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VHA Home Telehealth Toolkit
Version 1
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Introduction

This toolkit has been developed through a collaborative effort of VHA clinicians and administrators involved with delivering or overseeing the delivery of Home Telehealth services. The purpose of this toolkit is to provide standardized guidelines and procedures for the design and delivery of Home Telehealth services in VHA for the benefit of patients, their families, and clinicians. These standardized guidelines and procedures apply to:

1. Establishing a new Home Telehealth program
2. Revising or reviewing an existing program

Among the suggested benefits for Home Telehealth is that it can move the locus of care for patients with chronic diseases from hospitals into the home. Home Telehealth services have the potential to improve quality of life and satisfaction, while decreasing use of expensive services such as inpatient stays and emergency room visits. Home Telehealth may be particularly beneficial for the frail elderly who have mobility limitations and diminished access to transportation. Home Telehealth is neither a single health care intervention nor a simple vehicle to facilitate care delivery. Instead it is a “package of care” that can involve a range of health care interventions whose delivery is mediated via a number of different innovative information technologies.

Use of Toolkit

Any VHA clinician or administrator who wants to provide or is already providing Home Telehealth services can use this toolkit. The toolkit content includes common requirements that should be considered when providing Home Telehealth services. Selected appendices that are examples of existing policies, procedures, protocols, and other helpful forms and information from current successful Home Telehealth programs supplement these requirements.

Section 1.	Needs Assessment for Home Telehealth and Patient Selection Criteria
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Why Do a Needs Assessment?

It is important to target patient populations that are appropriate for the successful deployment of Home Telehealth services. Current Home Telehealth literature supports a variety of disease conditions that have been managed successfully. Conducting a needs assessment will help determine:

1. Sufficient patient-based need for Home Telehealth services
2. How and where the services will be integrated into the existing infrastructure or if new programs should be implemented
3. Whether there will be sufficient cost-savings/cost avoidance to sustain services

Performing Needs Assessment

Using available data sources such as DSS, KLF or others, generate a list of high-risk, high-use, high-cost patients and determine what diagnostic codes are most common in this population. Some of the most common patient populations that could benefit from Home Telehealth in VHA include patients with the following diagnoses:

1. Hypertension
8. Stroke

- | | |
|----------------------------|----------------------|
| 2. Diabetes | 9. Arthritis |
| 3. Heart failure | 10. Depression |
| 4. Coronary artery disease | 11. PTSD |
| 5. COPD | 12. Bipolar disorder |
| 6. Dementia | 13. Palliative Care |
| 7. Pain management | 14. Schizophrenia |

Data on the above population needs to be obtained for the VISN/medical center/satellite/CBOC for which the Home Telehealth program will be located. In reviewing data for the target population, numbers of hospitalizations, hospital bed days of care, ER visits, unscheduled clinic visits, nursing home admissions, nursing home bed days of care, and pharmacy prescriptions should be taken into account.

In addition to doing a patient needs assessment it is also recommended that clinicians be surveyed to determine what services are currently being provided, where gaps in services exist, and the level of interest in augmenting current care with Home Telehealth services.

General Selection Criteria

To determine who may be appropriately referred for Home Telehealth services, commonly used VHA criteria include:

1. Eligible veterans with established high-use, high-cost consumption patterns.
2. Homebound veterans with chronic health conditions

General Exclusion Criteria

1. Home/residential environment that is unsafe for patient, staff or equipment
2. Documented violence/aggression
3. Active substance use
4. Patients who decline participation in the informed consent process
5. Patients without access to a telephone and electricity

Needs Assessment: Sample Forms (See Appendices)

Appendix 1.A: [VHA's Home Telehealth Needs Assessment Tool 1](#)

Appendix 1.B: [VHA's Home Telehealth Needs Assessment Tool 2](#)

This guide was developed to serve as a suggested foundation for implementing a successful Home Telehealth program that incorporates all required elements for provision of services, competency, and accreditation.

VHA Directive # 2002-042 The Credentialing and Privileging of VHA Health Care Providers Remotely Delivering Health Care to Patients at Home, In Vet Centers, and In Non-health Care Settings via Telemedicine and/or Telehealth.

This directive is a comprehensive statement on the requirements for VHA provision of remote services through Home Telehealth. Its criteria for providing remote telehealth services to patients in their homes must be followed in addition to any other accreditation requirements (e.g., Joint Commission on Accreditation of Healthcare Organizations (JCAHO)). The directive is available on line at <http://www.va.gov/publ/direc/health/direct/12002042.pdf>

Management of Services

Before initiating a program decisions about care management need to be made. The following questions should be addressed before implementing any Home Telehealth program.

1. Who will be managed (based on the needs assessment)
2. How will they be managed (e.g., what services will be provided? Will these services replace existing care, augment existing care, or provide services not currently provided?)
3. When will they be managed (e.g., frequency of services)
4. Who will provide the services

The answers to these questions can be found in data obtained through the needs assessments and internal databases. Clinicians most likely to provide services include: nurses, social workers, dieticians, rehab therapists, pharmacists, and physicians. Once these questions have been answered then policies, procedures, informed consent, and protocols can be initiated.

Care Coordination

Assessment and monitoring of patients in their residential environment provides the appropriate information to providers and the healthcare system to assure the right care, at the right place, and at the right time. Care coordination reduces clinical complications and the use of resources that these complications can consume. Using care coordination as part of any Home Telehealth program can increase work efficiency and enhance management of chronic disease through collaboration between the Home Telehealth service providers and other healthcare team members.

Policies and Procedures (see Appendices)

Appendix 2.A: [VHA's Home Telehealth Policy Template](#)

Protocols (see Appendices)

Appendix 2.B: [VHA's Home Telehealth Equipment Maintenance Policy](#)

Appendix 2.C: [VHA's Home Telehealth & Disease Management Protocol](#)

Appendix 2.D: [VHA's Home Telehealth Safety Considerations](#)

Informed Consent (see Appendices)

Appendix 2.E: [VHA's Home Telehealth Informed Consent/Fact Sheet](#)

Section 3.	Human Resources
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The following examples are provided to help meet Human Resources and accreditation requirements when implementing a home telehealth program. Credentialing and privileging of home telehealth service providers is addressed in the VHA Directive #2002-042. Sample orientation guidelines and functional statements/competencies are provided in attached Appendices listed below. For purposes of consistency, the term 'care coordination' and 'care coordinator' are used. This does not preclude use of the term 'case management', 'case manager', or other similar positions and terminology.

Employee Orientation Checklist

Appendix 3.A: [Care Coordinator Orientation Checklist](#)

Appendix 3.B: [Equipment Skills Checklist for Employees](#)

Employee Functional Statement/Competencies and Position Description

Appendix 3.C: [Care Coordinator Functional Statement/Competencies](#)

Appendix 3.D: [Program Assistant Competencies, Care Coordination Program](#)

Appendix 3.E: [Secretary Competencies, Care Coordination Program](#)

Appendix 3.F: [Care Coordinator, Title V Position Description](#)

Credentialing and Privileging

VHA Directive # 2002-042 is available on-line at
<http://www.va.gov/publ/direc/health/direct/12002042.pdf>

Technical Requirements

After establishing the target population and Home Telehealth services to be provided, selection of technology needs to be made within existing technical support systems.

Home Telehealth Equipment

There are several vendors with products to deliver Home Telehealth services. It is recommended that whatever products are selected, they should be demonstrated by the vendor and pilot tested in the target patient population whenever possible before purchase to ensure appropriateness. **Technology should be selected to meet the needs of the target population instead of making the target population fit within the scope of services provided by the technology.** Once technology has been decided upon it is recommended that other customers of the vendor be contacted as a reference; the vendor should be able to provide contact information for other customers. This process is useful in identifying any problems or pitfalls with using the technology.

The following is a partial listing of website addresses for companies that sell Home Telehealth products and services:

www.amacalert.com

www.cybercare.net

www.healthhero.com

www.informedix.com

www.meridian-medical.com

www.viterion.com

www.americantelecare.com

www.cybernetmedical.com

www.hommed.com

www.llmi.com

www.neptec.com

www.windcurrentstech.com

Back-up for Equipment Failure (See Appendices)

A process for providing services in the event of equipment failure should be outlined in the program policy and procedure. Customer support options provided by each vendor should also be included in the back-up procedure.

Appendix 4A: VHA's Protocol for Disruption In Home Telehealth Service

Appendix 4B: [VHA's Home Telehealth Technology Trouble-shooting Log](#)

Information Management and Security (See Appendices)

All technologies selected for providing Home Telehealth services must comply with the requirements of the Health Information Portability and Accountability Act (HIPAA).

Appendix 4.C: [VHA Directive 6210 Automated Information System \(AIS\) Security](#)

Appendix 4.D: [VHA Directive 0710 Personnel and National Information Security](#)

Appendix 4.E: [VHA Directive 6214 Information Technology Security Certification & Accreditation Program](#)

Technology Assignment Algorithm (see Appendices)

Appendix 4.F: [VHA’s Home Telehealth Technology Assignment Algorithm](#)

Equipment Maintenance and Infection Control (see Appendix)

Home Telehealth equipment may or may not meet the JCAHO requirements for durable medical equipment (DME). If devices do meet requirements then the local medical center’s policy for maintenance of such equipment should be followed. These procedures should be incorporated into the program policy or stand alone as a separate policy. Vendor guidelines for equipment maintenance should also be followed to comply with warranties or other requirements.

Home Telehealth equipment must be sanitized between patient use to ensure compliance with DME, JCAHO standards, and local medical center policy and procedures. These procedures should be incorporated into the program policy or stand alone as a separate policy.

Appendix 4.G: [VHA’s Home Telehealth Infection Control Policy](#)

Technology Dos and Don’ts

Dos	Don’ts
Know your patient population: literacy level, education level and socioeconomic status because these things often impact whether patients will accept the technology.	Market your technology as computers. Older patients especially are often intimidated by computer technology and might not be accepting of the technology.
Choose technology that is simple.	Assume patients know about the Internet or other types of technologies-don’t take anything for granted.
Choose technology for the right reasons, always put the patient’s needs first.	Expect the veteran to be able to use the technology without coaching or repetition.
As much upfront education on the technology as possible.	Worry if you continually need to reinforce the use of the technology.

Inventory Tracking Tools (see Appendices)

Appendix 4.H: [VHA’s Home Telehealth Equipment Tracking Tool Delivery Sheet](#)

Section 5.	Workload Credit and Budget
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Workload Credit

The process by which DSS stop codes are attached to clinical activity for the purposes of recording numerical data on Home Telehealth related visits. Each local facility currently will assign appropriate codes to document encounters with patients using Home Telehealth. Currently a national task group is working to identify stop codes for Home Telehealth services. A document Telemedicine/Telehealth Coding, Billing, Workload Credit, and Reimbursement is currently in draft format.

Budget (See Appendix)

Appendix 5.A: [VHA’s Home Telehealth Budget Template](#)

Section 6.	Patient Requirements
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The following appendices are examples of tools used with patients who will be receiving home telehealth services. Each tool may need to be revised to fit the specifics of the particular equipment used in the home. Since the home telehealth services will be provided to patients with a variety of health care problems and diagnoses, patient education materials used locally should be appropriately provided to home telehealth patients.

Rights and Responsibilities (see Appendix)

Appendix 6.A: [VHA's Home Telehealth Patient Rights and Responsibilities](#)

Equipment Safety (see Appendix)

Appendix 6.B: [VHA's Home Telehealth Equipment Safety Considerations](#)

Skills validation Checklists (see Appendix)

Appendix 6.C: [VHA's Home Telehealth Patient Skill Validation Checklist](#)

Privacy and Confidentiality

Patient privacy in relation to audio-video visits will be maintained in accordance with VHA Directive # 2002-042 www.va.gov/publ/direc/health/direct/12002042.pdf and JCAHO standards <http://www.jcaho.org>.

Section 7.	JCAHO/Documentation Requirements
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Applicable Standards

Home Telehealth programs will have accreditation requirements found within the continuing care standards. This was recently confirmed by a visit of the care coordination leadership for VHA to the Joint Commission Headquarters in Chicago. A presentation and discussion cemented that programs would not be viewed as home care unless they were embedded in traditional home care models such as HBPC. A careful review of applicable standards is important before developing program policies and procedures.

Documentation Templates (See Appendix)

Appendix 7.A: [Network 1 Patient Education Template Note](#)

Initial Assessment (See Appendix)

Appendix 7.B: [Network 8 TLC Template Progress Note](#)

Televisit Note (See Appendices)

Appendix 7.C: [Network 1 Home Telehealth Progress Note](#)

Appendix 7.D: [Network 8 HH Initial Assessment and Note](#)

Monthly Note/ Quarterly Note (See Appendix)

Appendix 7.E: [T-Care Monthly Note](#)

Discharge Note (See Appendix)

Appendix 7.F: [T-Care Dis-Enrollment Progress Note](#)

Section 8.	Performance Improvement and Outcome Evaluation
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Data Collection Process

When designing an evaluation, one must select the 1) patient population of interest; 2) health care / telehealth service to be provided; and 3) appropriate measures. The patient population can be defined in two ways. First, the population can be defined by diagnosis, e.g., patients with diabetes or mental health problems. The second way is to define common problems experienced by the target population, e.g., medication management, over utilization of certain services. Section 1 of this toolkit describes the needs assessment process and patient selection criteria.

The health care or telehealth service to be provided can be defined along a continuum of care (e.g., from urgent/emergency care to routine to care delivered at home), by provider (e.g., MDs (specialty, primary); RN; allied health), by services offered (care, consultation, monitoring, and / or educational), or by telemedicine communication mode or delivery (e.g., store & forward, Web based consultation and teaching, e-mail, phone, or interactive video).

The third axis represents the important outcome measures selected for the particular population and service delivered. Outcomes include utilization, patient and provider satisfaction, and clinical/functional/quality of life outcomes. These outcomes are described in this section.

The last component of this section includes an example of service line quality measures for performance improvement.

Available Databases for Patient Data

1. KLF
2. DSS
3. VISTA/PTF
4. CPRS

Patient Demographics

1. Age
2. Race
3. Marital status
4. Eligibility status
5. State/county [can be used to estimate travel distance, rural vs. urban]
6. Service [Era; combat]
7. Education level
8. Insurance coverage

Utilization Data (See Appendix)

The following should be considered when tracking utilization outcomes in the target population.

1. Number of hospital admissions
2. Number of hospital bed days of care
3. Number of ER visits
4. Number of unscheduled/walk-in clinic visits
5. Number of pharmacy prescriptions
6. Number of lab tests
7. Number of outpatient procedures
8. Number or frequency of phone calls to providers/case managers

Patient / Provider Satisfaction

Patient satisfaction

A few telehealth specific patient satisfaction surveys have been developed. Two examples are provided below. A third survey can be found in the following reference:

Demiris, G., Speedie, S., & Finkelstein, S. (2000). A questionnaire for the assessment of patients' impressions of the risks and benefits of home telecare. Journal of Telemedicine and Telecare, 6, 278-284.

Appendix 8.A: [Patient Satisfaction Survey Example](#)

Appendix 8.B: [VHA Telemedicine Patient Feedback Survey](#)

Provider satisfaction

Two examples of provider surveys are included below. Also included is an “item bank” – items can be selected to create a provider survey tailored to a specific project.

Appendix 8.C: Provider Surveys [Example 1](#) - [Example 2](#)

Appendix 8.D: [VHA Telehealth Provider Item Bank](#)

Clinical / Functional / Quality of Life Outcomes

Clinical outcomes will relate directly to the population receiving services. For example, if the population is defined by diagnosis, e.g., patients with diabetes or hypertension, then important clinical outcomes include stabilization of HgbA1c and/or blood pressure. If the population is defined by a health care problem, e.g., medication management, then the outcome measure relates to that problem. For example, medication compliance can be assessed using pill counts, pharmacy refills, laboratory testing, and patient self-report.

Functional outcomes can address physical, social, or cognitive/psychological function. Examples of physical function measures include the Katz Index of Activities of Daily Living (ADL) or Functional Independence Measure (FIM). Social function can be assessed using scales such as the Social Support Questionnaire. Cognitive/psychological function can be assessed using scales such as the Geriatric Depression Scale.

The most commonly used generic measure of quality of life is the SF-36 or SF-12. Veteran specific versions are recommended (e.g., SF-36V). Disease specific instruments are useful as well, for example the Minnesota Living with Heart Failure Questionnaire.

A full description of the functional status and quality of life tools listed above can be found in: McDowell, I. & Newell, C. (1996). Measuring health: a guide to rating scales and questionnaires, 2nd. ed. New York: Oxford University Press.

Performance Improvement / Quality Measures

Below is an example of service line quality measures for performance improvement. Within the list are appropriate measures addressing compliance with VA Clinical Guidelines.

Appendix 8.E: [Example Service Performance Measures](#)

Section 9.	Marketing
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Marketing the Home Telehealth program should begin during the planning phase and should include internal and external stakeholders. Sharing of information early on will also encourage buy-in from healthcare providers and other clinicians whose collaboration will be vital to the success of the program. Educational programs, technology fairs, luncheons or related events can be used to spread the word and build a base of support for the program. Press releases to the local media-newspapers, TV and radio stations should also be considered working through the local public affairs officer.

Marketing materials (see Appendices)

Appendix 9A: [Virtual Learning Center – Home-Telemedicine Improves Access & Quality of Healthcare and Decreases Overall Costs](#)

Appendix 9B: [Lesson of the Month – VA Connecticut Healthcare System home telemedicine program optimizes care to some of their homebound](#)

Appendix 9C: [VHA's Home Telehealth Press Release](#)

Glossary of terms: This is a partial listing of the most commonly used words or phrases to describe Home Telehealth activities, equipment or requirements.

Analog – Information electronic or otherwise that is created and transmitted as a continuous stream. Compare this to digital information generated by computers. Most Home Telehealth devices require the use of analog (direct dial, not through the PBX) not digital phone lines to operate.

Bandwidth – The capacity of an electronic transmission to transmit data per unit of time. The higher the bandwidth, the more data can be transmitted. Typically measured in kilobits or megabits per second (Mbps). Standard telephones are low bandwidth devices with cable TV being high bandwidth.

Baud rate – Is the ring rate or line power of the telephone line providing service into a given structure (home). Most Home Telehealth devices require a minimum baud rate of 14,000 to make successful video capture. However, the lower the Baud rate the likely disconnections will happen.

Component video – This type of video yields better image quality, higher lines of resolution, and better color.

Digital – Information coded in numerical values (bits). Digital data streams are less susceptible to interference like analog streams are. They can be more easily integrated with other data streams such as voice/video/data.

Digital camera – Captures images (still or motion) digitally and does not require analog to digital conversion before the image can be transmitted or stored in a computer. Most Home Telehealth equipment uses digital video cameras.

Encryption – A mathematical transposition of a file or data stream so that it cannot be deciphered at the receiving end without the proper key. Encryption is a security feature that assures only the appropriate parties participates in a video visit or data transfer.

Firewall – A computer connected both to the Internet and the local hospital network that prevents the passing of Internet traffic to the internal hospital network. Provides an added security layer.

Frame rate – Frames per second (fps) displayed on a video unit. A frame rate of 25-30 is considered full motion. Anything less than that is noticeably “jerky.” Slower frame rates may be inadequate for some assessments such as gait and balance activities.

HL7 – Health Level 7. A standard interface between hospital information systems.

Internet – A loose gathering of thousands of computer networks forming an enormous worldwide area network.

Intranet – A “private Internet”, or internal web that employs certain communication protocols used over the Internet. The Intranet may be linked to the public Internet through tightly managed gateways.

ISDN – Integrated Services Digital Network, a low-to-medium speed technology for digital telephone. Some Home Telehealth is ISDN based and can be used where available.

Local Area Network (LAN) – A computer network linking computers, printers, servers, and other equipment within a system. Can support audio, video, and data exchange.

Modem – Modulator/Demodulator. Enables transmission of digital data over standard analog phone lines and cable video systems.

Network – An assortment of electronic devices (computers, printers, scanners etc.) connected by wires or wireless for mutual exchange of digital information.

PBX – Private Branch Exchange (a.k.a. the switchboard) is a telephone system (i.e., switchboard, telephone lines, switching computer) within a VHA facility/campus that switches internal phone lines between VHA users, who actually share a certain number of external (outside) phone lines. Having a PBX saves money by reducing the number of lines required to connect all VHA facility telephones to the telephone company’s central office.

Peripheral devices – Attachments to videoconferencing systems to augment their communications or medical capabilities. Examples include electronic stethoscopes, blood pressure cuffs, glucometers, and weight scales.

Pixel – A picture cell with specific color or brightness. The more pixels an image has, the more detail or resolution it can display.

POTS – Plain Old telephone System. The analog, public-switched telephone network in common use throughout the world. Most Home Telehealth products rely on POTS.

Real time – Sends and receives audio/video/data simultaneously, without more than a fraction of a second delay.

Resolution – The level of detail that can be captured or displayed. For video displays resolution is measured in pixels X lines X bit depth.

Store-and-forward – captured audio clips, video clips, still images, or data that are transmitted or received at a later time (sometimes no more than a minute).

Telehealth – The electronic provision of health care and information services for the direct benefit of patients and their families.

Thumbnails – Miniature pictures of images using very small, low-resolution data files. These download for display very quickly.

Transmission rate – Amount of information/unit of time that a technology such as POTS or digital ISDN phone line, satellite or wireless technology, or local area network can transmit.

Wide area network (WAN) – Wider in geographic scope than a LAN. Provides digital communications (voice/video/data) over switched or un-switched networks.

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Hersh, W., Helfand, M., Wallace, J., Kraemer, D., Patterson, P., Shapiro, S., & Greenlick, M. (2001). Clinical outcomes resulting from telemedicine interventions: a systematic review. BMC Medical Informatics and Decision Making, 1(5). Available at <http://www.biomedcentral.com/1472-6947/1/5>

Kinsella, A. Home Telehealth in the 21st century: A resource book about improved care services that work. Information for Tomorrow, Kensington, MD. 2000.

Noel, H and Vogel, D. Resource costs and quality of live outcomes for homebound elderly using telemedicine integrated with nurse case management. *Care Management*, October 2000 6(5): 22-31.

Meyer, M., Kobb, R. & Ryan, P. Virtually healthy: chronic disease management in the home. *Journal of Disease Management*. June 2002.

Salvatore, T. A telehealth primer for managers. *Home Healthcare Nurse Manager*. Sep/Oct 4(5): 28-31.

American Telemedicine Association, 'Home Telehealth Clinical Guidelines', Oct 17, 2002
www.americantelemed.org/news/newres.htm

American Telemedicine Association, 'Proposed Home Telehealth Satisfaction Item Bank', June, 2002 www.americantelemed.org/news/newres.htm

Contacts

Websites for telehealth organizations and publications have been provided as well as VHA contacts to help answer any questions that might arise in the process of planning for and implementing a Home Telehealth program. Please take advantage of these expert sources.

Websites:

Federal Telemedicine Update
www.federaltelemedicine.com

VHA Telemedicine
www.va.gov/telemed

Telemedicine Center
www.telemed.org

Telemedicine Research Center
www.trc.telemed.org

Telemedicine Information Exchange
<http://tie.telemed.org>

Journals:

Journal of Telemedicine and Telecare
www.qub.ac.uk/telemed

Telemedicine Journal and e-Health
www.liebertpub.com

Technology and Health care

Technology in Practice

Technology in Society

Organizations:

American Telemedicine Association

www.atmeda.org

American Telemedicine Service Providers

www.atsp.org

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