Assistive Technology course helps staff make a difference in Veterans’ lives

By Gerald Sonnenberg
EES Marketing and Communication

ORLANDO, Fla. – Approximately 120 VHA staff participated in a “hands on” assistive technology course June 20-22 at the VHA SimLEARN National Simulation Center. It was sponsored by the Rehabilitation and Prosthetics Services Program Office of the VHA Physical Medicine and Rehabilitation (PM&R) Service.

The course exposed staff, such as physical therapists, occupational therapists, speech pathologists, recreation therapists, prosthetics staff, vocation rehabilitation counselors and others, to a wide variety of assistive equipment and technology. It demonstrated how technology can help Veteran patients living with varying physical disabilities, like missing limbs, traumatic brain injury, PTSD or paralysis, to be more active and reach their highest level of potential. Similar courses were conducted the past two years at Tampa, Florida and Long Beach, California; with this event at SimLEARN being the largest so far, according to Bill Wenninger, a rehabilitation planning specialist at PM&R based at the Milwaukee VA Medical Center (VAMC). He is the primary planner and coordinator of the event.

“The main mission (of the event),” said Wenninger, “is to make staff aware of the technology and help them understand the different scopes of technology available in certain areas like wheeled mobility or augmentative communication. It also helps them understand the prescription parameters for those devices, and to be able to network with others in case they have questions about the technology. The prescription parameters are dependent on the disability of the individual and the equipment being prescribed. It gives them an idea of what they can do for their patients when they get back to their facilities.”

In preparation for the course, a monthly assistive technology virtual training event gave attendees an overview of the equipment and assessments and recommendations before seeing them up close and handling the devices.

The breakout sessions addressed a variety of technologies in the areas of adaptive sports and recreation, drivers training (for VA staff), telehealth, augmentative communication, sensory (vision and hearing) devices, electronic cognitive devices, adaptive computer access, electronic aids to daily living and wheeled mobility and seating. “This course is almost completely hands-on giving attendees the opportunity to understand how the equipment functions,” said Mona Wright, an Employee Education System staff member and project manager for the training. “Additionally, because the assistive technology experts are presenting, this gives attendees (cont. page 5)
VA Palo Alto Health Care System (VAPAHCS) staff partnered with a team from Stanford University to find a way to use data to better identify changes in behavior of patients with traumatic brain injuries over time.

Data is one of the underlying factors that support many ideas in Silicon Valley, helping people to create new technology and innovate what already exists. Yet healthcare data is so complex that many organizations are still scrambling to find a way to leverage it successfully.

VA Palo Alto Health Care System (VAPAHCS) staff partnered with a team from the Stanford University course, Hacking for Defense: Solving National Security Issues with the Lean Launchpad (H4D) - consisting of Monica Chan, Buvana Dayanandan, Kian Katanforoosh and Sarah Van Sickel - to find a way to use data to better identify clinically relevant changes in behavior of patients with traumatic brain injuries over time.

Traumatic brain injuries, or TBI, are caused by a violent blow or jolt to the head or body resulting in cognitive and behavioral changes that can be hard to manage.

"While the rehabilitation services at VAPAHCS are among the finest in the country, we are always looking to enhance our current model of care to better meet our Veterans’ needs," said Jonathan Sills, PhD., a clinical psychologist and the Program Director for Assisted Technology at VAPAHCS, who was one of the key mentors and VA sponsor for the project. "Given the VA mission to provide lifelong care, understanding how technological advancements may help to ensure that our Veterans continue to thrive and maximize their quality of life as they age is of critical importance.”

Although expanding the use of technology is everyday work in Silicon Valley, the challenges for the engineering team were absorbing the complexity of TBI care, getting to know the population, and understanding the needs of clinicians.

"I didn’t even know what a TBI was before I came here," said Dayanandan, a graduate student in Stanford’s MSx Program at the Graduate School of Business.

After interviewing more than 100 Veterans and working side-by-side with clinicians in Polytrauma to understand the data needed, the team worked through various concepts. Initial ideas included developing a smart phone app for behavior logging and tracking, but the team soon realized this approach wasn’t very efficient in collecting consistent information.

"We needed to track data passively without the Veteran having to click on a button,” said Katanforoosh, a master’s degree candidate in Stanford’s Management Science and Engineering department.

Investigating how they could use various wearable and mobile devices already available in the market, the team expanded their approach and created VA Companion – a conceptual system that should serve to receive Veteran data from various devices to populate an interactive electronic computer dashboard of clinical information available to the clinician.

Keeping true to the patient-centered care that VA provides, the dashboard’s proposed design would allow the clinician to work collaboratively with the Veteran to identify and set thresholds that are unique to the Veteran’s functional levels and what data points should trigger intervention or follow-up.

For example, the clinician might be monitoring sleep levels and can see if a patient has not been sleeping well over the past few days, triggering them to request a visit to work through the issue before it becomes a larger problem. Future development includes possibly detecting changes in a broader array of mental health and behavioral symptoms which would provide an alert to intervene and potentially save Veterans’ lives.

Based on the Lean LaunchPad developed by eight-time serial entrepreneur Steve Blank, the Hacking for Defense course was developed to give students an opportunity to work on, and solve, real problems while working with members of the Department of Defense and Intelligence Communities. This platform hits home as some of the teaching team is made up of several military Veterans, including Retired Col. Joe Felter who was recently appointed Deputy Assistant Secretary of Defense for South Asia, investigating how technology can enhance the long-term management of TBI patients was the first VA sponsored problem ever selected to be worked on in the class.

With a commitment from Dr. Odette Harris, Associate Chief of Staff for Rehabilitation and VAPAHCS executive leadership to provide ongoing support, the work started by the VA Companion team will continue with a long-term plan to further develop the technology so that it may be brought to full-scale implementation.

To learn more, view the VA Companion team’s presentation at:

https://www.youtube.com/watch?v=asfoCq6kG4k

and at Minute 28 at https://www.youtube.com/watch?v=k7wzxOVtt4k.
OUTREACH

- Tampa providers including Telina Caudill, Ursula Draper, Bryan Garrison, Jennifer Jordan, Todd Keanan, Paula Myers and Tami Pasquale presented at the Technology in Rehabilitation – A Hands on Course this June at the Orlando VA
- Ursula Draper presented on Employment Reintegration and Accessibility Following SCI at the Paralyzed Veterans of America Healthcare Summit this September in Baltimore
- Telina Caudill provided in-services to Nursing and Respiratory Therapy staff on how to setup eyegaze and switch scanning access AAC for inpatients and residents
- Tampa providers Telina Caudill, Bryan Garrison, Abraham Hancock, Jennifer Jordan and Tami Pasquale participated in the Rehabilitation Awareness Celebration in the auditorium by setting up an AT Booth, showcasing equipment and educating visitors, patients and staff to the services offered for our Veterans and Service Members.
- AT received and completed 4 inter-facility e-consults from Gainesville, West Palm Beach, Orlando and Biloxi VAs

TELEHEALTH

AT combined CVThm visits from May until October 2017 totaled 34

CURRENT PROJECTS AND PERFORMANCE IMPROVEMENT

- YouTube Video Tutorial Library ongoing and currently totals 10 videos
- Engagement in the Lean Six Sigma (LSS) model for performance improvement with weekly huddles
- Updating lab equipment as well as outfitting the Polytrauma independent living apartment with commercially available smart home technology

AT MAKING NEWS

Interprofessional Collaboration Improves Care to Vets

Kelly Petska, PhD, LP serves as Lead therapist for Rehabilitation Psychology at the Minneapolis VA. Dr. Petska noted a deficiency in care to veterans requiring psychological evaluation in which the veteran is either an inpatient with infectious disease (ID) precautions or unable to access a keyboard due to disability. The deficiency stems from use of the Mental Health Graphical User Interface (MH-GUI) tool in CPRS.

Due to information security concerns, evaluations such as the MMPI are administered with the patient using a VA computer in which the MH-GUI limits keystrokes and mouse actions. Patients with ID precautions are not able to use a VA computer as they are restricted to a ward room, and patients with upper extremity disability were not able to access a VA computer due to USB device restrictions on VA computers. Dr. Petska contacted Brian Fay, Director of the Minneapolis AT Program. Dr. Fay could provide alternate access to the VA computer using a programmable USB keystrip (X-Keys®, PI Engineering). This resolved concerns about connecting to a VA computer, but left individual challenges for each patient population. ID concerns required the ability to clean the devices that enter the patient room and upper extremity access concerns required use of an alternative entry such as switches or sip-and-puff devices. Dr. Fay identified plastic covers for the USB keystrip to address contact precautions. Another keystrip was modified to provide standard switch input.

Steven Morin, Minneapolis Instrument Maker, designed a 3D printed case to enclose the switch adapted keystrip. Steve Morin, Minneapolis Instrument Maker, designed a 3D printed a case to enclose the switch adapted keystrip. The Minneapolis Biomedical Instrumentation Service and Information Technology were contacted to assist with selecting a computer and monitor display capable of accessing CPRS and accounting for contact precautions. Herb Stockley (BIS) and Adam Peterson (OIT) guided the team to implement a laptop PC stationed outside the patient room with a USB powered monitor display (ASUS model MB168B+) at the patient’s bedside. USB cables are supported off the floor to prevent a trip hazard. A custom 3D printed monitor display enclosure was designed by Mr. Morin. To make the system portable throughout the medical center, a CJT ET Roller mount was used along with a modified speaker stand. Mr. Morin added clips to hold the various parts steady during transport. The system is now being trialed.

Annual Assistive Technology and Disability Services Fair

The Minneapolis AT Program partnered with the Minneapolis Diversity Advisory Committee to host the annual Assistive Technology and Disability Services Fair on October 10, 2017. The Fair welcomed veterans, friends and family to visit with eight assistive technology vendors and ten local service agencies. Vendors included providers of computer access software/hardware, environmental control systems, augmentative communication, wheeled mobility and device mounting solutions. Service agencies represented concerns such as brain injury, stroke, dementia, spinal cord disease and government benefits.

Many Thanks to Kathleen Kolar, PT, MMSc

Since October 2010, Kathleen Kolar has served as the seating and wheeled mobility SME for the Minneapolis VA AT Program. Kathleen announced this past month that she will be leaving the VA in October 2017 to spend more time with family. Many thanks to Kathleen for the outstanding service she has provided to our veterans!
a chance to ask questions and discover
device functions that they may not oth-
erwise know. One attendee commented
that being exposed to devices outside
their focus area was beneficial when
working with Veterans. They could sug-
gest devices to complement their treat-
ment focus and engage a multidiscipli-
nary approach.” Leslie Mangiapani is

“This (chair) is designed for Veterans who
may have ALS (Amyotrophic Lateral Scle-
rosis), spinal cord injuries or other issues
limiting their movement,” said Mangiapani.
A VA employee for more than nine years,
Mangiapani enjoys what she does for Vet-
erans. “As therapists, we do much more
than showing Veterans how to use equip-
ment; we help change their environments.
I love doing what I do, and it is amazing
the difference I can help make in their
lives.” One of the more popular
breakout sessions was demonstrated by
staff from the James A. Haley VAMC
Adaptive Sports Program in Tampa, Flori-
da. They addressed something that many
people may not realize is available; adap-
tive technology to participate in sports.
Staff demonstrated a variety of equipment
that can help Veterans become more
active, such as an attachment for a Veter-
an with a missing hand to be able to grip
the handlebar of a bicycle so they can ride
again, or a specially molded grip so they
can rock climb. Sports ranged from bowl-
ing, to target shooting, archery, and sev-
eral other activities, and the equipment is
often designed in house and specifically
for a single Veteran.

“That’s part of the point of this is to make
people aware and knowledgeable, as well
as see the variety of technology available,”
explained Wenninger. “It’s important to have
them (staff) think about how to apply it to
different patients they would come across; to
talk about the technology, and how they would
follow up with the technology to adjust it as
the disability changes, or as the person gets
more efficient with the product they have. It’s
not a luxury item we’re trying to get to peo-
ple. It really makes a difference in their inde-
pendence and their overall function. I value the
opportunity to provide this type of education
to a wide variety of disciplines.”

For more information, please contact Bill
Wenninger.
VAATT Course Underway:
The Veterans Administration Assistive Technology Training (VAATT), also known as the AT Cert course, officially launched in 2013 and the latest cohort of trainees started the program in August, 2017. The VAATT is designed for any person who needs a fundamental yet comprehensive understanding of the field of assistive technology. This includes but is not limited to rehabilitation clinicians (occupational, physical, or recreational therapist and speech language pathologists), other healthcare personnel (physicians and nurses), researchers, engineers (biomedical, mechanical and rehabilitation), and prosthetic representatives. The course also assists people who need a review of the fundamentals as part of their preparation for the RESNA Assistive Technology Professional certification. The VAATT course takes about 8 months to complete and includes online learning modules with recorded lectures, online group collaboration, and monthly recitations that requires about a 2-4 hour commitment per month on the part of the trainee. The course applies case studies, evidence-based practice, and best-practice guidelines with specific assistive technology modules. Participants can view the online lectures on their own time, while participating in online study groups. There are monthly recitations via conference call for follow-up questions and case study work. The course concludes with an intensive in-person 1.5 day “Deep Dive” workshop to gain hands-on experience with the technologies presented while interacting with experts, vendors, and assistive technology consumers. To date, the VAATT Course has enrolled over 250+ VA healthcare professionals. For further information about the VAATT course and how to apply, please contact Karl Kemmerer, MS - Online Continuing Education Coordinator at kak216@pitt.edu.

Revised Device Review Template:
There is considerable and growing interest in the emergence of novel technologies as off-the-shelf products. An online survey was distributed this past summer to current VA employees with a focus on assistive technology. The survey was designed to gather feedback on revising the current device criteria (n=10). A group of stakeholders have identified critical factors to consider for the review of emerging technologies while incorporating the feedback from the survey. The revised device review template is being piloted and will be released for download via the VAATech website in early November, 2017. Please contact Richard Schein (rms35@pitt.edu) or Carmen DiGiovine (carmen.digiovine@osumc.edu) if interested in piloting the device review template. Please contact Telina Caudill (Telina.Caudill@va.gov) or Evi Klein (Eve.Klein@va.gov) if you want to submit a review of your own. They are the editors for the device reviews. We are always in need of new reviews.

VAATech Website Launched:
On September 28, 2017, the Assistive Technology Reference Website was launched and can be accessed at www.vaatech.org. It is a dynamic site that serves as a gateway for multiple sources of information on AT categories, device reviews, links to prosthetics clinical practice recommendations, handbooks and documentation templates, and educational resources.
Website statistics from the first week (9/28/17 – 10/6/17) include:

- Number of Visitors – 235
- Number of Unique Visitors – 126
- Length of Stay – 25 minutes 6 seconds
- Pages Visited – 511
- Average Pages/Visit – 2.17
- Bounce Rate – 25.53%

In addition, there is a mechanism to add yourself to the registry by completing the Assistive Technology Provider Registry or to connect with VA experts in AT. The purpose of this registry is to generate an accurate account/profile as to who is providing AT services and what types of AT services are being provided throughout the VA at different locations. The registry also lists individuals that are certified as an Assistive Technology Professional (ATP), Seating & Mobility Specialist (SMS), and Rehabilitation Engineering Technologist (RET), and identifies those who are eligible and/or interested in becoming certified in any one of these areas. The registry is a great resource for those interested in assistive technology, or who want to share their knowledge with colleagues in the VA. Within the ‘VA AT Connect & VA AT Locator’ tabs on the main ribbon, individuals can search and query for specific personnel involved in AT along with accessing the ATP Survey.

The VAATech website is dynamic and open access; if you have any additional resources, templates, news stories, and/or events that you would like share, please contact Andi Saptono (andi.saptono@pitt.edu) or Gede Prama (gede.pramana@pitt.edu).

**Update on the Number of RESNA ATPs:**
The Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) covers the broad area of assistive devices, with their goal to maximize the health and well-being of people with disabilities through technology. RESNA offers experienced educators, clinicians, and assistive technology suppliers the opportunity to pursue the ATP (Assistive Technology Professional) credential. With the appropriate education and experience prerequisites, this credential is earned by passing a 200-item multiple-choice test, covering a diverse group of AT areas. Upon passing the exam, individuals are recognized for having the broad knowledge and foundation needed to help clients choose the technologies that best fit their needs.

- By the numbers:
  - 90+ VA Clinicians obtained RESNA ATP certification since 2010
  - 100+ VA Clinicians eligible for RESNA ATP certification
  - 250+ VA Clinicians participated in VAATT CERT Course since 2010
  - 500+ VA Clinicians have accessed other RSTCE online courses

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**Table 1: Data Provided by RESNA Office as of June 21, 2017**
Adaptive Driving...Electronic Hand Controls

by Bryan Garrison RKT, CDRS
James A Haley VA Medical Center

The Driver rehabilitation clinic at the James A. Haley VA Medical Center in Tampa, FL has like so many other driver rehab facilities recommended standard mechanical hand controls for those persons with disabilities not requiring high tech driving equipment. While these mechanical hand controls have met the needs of our large patient population there have been many improvements to these controls over the years. Manufacturers such as SureGrip and MPD Viegel now offer electronic hand controls.

The James A Haley VA CDRS's (Certified Driver Rehab Specialist) have received training on this equipment and is now recommending this equipment as an option for patients in the area. Fundamentally the difference between traditional mechanical hand controls and the electronic hand controls is the need to have two rods extending to the OEM (Original Equipment Manufacturer) gas/brake controls. Traditional hand controls (pictured below) work on a lever system where hand operation manipulates the gas/brake by those rods. While effective it does not allow for the true throttle response that the OEM equipment offers.

With Electronic hand controls there is a true throttle response which allows for a more natural feel when operating the vehicle. Patients training with electronic hand controls have been seen to have a much shorter learning curve verses using traditional hand controls.

Recently there was a patient that has been driving heavy duty trucks with mechanical hand controls. He has a boat and often takes the boat to different places for leisure activities. He was recommended a set of electronic hand controls and immediately he praise the difference in the feel and control he had with his vehicle. The driver rehab clinic in Tampa has seen such great success with the controls that a request is being made to have another set of electronic hand controls be places in one of the driver rehab vehicles.

The executive director of Suregrip, Mr. Cody Howell, states they feel they have only begun work to improve independence with these new controls and expect bigger and great improvements in the future. With the strides that are already being made there is no doubt that the James A Haley VA will continue to be able to offer our veterans the most cutting edge equipment for driving and assistive technology.

Better Vehicle Hand Control Options
VETERAN STORY…

The Wizard & The Magic of Assistive Technology
by: Mary Graddon, OTR ATP and Wendy Woods, MA CCC-SLP
VA Puget Sound HealthCare System, Tacoma, WA

During a recent rare sunny afternoon in Washington, members of the American Lake VA Assistive Technology Team had an opportunity to check in with a “magical” Veteran.

Tim Hoyt (AKA “The Wizard”) is well known to our Assistive Technology Team. He is a University Professor of Science forced into early retirement due to an ALS diagnosis in 2013. Beloved by students and our community, he is known for dynamic presentations complete with full Wizard costume. Spending little time wallowing in his diagnosis, he has embraced technology to maintain his function and blaze trails for others. With specific preferences and high level of technology expertise, he continues to present our team with new challenges, opportunities, and examples of how technology can prolong independence and promote increased quality of life.

As a relatively new AT team, we have appreciated the opportunity to co-treat and maximize function in many areas. The Wizard was initially seen for swallow evaluation, voice banking, and potential AAC/computer access devices. He gave Wendy Woods, MA CCC-SLP a run for her money when he proclaimed he would rather die than use a Windows based system. Evaluation results and serious consultation with the Wizard determined that a NeuroNode would meet his unique goals of accessing various (too many to list here) Mac products and could potentially be used for Augmentative Communication (AAC) later in the disease process. Given that his symptoms are predominantly upper extremity onset, he remains able to use a foot controlled mouse in conjunction with NeuroNode for computer access. He is now quite proficient with using his feet for many tasks including driving his power wheelchair and simultaneously operating multiple computers.

From an Occupational Therapy stance, the loss of use of upper extremities affected the Wizard’s independence with self-care, eating and leisure activities. Early in the disease process, he was provided the Meal Buddy Assistive Feeder, which he was used and operated with zeal. Significant accessibility and environmental control modifications throughout his home. Adaptations include voice command access to open doors, control temperatures, lighting and use of Amazon Echo. He is now able to go between floors in his 3-story home thru use of voice operated elevator to access his outdoor garden from the lower level and panoramic waterfront view from his top floor office. His ECU system is designed to be compatible with his Mac devices including NeuroNode in anticipation of voice decline.

Our most recent visit was focused on follow-up for integration of his new JACO robotic arm into his daily routine. The robotic arm is operated through foot control using his electric wheelchair (Permobil C500). Thanks to Mary Graddon, OTR, ATP, the Wizard is the first Veteran with an ALS diagnosis to be evaluated for and receive a JACO Robotic Arm thru the VA system. He is once again able to feed himself simple snacks, hydrate himself, and scratch an itch. Come to find out, scratching an itch is one of the most challenging obstacles facing those with limb loss.

Our visit and work with this veteran serves as a concrete reminder of the importance of a collaborative approach. Wendy (SLP) freely admits no familiarity with the inner workings of the robotic arm and Mary (OT) is at a novice with the NeuroNode. It brings immense satisfaction to see how our work together has increased the Wizard’s independence with maintenance of his preferred quality of life and being able to remain in his historic home.

Every Assistive Technology patient presents with unique challenges, functional goals, and perspective. We are grateful that our program continues to grow and look forward to more opportunities to experience the “magic” that AT provides to our Veterans.
Assistive Technology Program Mission

To enhance the ability of Veterans and Active Duty members with disabilities to fulfill life goals through the coordination and provision of appropriate interdisciplinary assistive technology services.

To serve as an expert resource to support the application of assistive technology within the VA health care system

AT Lab Updates...Richmond

AT Outreach:
- Brian Burkhardt presented at the Consortium for Citizens with Disabilities Technology & Telecommunications Task Force Briefing on AT about 3D Printing
- Brian Burkhardt presented at RESNA on 3 different topics: The EADL Experience, Hands-On with 3D Design and Printing for AT: Learn from 4 Expert Users in the Field and A Winning Team: Engineers, Clinicians, Patients and Those that Love Them
- Seth Hills and Melissa Oliver presented to 6th and 7th grades from the Math Science Innovation Center about Assistive Technology and Design
- Melissa Oliver presented to the July Maker Group Collaboration Faire for NSTC IAWG on Spotlight on Leveraging Making to Improve Health Outcomes

AT Making News:
- Melissa Oliver and Brian Burkhardt highlighted the importance of assistive technology in the PBS Documentary on Polytrauma Rehab in the VA Compassionate Care
- Brian Burkhardt highlighted in the National “Choose VA” Video

AT and Innovation:
- 2 Assistive Technology Innovation Investments Presented at the VA National Demo Day