarding telemedicine has been developed (see Att. B).

(2) **Action 13.2:** VHA to adopt a joint objectives and strategies framework statement with subsequent appointment of VA-DOD joint working group(s) to further develop specific joint telemedicine project recommendations, standards and guidance.

(3) **Action 13.3:** The Telemedicine SHG will continue planning and guidance meetings between VA-DOD telemedicine offices with participation in joint educational and information dissemination activities.

f. **Goal 14.0:** Enhance collaboration by providing telemedicine information to Congress, other Federal agencies, academic health care systems, industry partners, and Veterans Service Organizations.

(1) **Action 14.1:** The Telemedicine SHG will participate in the activities of the Joint Working Group on Telemedicine and support the coordination of data collection regarding telemedicine across Federal agencies.

(2) **Action 14.2:** The Telemedicine SHG will conduct forums and meetings on a regular basis throughout the planning period with stakeholder groups to provide updates regarding telemedicine in VHA.

11. GOALS AND ACTIONS: TECHNOLOGY

The technology issues involving telemedicine are complex and varied. This paragraph is intended only to be a general introduction to the technology issues that are important for consideration by clinical telemedicine planners.

a. The clinical use of telemedicine is often described as either "store and forward" or "real-time interactive".

(1) **Store and Forward.** Store and forward refers to digitized images, video or audio clips, other patient data sent from a distance to a remote consultant who receives the consult at a later time. For example, a radiograph or a dermatology image may be digitized and sent along with clinical information for consultation by a remote clinician. This may be viewed as a type of multimedia Email. The savings related to this method are both human resource (time, scheduling) and technical (less bandwidth requirements, less hardware and software). A disadvantage is the lack of real-time assessment, interview, or interaction with the patient or consultant.

(2) **Real-time Interactive.** Real-time interactive refers to the use of videoconferencing technology to enable health care professionals and patients to conduct interviews, perform audio-visual assessments, facilitate team functions, and enhance delivery of care. Telemental health care using videoconferencing is an example of real-time interactive telemedicine.

b. **Telephone-based Care.** Telephone-based care may either be store and forward, e.g., pacemaker monitoring and/or images sent on plain old telephone system (POTS) or real-time interactive- telephone liaison care programs.

c. **Bandwidth.** Bandwidth is a term used to refer to the information carrying capacity of telecommunications connections. In simple terms, it is the "pipe" along which all data/video/audio necessary for telemedicine is sent from one location to the other. Bandwidth is often measured in digital fashion as kilobits per second (kbps) or megabits per second (mbps). In telemedicine, clinical applications have ranged from regular telephone line- 56-64 kbps to full T-1 (1.5 mbps or 1544 kbps) with fractions in between including 128 kbps, 384 kbps, 786 kbps, etc.

(1) In general, store and forward telemedicine demands less bandwidth use, less need for specific dedicated circuit availability while real-time telemedicine activities, using video, audio, data, digital images involve more bandwidth demands often with need for dedicated circuits.

(2) The information "pipe" can involve a number of different physical transports: regular telephone lines, Integrated Services Digital Network (ISDN), frame relay, Asynchronous Transfer Mode (ATM), Digital Subscriber Line (DSL), satellite, microwave, and other wireless technologies.

d. **External Technical Trends.** External technical trends that will likely influence the development of telemedicine include:

(1) Store and forward telemedicine will continue to grow rapidly with interactive videoconferencing being utilized for mental health and other identified clinical activities that need real-time interaction with patients and providers.

(2) Continued explosive growth in business need and demand for bandwidth and improvements in computing power will improve costs.

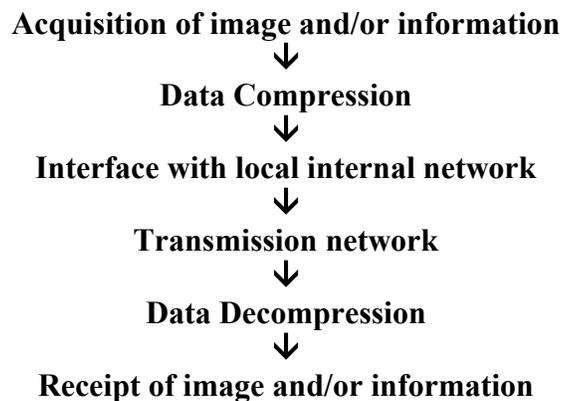
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(3) Open platforms, standards based, interoperable products will be necessary for telemedicine applications to develop.

(4) Telecommunications capabilities will grow with multiple technologies (ISDN, ATM, Frame relay, DSL, Cable, Satellite, wireless) available to provide maximum bandwidth.

(5) Internet and Intranet based activities will continue to expand though issues of security of information and privacy must be assured.

e. **Technical Flow Process.** The technical flow process for telemedicine activities involves the following stages:



***NOTE:** The overall process must ensure the security and privacy of information transfer with necessary provisions for authentication, confidentiality, and access to information. The overall process must include error checking.*

(1) **Acquisition of Image and/or Information.** This can range from the simple, e.g., audio over telephone, handheld camera to the complex - Digital X-ray or telepathology microscope systems. The goals of the acquisition stage are: accuracy of information capture, ease of clinician end-user utility and reliability of transfer. This stage can also involve various medical peripheral devices-cameras, stethoscopes, vital signs monitors, oto- or ophthalmoscopes, etc.

(2) **Interface with Local Internal Network.** The key issues are compatibility of information from capture sources and problems created by integration of telemedicine requirements with other requirements for local area networks.

(3) **Transmission Network.** The key issues are types and configuration of telecommunications transport media with a focus on cost, availability, and dedicated versus non-dedicated. The high bandwidth needs of a number of telemedicine technologies- particularly real-time videoconferencing, large files for uncompressed images, etc. are challenges as well as assessment and need for dedicated availability.

(4) **Receipt of Information.** The key issues here are conversion of digital information to end-user equipment with similar goals to acquisition stage.

f. **Responsibilities**

(1) The Office of the Chief Information Office (OCIO) is responsible for the overall direction, goals and objectives for VHA information technology (IT) to achieve excellence in health care value through enhancements in information systems.

(2) The OCIO, Telecommunications Support Services offices, and VISN offices are responsible for the planning and implementation of the telecommunications infrastructure to support telemedicine.

(3) The role for clinician leaders in telemedicine planning is to identify the functional requirements for specific clinical tasks to be accomplished. The role for OCIO and/or information management is to facilitate and integrate these requirements for maximum benefit and utility.

g. **Goal 15.0:** Telemedicine planning must be integrated and coordinated with overall VHA IT goals.

(1) **Action 15.1:** The Telemedicine SHG and Telemedicine field group will work with OCIO offices to identify and coordinate specific IRM requirements from within clinical telemedicine planning activities.

(2) **Action 15.2:** VISN clinical managers and VISN CIOs will identify functional requirements for information technology that will be required for VISN telemedicine applications. The Telemedicine SHG will consult and support this overall process through participation in planning meetings and other forums.

(3) **Action 15.3:** The Telemedicine SHG will work closely with the OCIO, VCIO Council and through the telemedicine field group to coordinate planning processes.

h. **Goal 16.0:** Clinical telemedicine planning documents must clearly identify specific functional technology requirements. **Action 16.1:** As clinical telemedicine demonstrations and status reports are produced, the Telemedicine SHG will identify and consult with OCIO regarding specific technology needs, issues, and implications.

i. **Goal 17.0:** To maximize interoperability and integration of telemedicine applications with each other and with electronic patient record. Telemedicine will depend on the overall success of IT efforts to maximize interoperability and integration of information in the electronic patient record.

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(1) **Action 17.1:** The Telemedicine SHG will work with the OCIO regarding support for this overall goal from a clinical telemedicine standpoint.

(2) **Action 17.2:** The Telemedicine SHG will participate with the VISTA Imaging team regarding integration, support, and utility for clinical telemedicine applications.

j. **Goal 18.0:** Telemedicine will make maximum cost-effective use of available bandwidth.
Action 18.1: The Telemedicine SHG will work with the OCIO and Telecommunications Support Services to identify bandwidth needs and demands for telemedicine applications and proposals.

12. GOALS AND ACTIONS: UNRESOLVED CHALLENGES

These areas of unresolved challenges include:

a. **Reimbursement**

(1) Lack of telemedicine reimbursement and reimbursement policy is a barrier to telemedicine in all sectors. In VHA, this issue will become increasingly important as telemedicine applications are further developed.

(2) Mechanisms for accurate capture of telemedicine workload, development of telemedicine procedure coding and costing must be further defined.

(3) The complex issues associated with the care of veterans who need and receive services at multiple locations or outside of VISN boundaries is the focus of the work of leadership groups within VHA. Telemedicine planning should be addressed in the ongoing recommendations and work regarding these areas. The transfer pricing models present distinct challenges since services provided in telemedicine do not involve the movement of patients. This means that there must be provision in these models for tracking services that are provided across VISN boundaries.

(4) With increases in telemedicine activities, documentation of services for purposes of transfer pricing will have to be developed. This is particularly important since with telemedicine, the patient may not physically move, but the source of service may cross facility, VISN and agency boundaries.

b. **Licensure, Privileging, and Credentialing**

(1) Telemedicine enables the practice of health care across state and organizational boundaries. In this regard, licensure issues have been identified as a major challenge in telemedicine planning.

(2) A number of states have passed legislation that specifically addresses the requirements regarding telemedicine practice for health care providers. In VHA, these issues must be addressed by the relevant policies and procedures associated with the licensure, credentialing, and privileging of practitioners in the VA health care system.

c. **Ethical and Legal, i.e., Consent, Confidentiality, Privacy, and Security.** Telemedicine will maximize the involvement of veterans in their health care by the provision of appropriate information/consent regarding telemedicine activities. The issues of security of information transfer and privacy/confidentiality are essential components to any telemedicine applications and will be addressed at every level of planning.

d. **Goal 19.0:** Telemedicine activities will be appropriately credited and reimbursed as allowed.

(1) **Action 19.1:** Develop a model for cost and benefit analysis of telemedicine- issues would include costing methodology including infrastructure apportionment, clinical work load apportionment, telecommunications apportionment, as well as revenue and/or benefit regarding time and travel savings, and impact on outcomes compared to alternatives. Telemedicine SHG to consult with Office of Research and Development, Medical Care Cost Recovery, CIO to develop this model for use during the planning period.

e. **Goal 20.0:** Telemedicine will ensure appropriate licensure, credentialing, and privileging for all practitioners consistent with VHA policy.

(1) **Action 20.1:** Further review of existing licensure, credentialing, and privileging policy issues that are relevant to telemedicine to be undertaken by the Telemedicine SHG, Office of Patient Care Services, National Center for Clinical Ethics, and VISNs.

(2) **Action 20.2:** Continue current efforts regarding joint Federal credentialing project. Privileging issues and determinations should be at the local or VISN level as it pertains to telemedicine-clinical practice and consistent with VHA policy.

(3) **Action 20.3:** The Telemedicine SHG will consult with accreditation agencies, as the Joint Commission on Accreditation of Health care Organizations (JCAHO), licensure bodies, Joint Federal Working Group, and professional clinical organizations regarding these issues as they are pertinent to telemedicine development and implementation.

(4) **Action 20.4:** Issue a directive on “Telemedicine Privileging.”

f. **Goal 21.0:** Telemedicine will ensure the provision of appropriate information and/or consent with maximal safeguards for privacy and confidentiality of information transfer.

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(1) **Action 21.1:** The Telemedicine SHG will participate in review and assessment of these areas in conjunction with Office of Patient Care Service, the OCIO, the National Center for Clinical Ethics, and VISNs.

(2) VISNs and telemedicine planners should clearly identify the mechanisms utilized at local and regional levels to ensure that these areas are appropriately safeguarded for clinical telemedicine activities.

13. END NOTES

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15. RESPONSIBLE OFFICE: The Office of Patient Care Services (11) is responsible for the contents of this Notice.

16. RESCISSION: This VHA Notice expires October 31, 2004.

Thomas L. Garthwaite, M.D.
Acting Under Secretary for Health

Attachments

Distribution: CO: E-mailed 10/8/99
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ATTACHMENT A

TELEMEDICINE STRATEGIC HEALTH CARE GROUP

1. MISSION

The mission of the Telemedicine Strategic Health Care Group (SHG) is to improve access, coordination, continuity, quality and outcomes of health care for veterans through the use of electronic information and communications technologies to provide and support health care when distance separates the participants.

2. VISION

a. In the rapidly changing world of health care and information technology, telemedicine can play an important role in the overall processes and outcomes of health care delivery through:

(1) Building new bridges between Department of Veterans Affairs (VA) clinicians and patients which can overcome barriers of distance and time.

(2) Improving access to care particularly in remote or isolated areas.

(3) Enhancing continuity of care.

(4) Maximizing the quality of care (consultations and remote experts).

b. The Telemedicine SHG will facilitate the development of strategies to guide the effective and efficient uses of electronic information and communications strategies to provide and support health care when obstacles of distance or time separate the participants.

3. GOALS

Telemedicine will enhance timely access and distance from health care sites which have been traditional obstacles to health care delivery. The Prescription for Change identifies as an Objective: "Provide improved services through better integration of inpatient and outpatient resources and through increased functioning as a "virtual" organization." Telemedicine goals will be guided by this overall Veterans Health Administration (VHA) objective. Telemedicine will actively involve the collaboration and coordination of clinical and information management stakeholders in the planning, design, implementation and evaluation of projects.

b. The Telemedicine Strategic Health Care Group will use this collaborative process to best accomplish its role of providing support to Veterans Integrated Service Network (VISN) offices and by advising the offices of Patient Care Services, SHGs, Chief Information Officer (CIO), Office of Policy and Planning, Office of Performance and Quality, and Office of Research and Development regarding telemedicine.

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c. Telemedicine planning will be guided by the involvement and collective knowledge of clinical health care disciplines, information and technology disciplines, educational and learning disciplines, and research in the process of investigation, design, implementation, and evaluation of innovative telemedicine projects and activities.

d. Telemedicine activities range from the simple use of the telephone to provide necessary health information, advice and recommendations to the use of advanced information and telecommunications technologies.

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5. FUNCTIONAL STATEMENT - CHIEF CONSULTANT: TELEMEDICINE (SHG)

Under the direction of the Chief Patient Care Services Officer and in coordination with the OCIO, the Chief Consultant of the Telemedicine SHG:

- a. Provides leadership to VHA's telemedicine program via coordination and collaboration and service to the VISNs.
- b. Optimizes the use of telemedicine in the veterans health care system
- c. Consults with VISN leadership, medical centers, strategic health care groups about the application of telemedicine standards to specific projects

- d. Serves as principal advisor on telemedicine to the Office of the Under Secretary for Health, Office of Patient Care Services, Office of the Chief Information Officer (OCIO), and the VISN leadership.
- e. Participates in the development of policies regarding telemedicine standards for VISNs and VA treatment facilities.
- f. Participates in the development of tools and collection of data to identify appropriate potential uses for telemedicine
- g. Fosters, supports and nurtures telemedicine projects and activities that improve the effectiveness and efficiency of health care delivery.
- h. Consults with VISNs and OCIO regarding VA activities involving selection, funding, and evaluation of telemedicine activities.
- i. Facilitates the coordination of medical centers and VISNs undertaking telemedicine projects and activities.
- j. Identifies need for telecommunications and ADP infrastructure support to the CIO.
- k. Works with the Offices of Policy and Planning and Performance and Quality to develop performance measures and expected outcomes for care.
- l. Performs liaison role with telemedicine provider groups nationwide and collaborates with other Federal agency telemedicine programs as the Department of Defense and other agencies where feasible.
- m. Represents VA on a variety of national telemedicine committees and presents at national conferences on behalf of VA. In addition, on the national level:
 - (1) Initiates and reviews proposed legislation.
 - (2) Assesses the impact of laws, regulations and policies.

ATTACHMENT B

**DEPARTMENT OF DEFENSE (DOD) – DEPARTMENT OF VETERANS AFFAIRS (VA)
TELEMEDICINE
OVERARCHING GOALS AND ENABLING OBJECTIVES**

1. We will integrate telemedicine to achieve clinical process reengineering or improved health care value (technical quality, cost, service satisfaction, access, or functional status).

- a. We will, at all times, seek to implement compatible technologies or joint ventures to maximize efficiency.
- b. We will facilitate joint expert working groups to develop and share telemedicine clinical protocols and pathways.
- c. We will use metrics-derived (evidenced-based) data to guide our decisions.
- d. We will develop recommendations for joint processes for clinical privileging in telemedicine across the health care continuum.

2. We will ensure technical compatibility across the health care continuum.

- a. We will jointly work to achieve data standardization and seamless sharing of information for telemedicine activities.
- b. We will develop and utilize a joint acquisition strategy, when possible, for all telemedicine technologies.
- c. We will jointly integrate telemedicine into a computerized patient record.

3. We will use telemedicine to improve patient and provider educational opportunities and expand provider skills.

- a. We will provide standardized telemedicine training programs to maximize telemedicine integration into clinical practice.
- b. We will use telemedicine and associated information technologies to enhance staff education.
- c. We will expand patient education initiatives through telemedicine and associated information technologies.

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4. We will utilize telemedicine technologies to create an efficient, responsive, and seamless health care delivery service.

a. We will develop and disseminate standardized clinical protocols and pathways to provide a uniform health care benefit for all beneficiaries.

b. We will use telemedicine technologies to maximize patient and provider satisfaction and make Military Health System/VA (MHSVA) the health care delivery service of choice.

c. We will use telemedicine to enhance the transition of care between the DOD and VA.

5. We will coordinate joint telemedicine development efforts to improve patient care

a. We will converge DOD and VA telemedicine development efforts to maximize resource utilization and jointly work projects of mutual benefit.

b. We will develop and use modeling and simulation to guide our future efforts.