VHA’s Rehabilitation Strategic Healthcare Group and Office of Care Coordination are collaborating with VA Office of Information & Technology (OI&T) and Wide Area Network (WAN) Managers to create VHA’s Polytrauma Telehealth Network (PTN) to better serve combat wounded veterans returning from Afghanistan and Iraq. The PTN will use videoconferencing equipment and peripherals to link VHA’s 21 Polytrauma sites, to better facilitate access to expert consultation and care among clinical care teams, veterans, and caregivers. It is also anticipated that the PTN will help veterans and their caregivers navigate between the various resources and care teams throughout the rehabilitation process. The PTN will represent VA’s first coast-to-coast videoconferencing network operating over Internet Protocol (IP). Therefore, forming the PTN will help VA define network performance standards, such as a Quality of Service (QoS) enhancements, beyond the current ‘best effort’ traffic control, for information traveling across the VA network. Establishing QoS for PTN will support other telehealth IP videoconferencing applications added in the future. Currently, 13 of VHA’s 21 VISN’s have already installed their PTN equipment; other PTN features in place include the PTN bridging unit, and PTN national call scheduling software. The PTN is to be completely installed by the end of this summer.

VHA’s Level I Polytrauma Center staff in Minneapolis (Left) are clearly delighted with their new Polytrauma Telehealth Network (PTN) equipment installed in February 2006. Minneapolis can use this equipment to videoconference with its four Level II Polytrauma sites as well as VHA’s three other Level I centers and 13 other Level II sites.
Office of Care Coordination

Telehealth: Re-Engineering of Services and Engineering of Systems

By Adam W. Darkins, MD

The value proposition that makes sense in terms of using telehealth to supplement/replace the existing way in which care is being provided is that telehealth can provide:

1. Comparable care at a lower cost
2. Improve the quality of care at the same cost
3. Offer enhanced quality of care at lower cost; and/or
4. Enable delivery of services in remote places where employment of specialist providers presents challenges

Often when telehealth-based care is supported by grant-funding or is a short-term project, it does not result in a fundamental restructuring of the underlying care delivery process. In the event that there is an equipment failure, the back-up system is therefore often the pre-existing process of care that is essentially double running in tandem with the telehealth-based care. The importance of this is twofold. Firstly, it means that providing a back-up system is easy because the default is the face-to-face delivery of care based upon physical presence or transport of the patient. Secondly, and as a direct consequence of what has just been described, cost savings that re-engineering of care and eliminating/reducing elements of the face-to-face care might have brought about are not realizable. Therefore, the business case for telehealth is either weakened or removed. The question of how the information technology (IT) infrastructure for telehealth is configured is therefore of fundamental importance to the program and often determines whether the program can make the transition to a fully-fledged service or is memorialized as a promising project that failed to make the cut and thereby survive.

In the Veterans Health Administration (VHA) as telehealth programs are growing and moving from pilots and projects into mainstream services, the question of the engineering and back-up/redundancy of the IT systems is assuming ever greater importance. Telehealth services are becoming mission critical elements in how care is being delivered in VHA and the engineering of the systems that support these services with the necessary back-up and redundancy is a critical element in the design of these systems.

The Poly Trauma Telehealth Network (PTN) that VHA is currently developing is an excellent case in point. It is being developed to enable combat wounded veterans from Operations Enduring Freedom and Iraqi Freedom (OEF/OIF) to live closer to their own communities and have ready access to specialist care. A critical part of the development of this national network is the quality of service (QoS) of the wide area networks (WAN) at the VISN and national levels to support the care. IT systems in health care are bandwidth hungry applications. Video communications that are supported by Internet Protocol (IP) are not forgiving of congestion on WAN’s if “best effort” decides the routing of packets. OCC is working with telecommunications in VHA, VISN CIO’s and WAN managers to establish QoS on the network that ensures the quality and continuity of current clinical operations on the PTN and provides a model for subsequent national telehealth services in VHA.

Similar engineering considerations apply to the ongoing development of the national infrastructure VHA is developing for Care Coordination Home Telehealth (CCHT). Back-up and redundancy of servers was a critical component to the design of these systems. These back-up systems are in place and subject to regular testing. These servers connect over WAN’s. The Network Response Time for CCHT systems over WAN’s is being monitored real-time and mapped across the VISN’s. This map shows the current response time needed to communicate with the VISN’s and with the servers that support the technology. It is updated every 5 minutes and is a resource that can immediately identify if there is an issue with a technology support server or if particularly heavy network traffic is likely to present a problem. This information is available to VA staff at

http://vaww.etech.med.va.gov/networkstatus/

The standardization, interoperability and engineering of the various systems that VHA is developing to support telehealth are vital parts in ensuring the continuity of clinical services. Telehealth leads must be aware of these issues and OCC is working to ensure they are factored in to decisions about the growth of

Adam Darkins, MD
Chief Consultant
VHA’s Office of Care Coordination
By Cathy Cruise, MD

As we enter the second half of fiscal year 2006 and prepare for the Care Coordination and Telehealth Leadership Forum in Denver, I’d like to take a moment to recognize the progress and note the future direction of Telerehabilitation within VHA. Telerehabilitation would not be possible without the hard work and dedication of the Telerehabilitation Field Workgroup, a very inclusive, enthusiastic group of rehabilitation clinicians from all VISN’s and without the untiring efforts and sense of humor of John Peters in the Office of Care Coordination.

The Telehealth Leadership Forum in Denver will highlight exciting presentations from many of the telerehabilitation groups... ...Dr. Barbara Sigford (VHA’s Director of PM&R) will speak...

The increased access to rehabilitation services through video-monitored visits has proven itself invaluable. Just a few of the many examples are the telerehabilitation clinics set up at the Denver VAMC under the leadership of Dr. Donna Blake and Dr. Marilyn Selinger, which have enabled veterans to receive wheelchairs, prosthetics and orthotics and speech therapy services that would not otherwise have been possible if travel were needed.

Finally, research remains the cornerstone of future success. Two notable projects underway are the work of Dr. Dale Strasser at the Atlanta VAMC on team functioning and telehealth, and the work on Dr. Helen Hoenig and Jon Sanford comparing telerehabilitation to traditional in-home rehabilitation.

Through the Telerehabilitation Field Workgroup, we have strategically focused on six areas of telerehabilitation. These include Polytrauma, Multiple Sclerosis, Spinal Cord Injury, Care Coordination/Home Telerehabilitation, Care Coordination/General Telerehabilitation and Telerehabilitation Research. In each of these areas, there is a dedicated group of clinicians forging their mission forward. There is not enough space to mention all, so I’ve selected a few to highlight.

In the area of Polytrauma, the big news is the Polytrauma Telehealth Network (PTN), for which equipment has been installed in 13 VISN’s. The PTN is designed to connect the Level I and Level II Polytrauma Rehabilitation Centers across a high speed, reliable network, which will allow for real time education and clinical consultation. The PTN will undoubtedly ease the transition of Operation Iraqi Freedom/Operation Enduring Freedom (OIF/OEF) veterans as they move from the Level I centers to their local VISN’s.

In the Multiple Sclerosis (MS) and Spinal Cord Injury (SCI) arenas, a major focus has been the development of specific content dialogues for in-home messaging devices. The Multiple Sclerosis Centers of Excellence, led by Dr. Jodie Haselkorn, Dr. Robert Kane, Dr. Mitch Wallin and Dr. Aaron Turner are testing a dialogue which will allow veterans with MS to report their symptoms and vital signs as well as receive education regarding MS on a daily basis. A similar dialogue for veterans with Spinal Cord Injury is being developed by clinicians at the Cleveland VAMC led by Dr. Chester Ho and Christine Woo. Both the MS and the SCI dialogues promise to be of great clinical benefit.

Care Coordination Home telerehabilitation continues to gain in importance as the need for follow-up and education regarding Activities of Daily Living and Instrumental Activities of Daily Living grows. The Low ADL Monitoring Program (LAMP) at the Gainesville VAMC led by Dr. Chuck Levy and greatly supported by Kathy Horn and others continues to provide the field with an excellent model as well as a resource of enthusiastic, dedicated clinicians always ready to help.

In the arena of Care Coordination General Telerehabilitation,
By Junius Lewis, MSHA

The VHA National Teleretinal Screening Program is definitely on the Fast Track for implementation. Utilizing the “lessons learned” during implementation in our pilot VISN’s (1 and 20) has been extremely helpful to our implementation managers. It has enabled the implementation team to iron out the wrinkles in the processes, and each successive implementation is getting smoother and faster. At the current rate of implementation, it is anticipated that full implementation will be completed in FY06.

The four Implementation Managers are:

- **Janis Sollenbarger**
- **Linda Towson**
- **Larry Carlson**
- **Steve Koller**

And here is a quick summary of their implementation status:

**Janis Sollenbarger**
- **VISN 7** - Myrtle Beach CBOC, Savannah CBOS, Charleston, Atlanta and Lawrenceville CBOC - **Status: Implemented**
- **VISN 8** - North Florida/South Georgia – **Status: Finalizing**
- **VISN 18** - Phoenix, Big Spring - **Status: Implemented**
- **VISN 17** - Temple and Austin - **Status: Scheduled first week in June**

**Larry Carlson**
- **VISN 12** - Madison, WI, Rockford, IL – **Status: June 7-8**
- **VISN 22** - San Diego and Sepulveda CA - **Status: June 13-15**
- **VISN 19** - Denver, Salt Lake City UT - **Status: June 27-28**
- **VISN 16** - Oklahoma City OK – **Status: July**

**Linda Towson**
- **VISN 10** - Canton CBOC, Cleveland VAMC, Dayton VAMC - **Status: Implemented**
- **VISN 6** - Salisbury VAMC - Implemented; Fayetteville NC CBOC, Richmond VA VAMC, Durham NC VAMC Status: Work in Progress
- **VISN 9** - Memphis VAMC, Memphis North CBOC, Memphis South CBOC - **Status: Work in Progress**

**Steve Koller**
- **VISN 2** - Albany, Glens Falls, Plattsburg, Bainbridge, Canandaigua – **Status: Implemented**
- **VISN 16** - Kansas City, Leavenworth, Wichita, Columbia – **Status: Implemented**
- **VISN 23** - Minneapolis, Iowa City – **Status: Work in Progress**

The Office of Care Coordination held a Teleretinal Imaging Update Broadcast hosted by Dr. Adam Darkins on May 11, 2006 on the VA Knowledge Network (VAKN). It was an opportunity to share what we are doing, where we are going and to get input from folks in the field to help keep us moving in the right direction. The main purpose was to update the VISN leads in eye care, primary care, information technology and general management concerning the national teleretinal imaging program for diabetic retinopathy screening. The broadcast focused on the progress of the clinical, technical and business implementation of the program to date.
Care Coordination Home Telehealth CCHT National Training Center

Sunshine Training Center Roundup

Here is an update on activities this quarter from the Sunshine Training Center. The Caring for the Caregiver on-line course content has been created. The course is now with EES for web development. We hope to announce its availability for field staff sometime in the summer.

The Sunshine Training Center wishes to gratefully acknowledge our content authors for the Caring for the Caregiver Course they are:

- Carla Anderson MSN, RN-VISN 8
- Nancy Campbell MSW, LISW-VISN 10
- Rita Kobb MN, GNP-BC-Sunshine Training Center
- Robert Lodge MSW, LCSW-Sunshine Training Center
- Tara Stablein LICSW, MSCS-VISN 20
- Linda Torres LCSW-VISN 3
- Barbara Weber RNC, MSN, CCM-VISN 23

We are in the final stages of developing content for the last on-line course in the second national curriculum for CCHT entitled:

Enhancing Patient Education & Decision Making

It hopefully will be available sometime after October 2006.

Training center staff have been busy working on the Office of Care Coordination’s 2006 Mandatory Topics Review Program. This is the annual education that will help CCHT field staff demonstrate competency and meet accreditation requirements. The topics included for this year’s program came from a national needs assessment survey sent out to the MVP Leads group in January of this year. The topics include:

- patient orientation
- competency assessment and compliance
- marketing strategies
- accreditation preparedness
- coding and workload update
- documentation
- equipment management
- performance improvement

The Mandatory Review Program is now available to all VA Staff on the Sunshine Training Center intranet website: http://vaww.va.gov/occ/trainingcenter/Sunshine.asp under the Training and Education tab.

The program is available in PDF format and includes a final exam that can be printed and placed in the employee’s competency folder to help meet documentation requirements.

DENVER MEETING ACTIVITIES:

We will be graduating our Master Preceptor candidates at the Leadership Forum in Denver next month.

The training centers will also be presenting a panel on training needs and issues and will give an update on training center activities.

We look forward to seeing many of you in Denver.

Questions? Please contact Rita Kobb at 386-754-6437 or rita.kobb@med.va.gov

Visit the CCHT Collage site regularly at http://vaww.collage.research.med.va.gov/collage/E_CCHT
Performance Improvement and CCHT Programs

By Linda Foster MSN RN
OCC Quality Manager

CCHT in VHA is at the leading edge of health care development, providing “The Best Care Anywhere”\(^1\).\(^2\) The CCHT initiative is a work in progress and is based upon a model of continuous quality improvement that includes implementing CCHT, evaluating, critically reviewing the model and re-implementing it. Now that nearly all networks have achieved Designation status based upon their initial implementation of CCHT, the next focus must be on outcome achievements and performance improvement in addition to both internal and external accreditation considerations. The CCHT Conditions of Participation, under which each VISN will have achieved Designation status, require several aspects of performance improvement and quality management which may address each of the six domains of value noted below as components of the VHA performance measurement system.

The VHA performance measurement system focuses on the identification of measures in six domains of value:

- Quality
- Satisfaction
- Functional status
- Access
- Building healthy communities
- Cost

Each CCHT Designated network must require and monitor core quality and performance measures for all of its CCHT programs. Each individual program within that network is required to have selected performance measures that are evidence-based and relevant to the targeted patient population or disease management process. These measures might be designed related aspects of utilization, access, clinical outcomes, cost, quality of life, patient satisfaction, functional status, or provider satisfaction, as examples. Utilizing data from the performance improvement process, each program is required to communicate program experiences to program staff and others as appropriate, identifying opportunities for improvement and developing action plans, as necessary, to assure continuous program improvement.

As CCHT programs and networks develop and refine their performance improvement plans, they will want to consider those six domains of value, noted above, from the national performance improvement plan and establish priorities for outcome achievement of individual CCHT programs.

Some additional priorities for performance improvement will also be set for the CCHT program as a whole in the form of network directors’ performance measures, such as the number of patients enrolled in CCHT programs for the network and the contribution of CCHT enrollment to Average Daily Census in non-institutional care programs.

Active involvement of Quality Management staff at the facility and network level is essential. Performance improvement for CCHT programs should be fully integrated into the quality management processes and reporting structures at both the facility and network levels.

Some steps to successful performance improvement\(^3\) include:

- Define the objective clearly and in writing
- Break down the objective into measurable components
- Create intermediate goals
- Ensure accuracy of data (e.g., validation of coding)
- Organize the data, looking at patterns and trends
- Share the information with staff, including care coordinators and providers
- Identify gaps in expected or desired outcome achievements
- Make necessary changes in process
- Continue monitoring and evaluating over time

3. Adapted from *Practice Management in VHA*, Office of Primary and Ambulatory Care, August, 2001

(VHA’s) CCHT initiative is a work in progress and is based upon a model of continuous quality improvement...

Linda K. Foster, MSN, RN is Quality Manager for OCC and is based at the VA Medical Center in Indianapolis, IN.
VHA’s National Teleretinal Screening Program began rolling out in FY 2006 with implementation in 17 of VHA’s regional VISN’s. In this first half of a two-part interview series beginning on Page 8. OCC’s Junius Lewis talks with Dr. Gerry Selvin one of the two co-leads for VHA’s Teleretinal program about his role with the program that will annually screen tens of thousands of veterans with diabetes for retinopathy—a disease of the retina that can result in blindness.
Junius Lewis: The VHA National Teleretinal Screening Program has charged you with spearheading efforts to move this program out nationally in a standardized manner. Can you give everyone a quick history of this program?

Dr. Gerald Selvin: The Teleretinal program has evolved over a 5-year period from the work group that issued guidelines in 2001 to where it is now. The national group included many individuals who have made invaluable contributions to the program. It was comprised of leadership groups of clinicians, IT staff, managers and other administrators throughout VHA. The main issues the work group focused on were:

1: Bring a new paradigm to patient care vs the traditional model of live care which existed throughout human history. By applying emerging technology, care can be focused in a way which matches the patient and diagnosis with the appropriate practitioner and when.

2: Establish guidelines which can be used as a way to standardize the process so patients are protected by care based on established clinical practice guidelines.

3: Establish guidelines for the use of teleretinal imaging as part of the management of diabetic patients within VHA. This included the clinical pathway as well as technology issues.

Concurrently, there has been a long running Department of Defense (DoD)/VA research project working with the Joslin Vision Network (JVN) of Joslin Diabetes Center and some selected VA and DoD sites. I became involved with the project because of my interest in the application of technology and my association with one of the early pioneers, VA’s Dr. Barry Fisch. Barry and I trained at Joslin in early 2002 and began the program at VA Boston. Soon after, JVN’s Dr. Anthony Cavallerano joined our VA staff and this greatly enhanced our ability to move forward, since Tony has nearly 10 years experience with Teleretinal Imaging and its pathways from his active involvement with Joslin while he was there.

Once the VA Boston Ocular Telehealth Center was established, a natural outgrowth particularly with Tony Cavallerano’s expertise was to establish a center of excellence and a training center.

My involvement became more nationalized as we began to migrate away from JVN towards VistA Imaging and a clinical pathway which works with our system in the VA. I’ve always enjoyed the challenge of finding new and innovative ways to care for patients using technology and information resources which are increasingly available.

JL: You have established quite a name for yourself in the way of eye care in the Veterans Administration. How do you see teleretinal screening adding to the ability to provide expert care in the treatment and prevention of blindness?

GS: Diabetes is among the leading causes of blindness in our nation. It has been estimated that as many as 5 million veterans have this potentially disabling disease and it is certainly no secret that our nation is in the midst of a worldwide epidemic of diabetes related to the concurrent obesity prevalence that is skyrocketing.

By applying teleretinal imaging, we can appropriately identify patients at risk and have patients receive live care at the appropriate clinician’s office when its needed.

For example, if a teleretinal imaging study reveals treatable diabetic retinopathy, a recommendation to have a
patient follow up for live care by a retinal specialist in a specified period of time may be made. Conversely, if (as has been seen in many populations this methodology has been studied on) the patient is among the majority with none to mild retinopathy, live care can be deferred if the patient has no other symptoms. Non emergent live care can also occur at any office of an optometrist of general ophthalmologist. This enables Retinal specialists to focus their care on those who need it. It also allows the majority of diabetics to have a retinal exam remotely via teleretinal imaging thereby protecting them against undiagnosed retinopathy and other non diabetic conditions which may be noted as part of a teleretinal read.

We protect diabetics from blindness resulting from diabetic eye disease. But we also identify non diabetic vision threatening disorders that could be potentially blinding. It’s a win-win scenario in my opinion.

**JL:** Many of the VISN's are just now being implemented in terms of equipment and staffing and clinical space. - How do you view this program over the next 2-3 years.? Do you believe it will have a positive impact on our veterans patient with diabetes.?

**GS:** Absolutely! By having all diabetics either have live care or teleretinal imaging, we greatly improve the prospect of having these patients maintain good eye health. Also, since imagers are trained to be in part care managers, the patient education directly as a result of teleretinal imaging should improve individuals’ compliance and participation in the care of their diabetes. This in turn should reduce morbidity. Not only do we improve care by imaging all diabetics not having routine live eye care and others but we also enable patients to actively participate in the management of their diabetes. Instead of having patients arrive for live eye care with the most complex presentation of diabetic eye disease, identification of earlier and less sight threatening diabetic eye disease via teleretinal imaging in conjunction with patient participation in disease management should greatly improve outcomes.

**JL:** Teleretinal Screening is one of the resources you are helping to coordinate. - what other areas of telehealth are you currently involved and how does it relate to teleretinal screening?

**GS:** Almost all of my time in Telehealth is devoted to Tele-retinal imaging. I’ve been on the Telehealth work group of this facility and have been involved in the use of emerging technology in other areas of eye care. I have an interest in finding easy ways to share information. This has put me in touch with the VistA Imaging developers in Silver Spring, MD. I’ve learned quite a bit over the past 4 years on how to manage image transmission on our local and wider servers and have worked with Silver Spring on making it particularly relevant to teleretinal imaging. Barry Fisch, Tony Cavallerano and I have discussed user specific image manipulations and have received great support from Silver Springs which is a fluid and ongoing process. We also are evaluating other technology in eye care with the ultimate goal of improving and focusing the care of our patients. We'll have more and better information and we’ll be able to apply that to our veterans’ eye health and vision.

**JL:** On a more personal note, can you give us a quick overview of your training and career with the VA. How long have you been in Boston?, where else have you served?
GS: I initially had the opportunity to work in the VA in December 1976. At that time, there was a 7 year training grant established between the VA and the Southern California College of Optometry in Fullerton, CA. The grant was established to train optometry students at the VA Outpatient Clinic in downtown Los Angeles. I felt the need to broaden my own experience while at the same time stay in education which was the career path I was on. That position opened my eyes to the VA and the great satisfaction one could experience taking care of veterans. I kept score on what types of patients were coming into the practice and those statistics clearly pointed to a great need for all levels of eye care in the VA and funds were appropriated to provide for this. I left VA for private practice from 1980-1985 but I returned full time to the VA in late 1985 at the VAMC, West Los Angeles. Dr. John Townsend and I worked together in a major training program there and I experienced first hand John’s incredible clinical talents and intellect. I came to Boston in late 1991 and have been here ever since. My interest in technology grew through the ‘90s to where it is today.

JL: Did you (or do you) have any natural affinity to the application of teleretinal screening or rather, do you just see it as another site resource that needs to be implemented and maintained wisely?

GS: I see teleretinal imaging as a resource that must be used to enhance patient care. The bottom line is how we care for our patients and that must be the force that drives our decisions on use of emerging technology and any other modality.

I do believe I have a natural affinity toward technology. I tend to embrace change associated with new pathways. I think our system can encourage innovative thinking and trying to solve system problems lends itself to the application of technology. Electronic Medical Records, Image evaluation from any work station in the system are wonderful tools to help us take care of patients most efficiently.

Not to be underestimated is keyboarding (typing)! I was forced to take typing in 8th grade and I consider it fortunate that I did and enjoyed it. Much of what we do involves keyboarding and the difference in efficiency between those trained and others can be substantial.

JL: I for one am thrilled to be here at the start of what I think is and will be an exciting program that will enhance the level of care VHA provides to our veteran patients with diabetes. I know we will be working closely together over the next year as this program rolls out - I am really looking for to its full implementation.

GS: The wonderful aspect of this program is the team we are able to form in the interest of providing the best care possible for our patients. It’s so gratifying to work with such a diverse group of individuals including optometrists and ophthalmologists, primary care physicians and nurse practitioners, clinic managers, imaging personnel, clinical applications coordinators, IT specialists including the implementation team, and educators. It’s a great example of how far a program can go with everyone pulling the wagon forward at once!

JL: Thanks Dr. Selvin for taking the time from your busy clinical schedule to do this interview.

GS: Thanks Junius. I’m honored to be part of the team.
Plan now to attend...

VHA’s Care Coordination & Leadership Forum

Telehealth

June 7-9, 2006

Adam’s Mark Hotel
Denver, Colorado

Conference Details available at www.va.gov/occ
**Mission**

Serve as a conduit for information sharing, strengthen resources, and promote community for care coordination and telehealth within the VHA, with the ultimate goal being: to provide the right care, at the right time, in the right place.

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**Feedback**

Please drop us a line and tell us what you think, or make a suggestion about content for future issues. We would love to hear from you. Please contact: John Peters on (202)273-8508 or john.peters@va.gov

**Next Issue**

Coming late August 2006