

# PM&R Assistive Technology

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## Accessing MyHealthVet... A Team Effort

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A Veteran with the Richmond SCI team that utilizes Sip and Puff technology at his home. Betty Rogers is his home care RN and has seen him evolve over time and has always encouraged him to try to be more independent. At first the patient was not too enthusiastic about learning new skills and was just trying to get acclimated to his new reality....he had a new caregiver and lots of new skills to learn, and he just was not ready to open the door to anything new and unfamiliar.

Well, Ms. Rogers is nothing but persistent and she eventually won him over and convinced him to sign up for MHV. Once he was registered with a Premium account, Melodie Anderson, SCI Telehealth coordinator, set up a telehealth visit so the MyHealthVet Coordinator, Gwen McMillian, could assist with navigation....there was only one issue...the Veteran's Sip and Puff technology made his portal look very different from what Mrs. McMillian was familiar with in the MHV office. It displayed differently than anything seen before on a mobile device, or desktop and they had difficulty trying to figure out how to "Enter" using the Sip and Puff. She could find the my way around with a bit of practice, but couldn't select "Enter" so we could move forward. There was no mouse or any keys to utilize, so she decided she needed to call in the big guns to help us.

Enter Melissa Oliver and Seth Hills our Richmond Assistive Technology guru's! They helped Veteran learn how to "Enter" using the adaptive technologies...so now they were off to the races! Since then, Veteran has learned how to refill his own prescriptions and has even sent us a Secure Message. Becoming comfortable with the MHV portal has given him the confidence to try even more technology and he has since learned how to FaceTime his family as well. He was even willing to be our first ever Home

Care SCI patient to participate in Video Interdisciplinary Team Meeting where he meets with many of his providers via VVC so he does not need to come into the facility. Ms. Anderson utilized secure messaging to follow up after his VVC visit to ensure all of his questions and concerns were met, and he is learning how to tie all technology that the VA offers together.

The change in the Veteran has been remarkable and he really has learned how to spread his wings to soar! It's amazing that utilizing technology has opened up his entire world....from learning how to send a Secure Message he is now keeping in touch with more family and receptive to learning even more. We are so very proud of him and would love to share his story in hopes of encouraging another Veteran or MHV coordinator.



Gwen McMillian, Betty Rogers, RN, and Melodie Anderson

# A glimpse into Assistive Technology for the ALS Veteran

- Laura Sowder, SLP Trainee

John Smith is a 55-year-old male veteran who was recently diagnosed with Amyotrophic Lateral Sclerosis, or ALS. He's experiencing weakness in his arms and legs, slightly slurred speech, and decreased manual dexterity of his fingers. He is primarily concerned with being able to communicate with his two college-aged kids and function independently in his house. With the help of the Assistive Technology team at the Veterans Affairs Medical Center, John is working towards having the right adaptations in place to assist with his current communicative and fine/gross motor needs.

During his first assessment with the AT team, John is told about the variety of tools and devices available that can accommodate him and improve quality of life. He is educated on the various alternative and augmentative communication devices by the team's speech-language pathologist, such as speech-generating devices, voice-banking system, eye gaze, and use of voice control on his iPhone to access his apps. He learns from the occupational therapist of emergency fall alerts, bathroom safety equipment, and various environmental modifications that can be used in his home, like having hands-free control of lights, television, fan, and telephone. When John tells the team that he is concerned about his weakening grip when holding pens and uten-

sils, they tell him of adaptive equipment for daily living. Furthermore, the VAMC is equipped with rehabilitation engineers, who specialize in creating tools and aids that suit patient's unique needs. The AT team will follow and work with John as his disease courses progresses and needs change. He will be able to trial various devices and be provided with training and repeat education to ensure a successful transition into daily life. He will meet with physical therapy, who will assess his need for ambulatory aids or power wheelchairs as weakness increases in his extremities.

By the end of the visit, the team has already placed an order for a stylus pen for John to use when typing on his phone as dexterity decreases and adaptive utensils. He will follow up in a month using the VAMC's Telehealth, where he will be able to receive assistance technology services from the comfort of his home.

The Rehabilitation Engineering and Assistive Technology Association (RESNA) 2019 annual conference took place from June 24-28 in Toronto, Canada. This year's conference was held in conjunction with Rehab Week 2019 which brought together six different conferences in the field of rehabilitation technology.

## Adaptive Sports Teams' Success

Richmond' Adaptive Sports Teams competed in the National Veterans Golden Age Games which was held in Anchorage, Alaska and in the National Veteran's Wheelchair Games that was held in Louisville, Kentucky.

Richmond had 4 athletes at the National Veteran's Golden Age Games with the following results:

- ◆ 2 Gold
- ◆ 4 Bronze

Richmond had 28 athletes at the National Veteran's Wheelchair Games with the following results:

- ◆ 53 Gold
- ◆ 23 Silver
- ◆ 16 Bronze

And, they won the Team Challenge taking home the Butler Cup!

Richmond Athletes (front row with medals): Steven McGuire, Leigh Sumner, Paul Austin, Logan Brokaw and Charles Bradley  
Richmond Coaches (in the middle): Irene Montero, Nicole Shuman and Kelvin Allen



# AT Program Expanding 3D Printing Capabilities

This summer the Central Virginia VA Health Care System AT Program grew capability like tomatoes on the vine. Through the support of local and national leadership the program's fabrication equipment grew from four to eight 3D printers. This growth will enable the AT Program to serve more Veterans, in a larger geographic area, with faster response time, and with the highest quality of materials.

Over the past 9 years the AT Program has utilized material extrusion style printers. These are perfect for making robust custom Assistive Technology devices. This technology has enabled the program to produce rubber and plastic parts in a limited range of color. As the Program began expanding into medical modeling and upper extremity orthosis it became evident that additional printer and material capabilities would be required. While a single color hard plastic part might be fine for a wheelchair adaptation, it is not enough to create a pre surgical planning model.

Through collaboration with the Hampton VAMC, the AT Program was able to obtain their Stratasys J750 Polyjet printer. This system can produce an almost infinite range of colors, transparencies, textures, and biomechanical properties. It is unparalleled in producing medical models for pre surgical planning, simulation, and education. These models can help doctors and Veterans make more informed decisions related to their medical care.



In partnership with the VHA Innovation Ecosystem, the AT Program also acquired the HP Jet Fusion 580 3D Printer. This system uses a nylon powder to produce full color, high resolution, functional end use parts. The combination of strength, detail, and color enables a new level of comfort and aesthetics for devices like hand orthosis. It can also produce complex geometries in full color allowing medical models with fine detail that are durable and long lasting.



HP Jet Fusion 480 3D Printer

Finally, the AT Program acquired an Envisiontec Envision One CDLM. This 3D Printer uses a resin material cured using a DLM projector. This results in a high level of detail with a fast print speed for devices like orthosis and biocompatible medical models. This printer is used extensively in the dental field for crowns, bridges, denture bases, orthodontic bite splints, and surgical drill guides.



Envisiontec Envision One

The AT Program has long employed 3D printing to better care for our Veterans. These new 3D printers represent more than simply the additional capability of new technology and materials. They represent a substantial growth of the AT Programs ability to improve Veterans quality of life. The additional fabrication capability enhances the AT Programs core mission to provide the most efficient and customized AT solutions. This capability also enables the AT Program to help Veterans in a new way; by assisting medical professionals to provide the most informed and efficient care to 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.



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## Creativity Corner ...where we highlight original & interesting innovations

-John Miller, AT Clinical Rehabilitation Engineer

Apple recently released iOS 13 for all its devices. Its accessibility features have received a major upgrade with the addition of Voice Control, improved dictation tools, and navigation commands. Voice Control goes beyond the standard Siri requests to add capabilities akin to voice control software for computer access.

To try it out, go to Settings, select Accessibility, select Voice Control, and set it up (Fig. 1). It will download a file containing all the information necessary to run Voice Control so that you don't need WiFi or a data connection to use it.

Once it is on, the device is always listening for a command. You may explore the list of commands by navigating into "Customize Commands" and checking out the various categories:

- Basic Navigation
- Basic Gestures

- Dictation
- Text Editing
- Device

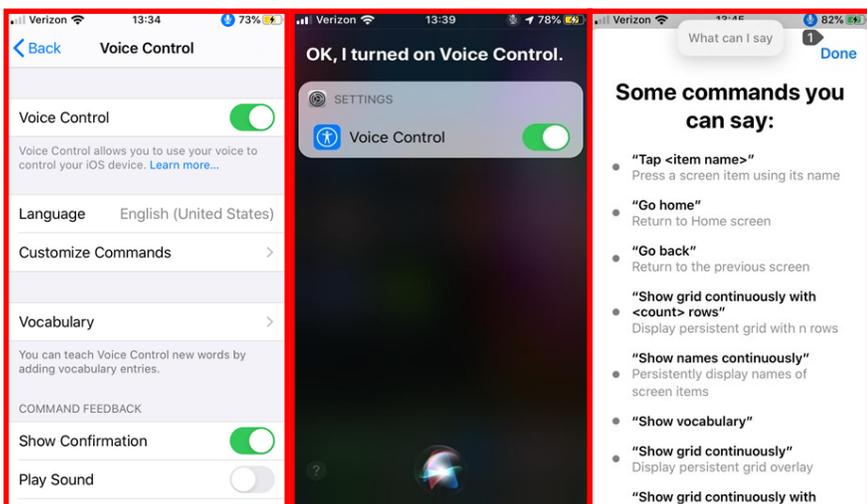
And much more. You can also set up your own customized commands at the top of the menu to insert pre-determined text (e.g., your name or email address), run a custom gesture, or run a shortcut.

Here are some examples of what you could do with Voice Control:

- "Hey Siri, turn on Voice Control." (Fig. 2)
- "Open Notes."
- If you don't remember what you can say, ask "What can I say?" (Fig. 3)
- "Tap New Note." (Fig. 4)
- "Dictation mode. Notes on meeting, enter that. We discussed blah blah blah period. Command mode." (Fig. 5)
- "Go home."

- "Search Web for New York Times. Scroll down. Show grid. Tap 22." (Fig. 6)
- "Turn off Voice Control. Tap Execute."

While there is certainly some learning required to quickly navigate around and remember the right commands, suggested commands can pop up at the top if a command isn't worded quite right. The best way to learn is to play around with it! In conclusion, this built-in tool for the iPhone and iPad is a gamechanger when it comes to Apple accessibility. Switch scanning is still an option, voice commands are robust enough to provide a viable alternative.



FIGURES 1, 2, & 3

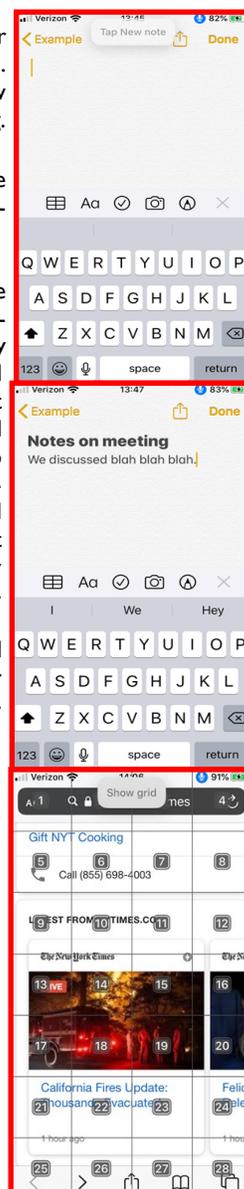


FIGURE 4,5, & 6