FY20

EPILEPSY

Centers of Excellence

Improving the health and well-being of Veteran patients with epilepsy and other seizure disorders through the integration of clinical care, research, and education.
www.epilepsy.va.gov

VA

U.S. Department of Veterans Affairs

Veterans Health Administration

Epilepsy Centers of Excellence
ANNUAL REPORT FISCAL YEAR 2020

October 1, 2019 – September 30, 2020

VA | U.S. Department of Veterans Affairs
Epilepsy Centers of Excellence

Table of Contents

2020 Annual Report Project Manager:
Pamela Kelly, DHA, MBA/HCM

In addition to the ECoE Directors and staff, special thanks go out to those who went above and beyond to assist in bringing this annual project to fruition: Linda Benson, MPH; Winona Finley; Rizwana Rehman, PhD.

Mission

Improve the health and well-being of Veteran patients with epilepsy and other seizure disorders through integration of clinical care, outreach, research, and education.

Message from the VA Acting National Director and Deputy National Director of Neurology

The year-end summary for the Epilepsy Centers of Excellence (ECoE) Annual Report gives us a chance to reflect and to review the program's goals, accomplishments, and challenges over the past year. Fiscal Year 2020 (FY20) has been a time of unprecedented challenges that none of us could have anticipated last year. The COVID-19 pandemic changed everything about our lives in the past months: how we work and how we care for patients, and it led many to become full-time caregivers and teachers. in addition to our usual jobs. Budgets remain tight, and the VA Central Office Reorganization looms with unclear implications. Despite these and other challenges, this standout team accomplished much. The creativity and resilience of ECoE staff during these obstacles allowed exemplary care for Veterans with epilepsy and epileptiform disorders to continue.

One of the year's accomplishments has been completing "the Cube," the VSSC dashboard constructed by Dr. Rizwana Rehman and others, which has been in user acceptance testing and should be validated soon. Once validated, data about Veterans with epilepsy and their management will be at our fingertips to inform decisions about resource planning and utilization.

TeleHealth and remote learning have been a major focus this year, due in no small part to the challenges of COVID-19. Whereas in-person visits, CVT to other facilities, EEG, and long-term monitoring decreased, we saw dramatic increases in TeleHealth to the home, e-Consults, telephone visits, and store-and-forward EEG sent from other facilities. The ECoE patient/caregiver audio conferences and clinician webinars continued to provide much-needed education and expertise.

Neurology's preparations for Cerner go-live have been underway for the past year and are finally coming to fruition due in large part to Omar Khan's dedication to ensuring that epilepsy referrals, order sets, and quick orders are accurate and appropriate. ECoE efforts ensuring compatibility with EEG equipment have also been a vital component of this effort in preparation for the go-live in Spokane.

The nursing workgroup developed templates for the Epilepsy Monitoring Unit (EMU) brochure and admission letter. Tracy Broomhead volunteered much of her free time this past year developing the Seizure and Epilepsy Healthcare Professional certificate program through the American Association of Neuroscience Nurses (AANN) and American Board of Neuroscience Nursing (ABNN).

This year, we lost our esteemed colleague David Chen, who left us far too soon. Other colleagues, Stephen Holloway and Elizabeth Barry are retiring (although fortunately, Steve is easing into retirement, as he continues to help out at the Minneapolis ECoE). Finally, Ronda Tschumper stepped down as the EEG tech workgroup chair.

This coming year holds both promise and challenges. We look forward to the initiation of Marty Salinsky and Curt LaFrance's PNES) cooperative study, among others. The VA reorganization will require additional effort to ensure that the ECoEs are optimally aligned with the broader VA. We are hopeful that this new organization will bring additional, much-needed resources and flexibility to the ECOE's important missions. To the ECoE Directors and staff members, thank you for your dedication and hard work to ensure the ongoing progress and accomplishments of the ECoEs.

Sharyl R. Martini, MD PhD
Acting National Director of Neurology, Veterans Health Administration

Glenn D. Graham, MD PhD
Deputy National Director of Neurology, Veterans Health Administration

Message from the National Coordinator

I am humbled to once again be writing as the National Coordinator of the Epilepsy Centers of Excellence (ECoE). As an extraordinary year ends, the ECoE has seen an extraordinary number of changes—some related to the COVID-19 pandemic, others not. Of course, the pandemic caused a remarkable change in the day-to-day routine in the ECoE, as it did in all aspects of care provided at the VA (and elsewhere). I am delighted that the ECoE directors, staff, and those associated with the ECoE never lost sight of their mission and found new ways of providing care to Veterans and ensuring that the work of the ECoE continued.

In the spring, when the COVID-19 pandemic started, all ECoEs were affected in one way or another. The degree of impact was initially related to the severity of the pandemic in the local area. However, as the entire country went through a surge in cases of COVID-19, all ECoEs were greatly impacted and were very limited in the neurophysiologic procedures they could perform. Heavy reliance was put on telemedicine, and as much care as possible was provided in this manner. Late in the spring, the ECoEs conducted a COVID-19 survey among the sites to see how each was affected. The results were compiled and shared with leadership. Plans are underway to repeat the survey now to assess how things have evolved. We hope to gain insight on the evolution and appreciate any lessons that can be learned.

Despite the pandemic, the core mission of the ECoE has continued. The directors have met monthly to address any issues that were presented and to plan for the future. The annual ECoE meeting was held virtually this year, in September. Progress on last year's objectives was reviewed, and goals for the upcoming year were discussed.

Clinical care in the past year has transitioned dramatically to telemedicine, as might be expected. On the other hand, inpatient care has decreased because of limited availability to admit patients due to the pandemic. For the upcoming year, the ECoE will continue to expand telemedicine options, specifically the tele-EEG program. As we transition to more tele-epilepsy clinics, we will devise ways to improve care delivered in this manner. Additionally, as the transition from CPRS to Cerner occurs, a team from the ECoE will ensure that ECoE-specific forms and templates are transferred appropriately.

Research is a core mission of the ECoE, and it continued during the pandemic. A VA Co-Op study to assess the value of cognitive behavioral therapy in patients with psychogenic nonepileptic seizures was submitted. Various Merit review grants were also submitted, and work continued on grants already awarded. Many other basic science and clinical research projects continued as well.

Education has been an essential mission of the ECoE. Directors, staff, and collaborators have all been involved in the education mission. The webinars offered by the ECoE to providers and patients have been very popular this year. Because travel for all VA staff has been very limited, including the ability to attend national meetings, the ECoE webinars have served to provide continuing education to a growing number of providers. This year saw some of the highest attendance in these sessions since they started.

This year, the ECoE is also adapting to changing national administrative needs. Each Regional ECoE has been tasked with the development of new advisory committees that meet FACA standards. This year also saw a change in Neurology leadership at the national level. I have greatly appreciated Dr. Don Higgins' support over the past few years, and I wish him well in his new endeavors. Dr. Sharyl Martini has taken over as the Acting National Director and already has been instrumental in being a voice for the ECoE at VACO. I look forward to continuing to work with her. Of course, I am grateful for the continued support from Dr. Glenn Graham during this transition.

Administratively, the ECoE has seen some changes. A key member of the ECoE team, Dr. David Chen, director of the Houston ECoE, passed away this year. He was an instrumental member of the team who cared deeply for the Veterans he met and the work of the ECoE; he will be remembered and missed. A long-time member and director of the Minneapolis ECoE, Dr. Stephen Holloway, retired. Dr. Holloway chaired many committees during his tenure with the ECoE and has left his remarkable and indelible mark on the organization. Additionally, Dr. Elizabeth Berry retired as a member of the Baltimore ECoE. She provided care to many Veterans over the many years that she practiced at the Baltimore VA. The ECoE continues to have several unfilled administrative positions, including the National Administrative Director position. Once again, Pamela Kelly has served in an acting role in this position and has done an excellent job. I hope that this year, the National Administrative Director position will be filled. The budget for the ECoE is comparable to what it was at inception, and we have adjusted the staffing and mission to meet the funding limits.

The ECoE has a series of ambitious goals for the upcoming year, as outlined in this annual report. While we have many challenges, we have an excellent group of directors, clinicians, and administrators who will help navigate these challenges. The mission of the ECoE remains as important today as it was in the past, and we will continue to provide the best possible care to those who have served!

Aatif M. Husain, M.D.
National Coordinator
Epilepsy Centers of Excellence

Introduction

In 2008, under Public Law S. 2162, the Department of Veterans Affairs (VA) set out on a mission to revolutionize services for Veterans afflicted by epilepsy and other seizure disorders. The VA founded the Epilepsy Centers of Excellence (ECoE), establishing sixteen sites (currently seventeen sites) that are linked to form four regional centers.

The ECoE seeks to provide the best possible epilepsy care to Veterans throughout the United States with state-of-the-art diagnostic and therapeutic services. Our goal is to deliver the highest quality of ongoing medical care to Veterans suffering from epilepsy. We also seek to promote outreach and educational efforts for both patients and their physicians to further the understanding of this chronic condition. The ECoE offers a range of services in both the outpatient and inpatient realms and provides outpatient epilepsy clinics with a staff of neurology sub-specialists. From these clinics, patients can be directed to the most advanced testing methods for the evaluation of epilepsy, including magnetic resonance imaging (MRI), electroencephalography (EEG), and video monitoring. For those patients who require more intensive testing or attention, the ECoE also provides inpatient units for examining certain seizure types more closely, changing medications in a monitored setting, and presurgical evaluation.

The epilepsy centers are also linked with the polytrauma centers to increase the ability to mutually follow Veterans with moderate and severe traumatic brain injury who are at the greatest risk for post-traumatic epilepsy. The sites are developing protocols to identify Veterans with epilepsy and to develop referral networks to enable Veterans to obtain specialized treatment, such as epilepsy surgery and advanced electro-diagnosis, within the Veteran healthcare system.

If you are a Veteran with seizures and are interested in seeking services at one of the Epilepsy Centers, please inquire with your local VA primary care physician. Your doctor will be able to determine if you might benefit from the services provided by ECoE and assist you with scheduling an appointment. You can also contact your local ECoE site directly for assistance in connecting to services. For more information, please visit our website at www.epilepsy.va.gov.

National Program Goals

The goals of the ECoE National Program are as follows:

- Establish a national system of care to all Veterans with epilepsy, to function as a center of excellence in research, education, and clinical care activities in the diagnosis and treatment of epilepsy.
- Collaboratively develop a national consortium of providers with interest in treating epilepsy at VA healthcare facilities lacking an epilepsy center of excellence to ensure better access to state-of-the-art diagnosis, research, clinical care, and education for traumatic brain injury and epilepsy throughout the VA healthcare system.
- Collaborate with the VA Polytrauma/TBI System of Care that provides research, education, and clinical care to Veteran patients with complex multi-trauma associated with combat injuries.
- Use national VA and other databases to inform providers and policymakers in the VA Central Office about healthcare delivery and health policy decisions, conduct state-of-the-art research in epilepsy, and implement an informatics backbone to meet the above objectives.
- Ensure an affiliation with accredited medical schools, provide education and training in neurology, and diagnose and treat epilepsy (including neurosurgery).
- Provide professional health education and training to nursing staff, medical students, house staff, fellows, and referring physicians to deliver the highest quality of standard of care to Veterans with epilepsy.

FY20 National ECoE Goals & Accomplishments

The following goals and accomplishments were outlined in FY19 to serve as a road map for the ECoE in 2020:

Operations

- Finalized the administrative core with temporary details and/or permanent hires.
- Conducted a quarterly administrative call with the National Coordinator, Regional Directors, and administrators.
- Ensured compliance with assessments per VHA Directive 1215 (self-assessments and memos of understanding, or MOUs).
- Established Regional Federal Advisory Sub-Committees in accordance with policy.
- Made changes to the Peer Review Committee, replacing and adding members.
- Finalized the ECoE Code of Operations.
- Enhanced consortium collaboration; include in regional meetings, others.
- Updated the agreement for CBT training for PNES.
- Reviewed the organization chart for region and suggest a "correct staffing" model.
- Investigated the impact of the MISSION Act on ECoE services.
- Fixed data tracking at Boston, San Antonio, and other sites.
- Streamlined telehealth agreements.
- Promoted VA clinical care.

Clinical

- Developed an instructional manual for store-and-forward EEG, home telehealth, CVT, and remote access.
- Increased store-and-forward EEG services by 20 percent.
- Increased home telehealth encounters by 20 percent.
- Established a guidelines document that explains when to refer to EMU.
- Provided input to development of the Cerner platform.
- Incorporated bone-health and women Veterans' assessments in clinical practice.
- Established a Q/I system of EEG reading at ECoE sites and consortium sites; meet American Board of Psychiatry and Neurology (ABPN) Improvement in Medical Practice (PIP) criteria.
- Leveraged the MISSION Act for providing extremely subspecialized services at each site (ictal SPECT, etc.).
- Created a convulsive status epilepticus treatment guideline for the VA.
- Filled clinical vacancies on EEG technologist staff.
- Continued to add technology to VA ECoE sites (new diagnostic, treatment modalities).
- Trained additional staff in CBT for PNES.
- Drafted EEG Coding Guidelines Report to address CPT changes, effective January 2020.

Research/Surveillance

- Continued DoD grants regarding TBI, fMRI, PNES, and others.
- Ensured VA Coop study (PNES) progress and participation.
- Began enrollment in the mindfulness and treatment of epilepsy study.
- Obtained IRB approval and enrollment for the VA Epilepsy Surgery study.
- Offered psychiatric treatment of Veterans with epilepsy feasibility.
- Obtained two letters of intent for basic science grants (Basic Science Research workgroup).
- Established a bone-health publication.
- Established a women Veterans health publication for federal practitioners.
- Continued progress on the UCB peer-navigation project.
- Completed publication of Brain Sentinel project once closed.
- Documented consortium statistics that would include patients monitored at affiliates.
- Published a Pharmacy paper.
- Explored partnerships with nonprofit, commercial entities.

Education

- Sought out volunteer presenters for a practitioner and patient webinar series.
- Developed new content to add to the YouTube Basic Training series.
- Investigated YouTube video display in waiting rooms.
- Initiated a CNP/Epilepsy fellowship program.
- Added epilepsy education classes at more ECoE sites.
- Developed an AAN course on women with epilepsy.
- Offered education seminars to primary care physicians.
- Explored opportunities with commercial entities for Veteran and provider education.

Outreach

- Increased consortium engagement; invite consortium representatives to regional meetings, others.
- Planned at least one epilepsy awareness event at each ECoE site.
- Maintain relationship with CURE Epilepsy.
- Established or maintain nonprofit partnerships:
    - Epilepsy Foundation
    - Anita Kaufmann
    - DoD
    - Others
- Established or maintained commercial-entity partnerships to promote education and research.
- Established or maintained relationships with professional organizations:
    - American Epilepsy
    - American Academy of Neurology

FY20 National ECoE Goals—Status

The status charts below show progress that has been made on the FY20 National ECoE goals.

FY20 Goals	Met Expectations	In Progress	On hold	Champion/ Comment
Operations				
Finalize administrative core with temporary details and/or permanent hires.			X	Husain and Kelly—Dependent on VACO SCS pending response
Ensure compliance with assessments per VHA Directive 1215 (self-assessments and MOUs).		x		Regional Directors
Establish Regional Federal Advisory Sub-Committees in accordance with policy.		x		NE: Benson; NW: Dembrow; SE: Kelly and D. Riley; SW: Garga
Update Peer Review Committee members.	x			Husain
Finalize the ECoE Code of Operations.			x	J. Chen
Enhance consortium collaboration; include in regional meetings, others.		x		All Directors—ongoing
Update agreement for CBT training for PNES.	x			Hamada
Review the org chart for region and suggest a "correct staffing" model.			x	Husain—complete but pending VHA response
Promote VA clinical care.		x		All ECoE Staff
Streamline telehealth agreements.		x		McCarthy—SOP released
Investigate the impact of the MISSION Act on ECOE services.			x	Rehman
Fix data tracking at Boston, San Antonio, others.		x		McCarthy; Abisogun Musa; Rehman
Clinical				
Develop an instructional manual for store-and-forward EEG, home telehealth, CVT, remote access.	x			McCarthy
Increase store-and-forward EEG services by 20 percent.	x			All ECoE Directors
Increase home telehealth encounters by 20 percent.	x			All ECoE Directors
Establish a guidelines document for when to refer to EMU.	x			Husain
Provide input to development of the Cerner platform.		x		Khan
Drafted EEG Coding Guidelines Report to address CPT changes, effective January 2020.	x			

FY20 Goals	Met Expectations	In Progress	On Hold	Champion/ Comment
Research/Surveillance				
Incorporate bone-health and women Veterans' assessments in clinical practice.		x		VanCott, Lopez, and Garga
Establish a Q/I system of EEG reading at ECoE sites and consortium sites; meet ABPN PIP criteria.		x		
Complete VA Coop study (PNES) progress and participation.		x		
Leverage the MISSION Act for providing extremely subspecialized services at each site (ictal SPECT, etc.).			x	
Create a convulsive status epilepticus treatment guideline for the VA.		x		
Fill clinical vacancies on EEG technologist staff.			x	
Continue to add technology to VA ECoE sites (new diagnostic, treatment modalities).		x		All ECoE Directors
Train additional staff in CBT for PNES		x		Husain and LaFrance
Education				
Seek volunteer presenters for a practitioner and patient webinar series.	x			Kelly, Broomhead, and Kan
Develop new content to add to the YouTube Basic Training series.			x	Kelly
Investigate putting a YouTube video display in waiting rooms.			x	All ECoE Directors
Initiate a CNP/Epilepsy fellowship program.			x	
Add epilepsy education classes at more ECoE sites.			x	
Develop an AAN course on women with epilepsy.		x		VanCott, Garga, Lopez, and Pugh
Offer education seminars to primary care physicians.		x		Webinars accessible to all VA clinicians
Explore opportunities with commercial entities for Veteran and provider education.			x	
Outreach				
Increase consortium engagement; invite to regional meetings, others.		x		All ECoE Directors
Plan at least one epilepsy awareness event at each ECoE site.		x		All ECoE Regional Directors
Establish or maintain nonprofit partnerships: Epilepsy Foundation, Anita Kaufmann, DoD, others		x		Kelly—continuation
Establish or maintain commercial-entity partnerships: Research/PNES/Education		x		All ECoE Directors and Kelly

FY21 National ECoE Goals

Operations

- Make an accurate determination of budget allocation.
- Adjudicate administrative staff hiring:
  - National administrative director
  - Regional administrative directors
- Establish a regional advisory committee; initiate the review process.
- Launch and promote the VSSC Cube.
- Include data object and template in Cerner.
- Special attention to diversity, inclusion, advocacy, review health equality and outcomes.

Clinical

- Expand the tele-EEG platform; focus on rural access.
- Transition to the tele-epilepsy platform.
  - Determine metrics.
- Continue Cerner migration.
- Review what makes sense to send to the community under the Mission Act..
- Focus on transition from consortium to ECoE sites (EMU)

Research/Surveillance

- Complete the VA Co-op study submission process.
- Continue to pursue various Merit awards.
- Consider other projects, clinical and basic science.

Education

- Continue online education, staffing permitting.
- Consider continuing Basic Training videos.
- Continue nursing and technologist education.

Outreach

- Continue to engage consortium members with clinical and research initiatives.
- Determine the role of pharma collaboration.

FY21 National ECoE Goals Crosswalk

Goals					
Access		**Veteran-Centric Care**		**Quality/Transparency**	
Objective 1A	Make an accurate determination of budget allocation.	**Objective 1V**	Include data object and template in Cerner,.	**Objective 1Q**	Launch and promote the VSSC Cube.
Objective 2A	Expand the tele-EEG platform; focus on rural access.	**Objective 2V**	Review what makes sense to send to the community under the Mission Act.	**Objective 2Q**	Transition to tele-epilepsy platform; determine metrics.
Objective 3A	Continue to engage consortium members with clinical and research initiatives.	**Objective 3V**	Special attention to diversity, inclusion, and advocacy, review health equality and outcomes (Lopez and Garga).	**Objective 3Q**	Continue VA Co-op study submission process.
Objective 4A	Adjudicate administrative staff hiring.	**Objective 4V**		**Objective 4Q**	Continue online education.
Objective 5A		**Objective 5V**		**Objective 5Q**	Establish a regional advisory committee; initiate review process.

Crosswalk		My VA Priority Goals (FY2018 – 2024)
1A; 2A; 3A; 4A; 1V; 2V; 3V; 1Q; 2Q; 3Q; 4Q; 5Q	**I**	**Customer Service** We will be driven by customer feedback, unified Veteran data, and employees characterized by a customer-centric mindset to make accessing VA services seamless, effective, efficient and emotionally resonant for our Veterans
1A; 1V; 2V;5Q	**II**	**MISSION Act** VA commitment to ensuring Veterans have a wide variety of options for their health and well-being
2A; 3A; 1V; 2V; 1Q	**III**	**Electronic Health Record** The new system will enable the seamless and secure transfer of Veteran's and Servicemembers' sensitive health information.
1A; 3A; 4A; 1V; 2V; 1Q; 2Q;5Q	**IV**	**Business Systems Transformation:** Modernization systems and technology enable employees to enhance the quality of the care and services Veterans deserve.
3A; 1V	**V**	**Suicide Prevention** Suicide prevention in VA's top clinical priority; it is a national health crisis and requires all of Government, along with public private partnerships, to address.

This chart shows alignment of FY20 goals with VA goals and MYVA priorities.

Each of the FY21 goals is categorized as aligning with one of the three major VA Mission goals and then cross-walked to illustrate how each of the ECoE goals supports one or more of the MYVA priorities.

Centers of Excellence

Northeast		
States covered: Virginia, West Virginia, Ohio, Pennsylvania, Delaware, Massachusetts, New Jersey, New York, Vermont, Maine, Connecticut, Rhode Island, New Hampshire, Massachusetts, Maryland, and District of Columbia Linked Polytrauma Site: Richmond		
Baltimore	VA Maryland HCS	(410) 605-7414
Boston	VA Boston HCS	(857) 364--4745
Richmond	Hunter Holmes McGuire VAMC	(804) 675-5000, ext. 3734
West Haven	VA Connecticut HCS	(203) 932-5711, ext. 2420
Northwest		
States covered: Alaska, Washington, Oregon, Idaho, Montana, Wyoming, North Dakota, South Dakota, Minnesota, Iowa, Illinois, Indiana, Michigan, and Wisconsin Linked Polytrauma Site: Minneapolis		
Madison	William S. Middleton Memorial VA	(608) 256-1901, ext. 17044
Minneapolis	Minneapolis VA HCS	(612) 467-2047
Portland	Portland VA HCS	(503) 220-8262, ext. 58330
Seattle	Puget Sound	(206) 277-3234
Southeast		
States covered: Florida, Alabama, Georgia, Mississippi, Tennessee, Kentucky, South Carolina, Puerto Rico, Arkansas, Louisiana, North Carolina, and Missouri Linked Polytrauma Site: Tampa		
Durham	Durham VAHCS	(919) 416-5982
Gainesville	Malcom Randall VAMC	(352) 376-1611, ext. 6818
Miami	Miami VAHCS	(305) 575-7000, ext. 3291
Tampa	James A. Haley Veterans' Hospital	(813) 972-7633
Southwest		
States covered: California, Utah, Colorado, Kansas, Nebraska, Nevada, Hawaii, Arizona, New Mexico, Texas, Oklahoma, and Philippines. Linked Polytrauma Sites: Palo Alto and San Antonio		
Albuquerque	New Mexico VAHCS	(505) 256-2752
Houston	Michael E. DeBakey VAMC	(713) 794-8835
San Antonio	Audie L. Murphy Memorial VA Hospital	(210) 617-5161
San Francisco	San Francisco VAMC	(415) 379-5599
West Los Angeles	Greater Los Angeles HCS	(310) 268-3595

Definition of Centers

ECoE sites and Regional Centers will be designated by the ECoE National Program as ECoE *program sites* or *centers*.

ECOE Sites

Each ECoE, referred to as an "ECoE site," accomplishes the following:

- Offers weekly specialty Clinics in Epilepsy (not seen within a general neurology clinic).
- Trains providers for these clinics specifically in epilepsy care.
- Provides V-tel epilepsy consultations.
- Provides epilepsy monitoring.
- Has a single director who is an epileptologist.
- Has a designated administrative support person who works within the ECoE and participates on a national level.
- Participates in national ECoE initiatives and workgroups.

ECoE Regional Centers

Each region, referred to as an "ECoE Regional Center," accomplishes the following:

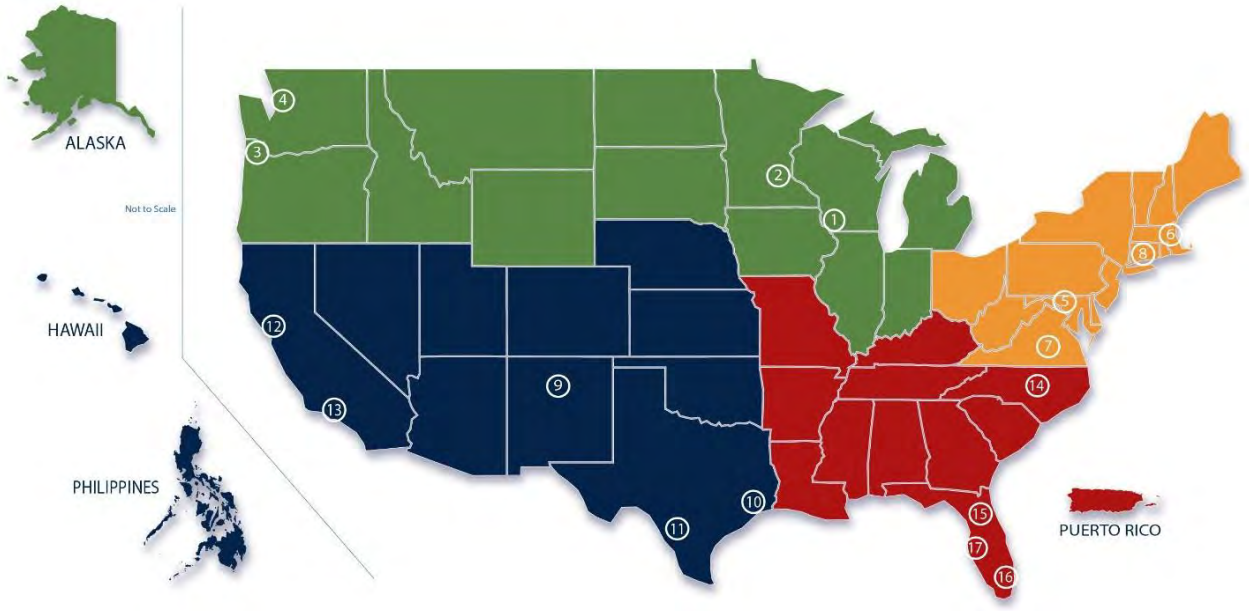
- Composes an established network covering all Veterans in its region, with a specified pathway for referral of Veterans with epilepsy to a surgical center, if needed.
- Sees Veterans in a timely manner, in accordance with VA policy and procedures.
- Has at least one surgical center that is comparable to a NAEC level 4 center, to include:
    1. An interdisciplinary and comprehensive diagnostic team approach
    2. A team that includes epileptologists, neurosurgeons, neuropsychologists, nurse specialists, and EEG technologists
    3. Complete evaluation for epilepsy surgery, including Wada testing
    4. Neuropsychological and psychosocial treatment
    5. Specialized brain imaging
    6. Fixed EMU beds that can provide Video EEG telemetry that includes intracranial electrode, functional cortical mapping, and electrocorticography
    7. A broad range of surgical procedures for epilepsy
- Is involved in clinical trials.
- Has a dedicated full-time epilepsy AO who serves as part of the national team.
- Offers opportunities for specialized education in clinical epilepsy care.

Consortium Sites

Each consortium site accomplishes the following:

- Applies to the National ECoE for site designation and is recognized locally and nationally as an ECoE consortium site.
- Has a provider specifically trained in treating and managing epilepsy.
- Is linked to the ECoE network and has established an administrative pathway to refer patients to ECoE.
- Provides ECoE epilepsy resources to Veterans.
- Is available to participate in collaborative research projects.
- Participates in ECoE educational programs for clinical epilepsy care.
- Can participate in national ECoE initiatives and workgroups.

Epilepsy Centers of Excellence Regional Map



NORTHWEST

1. **MADISON**
   William S. Middleton Memorial VA
   2500 Overlook Tr.
   Madison, WI 53705
   (608) 256-1901, ext. 17728

2. **MINNEAPOLIS**
   Minneapolis VA HCS
   One Veterans Dr.
   Minneapolis, MN 55416
   (612) 467-2047

3. **PORTLAND**
   Portland VA MC
   3710 SW U.S. Veterans Hospital Rd.
   Portland, OR 97239
   (503) 220-8262, ext. 58334

4. **SEATTLE**
   Puget Sound HCS
   1660 S. Columbian Way
   Seattle, WA 98108
   (206) 277-3234

NORTHEAST

5. **BALTIMORE**
   VA Maryland HCS
   10 North Greene St.
   Baltimore, MD 21201
   (410) 605-7414

6. **BOSTON**
   VA Boston HCS
   150 S. Huntington Ave.
   Boston, MA 02130
   (857) 364-4745

7. **RICHMOND**
   HunterHolmesMcGuireVAMC
   1201 Broad Rock Blvd.
   Richmond, VA 23249
   (804) 675-5000, ext. 3748

8. **WEST HAVEN**
   VA Connecticut HCS
   950 Campbell Ave.
   West Haven, CT 06516
   (203) 932-5711, ext. 4724

SOUTHWEST

9. **ALBUQUERQUE**
   New Mexico VA HCS
   1501 San Pedro Dr. SE
   Albuquerque, NM 87108
   (505) 265-1711, ext. 2752

10. **HOUSTON**
    Michael E. DeBakey VA MC
    2002 Holcombe Blvd.
    Houston, TX 77030
    (713) 794-8835

11. **SAN ANTONIO**
    Audie L. Murphy VA Hospital
    7400 Merton Minter
    San Antonio, TX 78229
    (210) 617-5161

12. **SAN FRANCISCO**
    San Francisco VA MC
    4150 Clement St.
    San Francisco, CA 94121
    (415) 379-5599

13. **WEST LOS ANGELES**
    VA Greater Los Angeles HCS
    11301 Wilshire Blvd.
    Los Angeles, CA 90073
    (310) 268-3595

SOUTHEAST

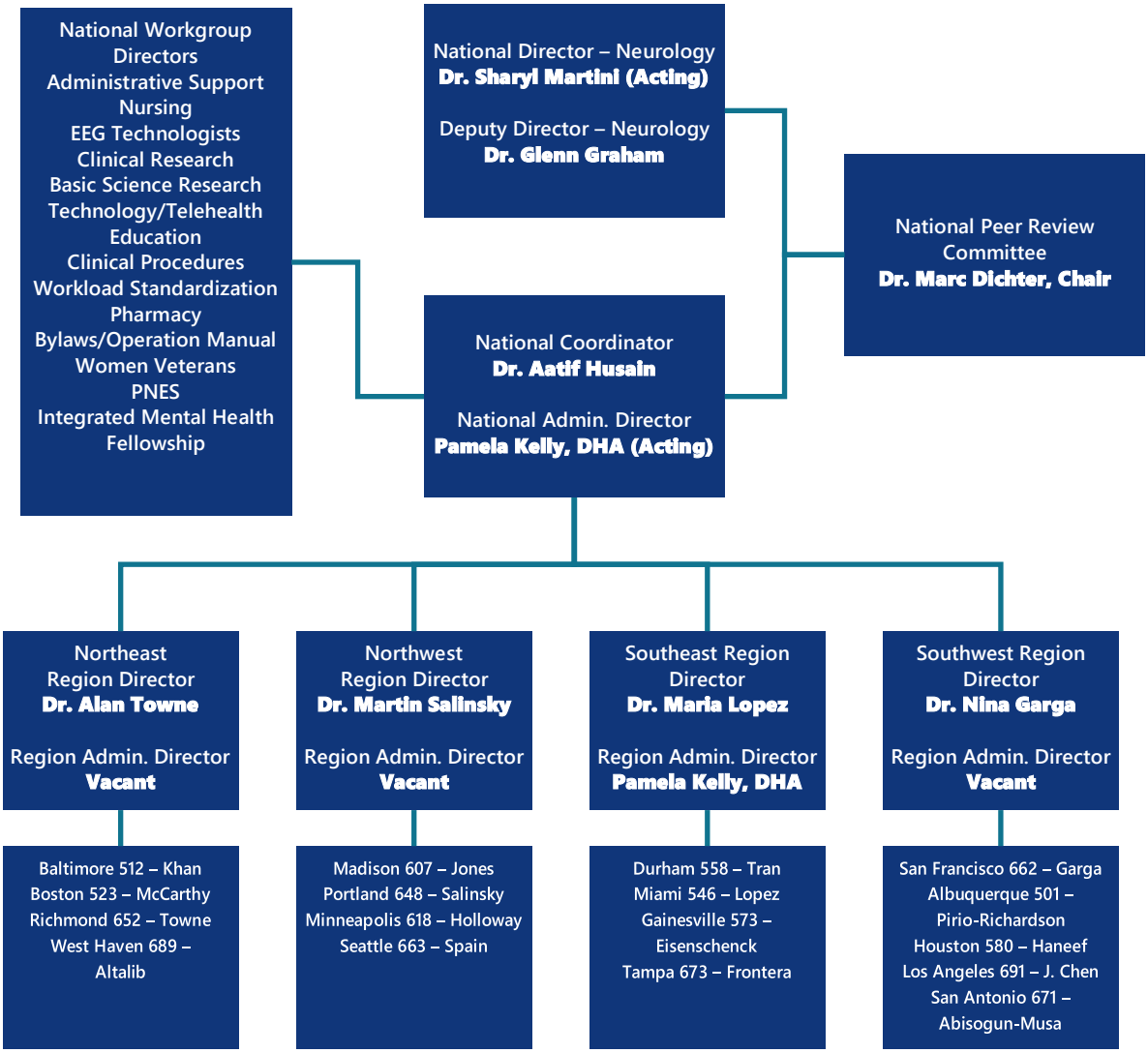
14. **DURHAM**
    Durham VA HCS
    508 Fulton St.
    Durham, NC 27705
    (919) 416-5982

15. **GAINESVILLE**
    Malcom Randall VA MC
    1601 SW Archer Rd.
    Gainesville, FL 32608
    (800) 324-8387, ext. 4020

16. **MIAMI**
    Miami VA HCS
    1201 NW 16th St.
    Miami, FL 33125
    (305) 575-7000, ext. 3291

17. **TAMPA**
    James A. Haley VA MC
    13000 Bruce B. Downs Blvd.
    Tampa, FL 33612
    (813) 972-7633

Epilepsy Centers of Excellence Organization Chart

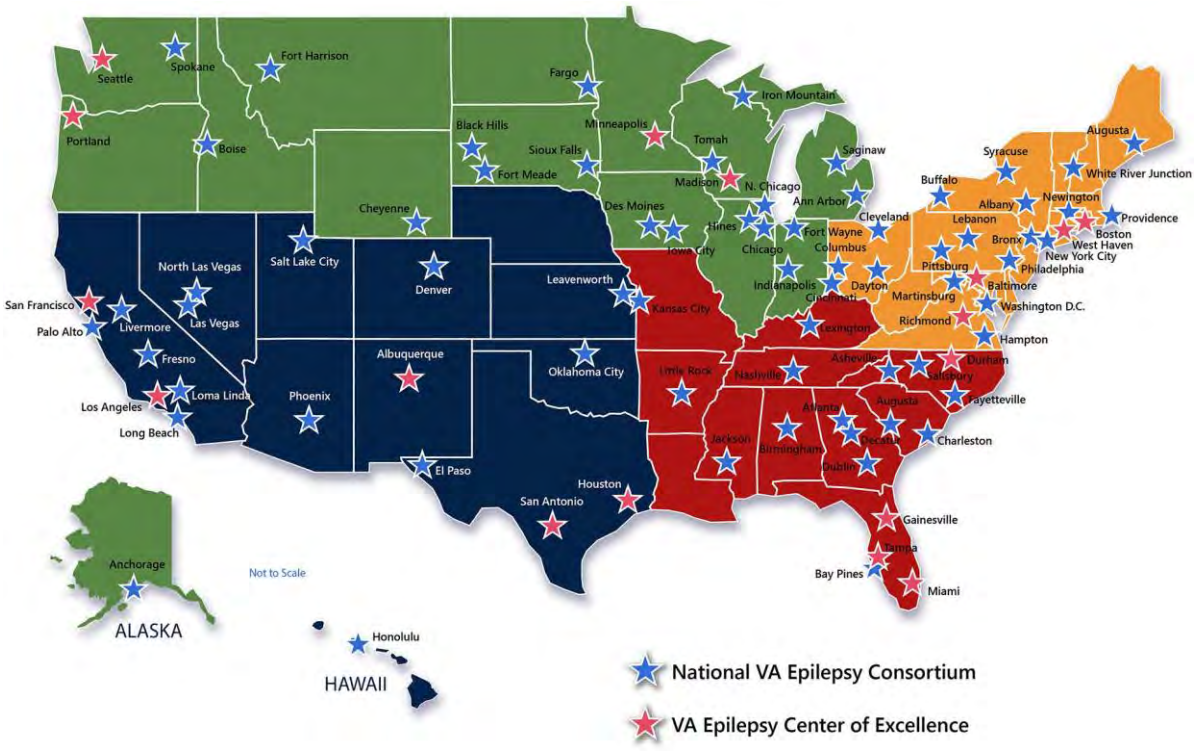


National VA Epilepsy Consortium

The goal of the National VA Epilepsy Consortium is to support the delivery of optimal care for Veterans diagnosed with epilepsy and seizure disorders through professional education, collaboration, and peer support across the collective VA Healthcare System. All interested VA clinicians, including epileptologists, neurologists, gerontologists, general internists, and other allied health professionals who serve Veterans with epilepsy and related seizure disorders (regardless of capacity), are invited to participate.

Together with the Epilepsy Centers of Excellence (ECoE), the National VA Epilepsy Consortium will create a hub-and-spoke model of care across the VA Healthcare System, expanding and streamlining the referral network for specialized epilepsy treatment, advanced neuro-diagnostics, and surgical evaluation. The Epilepsy Consortium will ensure accessibility and continuity of specialized care for Veterans regardless of locality, thus broadening the impact of the ECoE network. The National VA Epilepsy Consortium serves as a direct link to the 17 ECoE sites, which are staffed by epilepsy specialists or neurology clinicians, and provide administrative assistance, professional collaboration, and educational offerings in epilepsy care.

Members of the National VA Epilepsy Consortium will be offered a variety of epilepsy educational resources and updates on state-of-the-art epilepsy care from the ECoE. Also, consortium members who provide more comprehensive epilepsy services to Veterans can engage with the ECoE sites to assist in the development of standardized clinical processes and procedures to ensure consistent quality of care across the VA Healthcare System.



Inventory of Services

(x indicates that services are offered)

ECoE Inventory of Services FY19	San Francisco, CA	Los Angeles, CA	Houston, TX	San Antonio, TX	Albuquerque, NM	Baltimore, MD	Boston, MA	Richmond, VA	West Haven, CT	Madison, WI	Minneapolis, MN	Portland, OR	Seattle, WA	**Durham, NC**	Miami, FL	**Gainesville, FL**	Tampa, FL
Outpatient EEG	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Specialty Epilepsy Clinics	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Epilepsy Inpatient Consultation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Scalp Video-EEG Telemetry (Phase 1), # of Beds	4	3	4	3		3	5	2	2	3	2	3	2	3	2	4	2
Epilepsy Protocol MRI Imaging	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PET Scanning	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Magneto encephalography						x											
Radio Surgery (Gamma Knife)			x							x							
Functional MRI (fMRI)			x	x		x	x	x				x					x
Ambulatory EEG		x	x	x		x	x	x	x	x		x	x	x	x	x	x
Epilepsy Video Telehealth Clinics	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x
eConsult	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Telephone Clinics	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
SCAN-ECHO						x	x	x	x	x	x	x	x				
Patient Home Telehealth	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x
Store-and-Forward Remote EEG Rdg.				x			x			x		x	x	x		x	
On-Site Therapy for PNES	x		x			x	x		x			x	x	x	x		
NTMHC Tele-NES Provided	x		x			x	x		x	x		x	x	x			
Ability to Perform Wada Testing	x		x	x		x				x		x		x			
Ability for Pre-Surgical Neuropsych. Testing	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Resection Surgery	x	x	x	x		x				x		x		x		x	
Intracranial Recordings: Grids/Strips	x	x	x			x				x		x		x			
Intracranial Recordings: Std. Depth	x	x	x			x				x		x		x			
Intraoperative Electrocortico-graphy (ECoG)	x	x	x			x				x		x		x		x	
Intraoperative Cortical Stimulation/Mapping	x	x	x			x				x				x			
Extraoperative Cortical Stimulation/Mapping	x	x	x			x				x		x		x			
Placement of VNS	x	x	x	x		x	x	x		x	x	x		x		x	
Placement of NeuroPace		x	x			x		x		x							
Programming NeuroPace	x	x	x			x		x		x							
Deep Brain Stimulation	x	x		x				x						x			
Primary ECoE Contact Phone Number	415.379.5599	310.268.3595	713.794.7596	210.617.5161	505-265.1711 x2752	410.605.7414	857-364-4745	804.675.5000 x3734	203-932-5711 X4724	608.256.1901 x17044	612.467.4236	503.220.8262 x58330	206-277-1449	919.416.5982	305.575.7000 x3192	352-376-1611 x6082	813.972.7633

ECoE Workload

FY20 Clinical Workload

Facility	Outpatient Clinic		EEG		LTM	
	Unique Patients	Unduplicated Encounters	Unique Patients	Unduplicated Encounters	Unique Patients	Unduplicated Encounters
[1](1V01) (523) Boston, MA HCS	259	310	251	293	66	197
(1V01) (689) Connecticut HCS	159	299	104	107	34	64
(1V05) (512) Baltimore, MD HCS	269	451	190	260	7	34
(1V06) (558) Durham, NC HCS	489	713	178	187	15	51
(1V06) (652) Richmond, VA HCS	341	476	250	322	16	41
(2V08) (546) Miami, FL HCS	241	376	228	284	29	60
[1*]2V08) (573) Gainesville, FL HCS	443	650	239	251	62	67
(2V08) (673) Tampa, FL HCS	217	276	362	381	39	123
(3V12) (607) Madison, WI HCS	211	309	151	167	37	184
(3V23) (618) Minneapolis, MN HCS	272	361	249	284	29	110
(4V16) (580) Houston, TX HCS	501	680	474	599	38	39
*(4V17) (671) San Antonio, TX HCS	609	748	312	343	1	1
(5V20) (648) Portland, OR HCS	442	741	193	248	42	129
*(5V20) (663) Puget Sound, WA HCS	490	750	106	109	33	112
(5V21) (662) San Francisco, CA HCS	205	399	84	84	54	168
(5V22) (501) New Mexico HCS	170	226	85	87		
(5V22) (691) Greater Los Angeles, CA HCS	226	332	365	426	82	234
Total	**5,544**	**8,097**	**3,821**	**4,432**	**584**	**1,614**

Data source: VSSC Encounter Cube. Data were collected using ECoE stop code 345 (in the primary or credit-stop code position).

*[1]Self-reported data—*Outpatient clinic: Combined workload from 345 and 315/345 clinics*

*Unduplicated encounters: A count of clinic stops made by patients where duplicates have been removed. A "duplicate clinic stop" occurs when a patient makes more than one of the same type of **primary** clinic stop at the same station on the same day. An "encounter" is a professional contact between a patient and a practitioner vested with primary responsibility for diagnosing, evaluating, and/or treating the patient's condition.*

Psychogenic Non-Epileptic Seizure Workload

Facility	Unique Patients	Encounters
(1V01) (523) Boston, MA HSC	21	125
(1V01) (689) Connecticut HCS	7	28
(1V01) (650) Providence, RI HCS	18	70
(1V05) (512) Baltimore, MD HCS	11	152
(1V06) (558) Durham, NC HCS	4	12
(2V08) (546) Miami, FL HCS	9	47
*(4V17) (671) San Antonio, TX HCS	12	
(5V20) (648) Portland, OR HCS	9	27
*(5V20) (663) Puget Sound, WA HCS	3	
(5V21) (662) San Francisco, CA HCS	22	140
Total	**116**	**601**

** PNES: Number of encounters unavailable when the FY20 Annual Report was published.*

Ambulatory EEG Workload (24–96 Hours)

Facility	Unique Patients	Total Number of 24-Hour Days
(1V01) (523) Boston, MA HSC	22	64
(1V05) (512) Baltimore, MD HCS	39	93
(1V06) (652) Richmond, VA HCS	57	65
(1V06) (558) Durham, NC HCS	25	71
(2V08) (573) Gainesville, FL HCS	2	6
(5V20) (648) Portland, OR HCS	46	66
Total	**191**	**365**

Data source: The sites self-reported their data.

FY20 Telehealth Workload

Facility	Video TeleHealth Clinic Local Station		Video TeleHealth Clinic Different Station		Home Video TeleHealth	
	Unique Patients	Unduplicated Encounters	Unique Patients	Unduplicated Encounters	Unique Patients	Unduplicated Encounters
[1]*(1V01) (523) Boston, MA HCS					57	67
(1V01) (689) Connecticut HCS	2	2	13	17	32	41
*(1V05) (512) Baltimore, MD HCS					57	88
(1V06) (558) Durham, NC HCS	39	50	17	22	41	57
(1V06) (652) Richmond, VA HCS	33	35	16	17	37	45
*(2V08) (546) Miami, FL HCS	38	43			31	47
*(2V08) (573) Gainesville, FL HCS	17	30			104	112
*(2V08) (673) Tampa, FL HCS						
(3V12) (607) Madison, WI HCS	31	34	15	18	34	40
(3V23) (618) Minneapolis, MN HCS	7	7	8	11	9	9
*(4V16) (580) Houston, TX HCS	11	11			49	78
*(4V17) (671) San Antonio, TX HCS					194	205
(5V20) (648) Portland, OR HCS	4	4	50	70	37	63
*(5V20) (663) Puget Sound, WA HCS			20	24	17	20
(5V21) (662) San Francisco, CA HCS	30	37	6	7	73	131
*(5V22) (501) New Mexico HCS	14	15	1	1		
*(5V22) (691) Greater Los Angeles, CA HCS						
Total	**226**	**268**	**146**	**187**	**772**	**1,003**

Data were collected using appropriate credit stop code with primary stop code 345.

**If data is missing, no workload reported.*

[1]Site-reported data

FY20 Telehealth Workload *(continued)*

Facility	Telephone Clinic^		e-Consults		Store-and-Foreword EEG*	
	Unique Patients	Unduplicated Encounters	Unique Patients	Unduplicated Encounters	Unique Patients	Unduplicated Encounters
[1](1V01) (523) Boston, MA HCS	306	1,011	34	38	76	114
**(1V01) (689) Connecticut HCS	98	124				
**(1V05) (512) Baltimore, MD HCS	350	798	10	10		
(1V06) (558) Durham, NC HCS	75	104	35	35	136	137
**(1V06) (652) Richmond, VA HCS	307	390	14	14		
**(2V08) (546) Miami, FL HCS	209	302	3	3		
**(2V08) (573) Gainesville, FL HCS	197	248				
**(2V08) (673) Tampa, FL HCS	154	225				
(3V12) (607) Madison, WI HCS	157	307	4	4	2	2
**(3V23) (618) Minneapolis, MN HCS	42	45				
**(4V16) (580) Houston, TX HCS	405	604				
**(4V17) (671) San Antonio, TX HCS	78	129				
(5V20) (648) Portland, OR HCS	337	711	45	46	356	368
**(5V20) (663) Puget Sound, WA HCS	234	324	59	60		
**(5V21) (662) San Francisco, CA HCS	183	352	6	6		
**(5V22) (501) New Mexico HCS	108	128				
**(5V22) (691) Greater Los Angeles, CA HCS	80	121	45	46		
Total	**3,320**	**5,923**	**255**	**262**	**570**	**621**

^ *Telephone workload includes telemedicine (providers') due to COVID-19, as well as nursing telephone workload.*

**For Store-and-Forward EEG, local-station and different-station data are combined.*

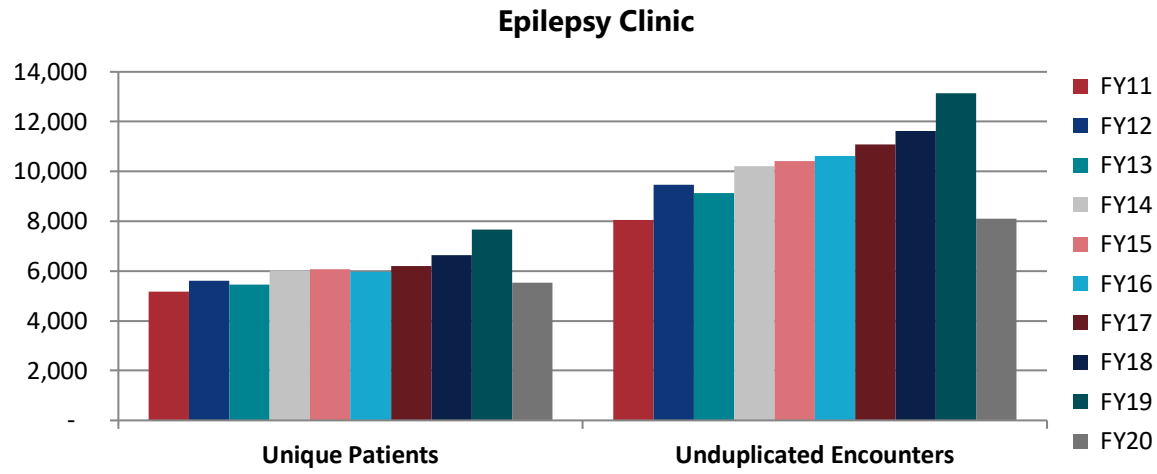
*** If data is missing, no workload reported.*

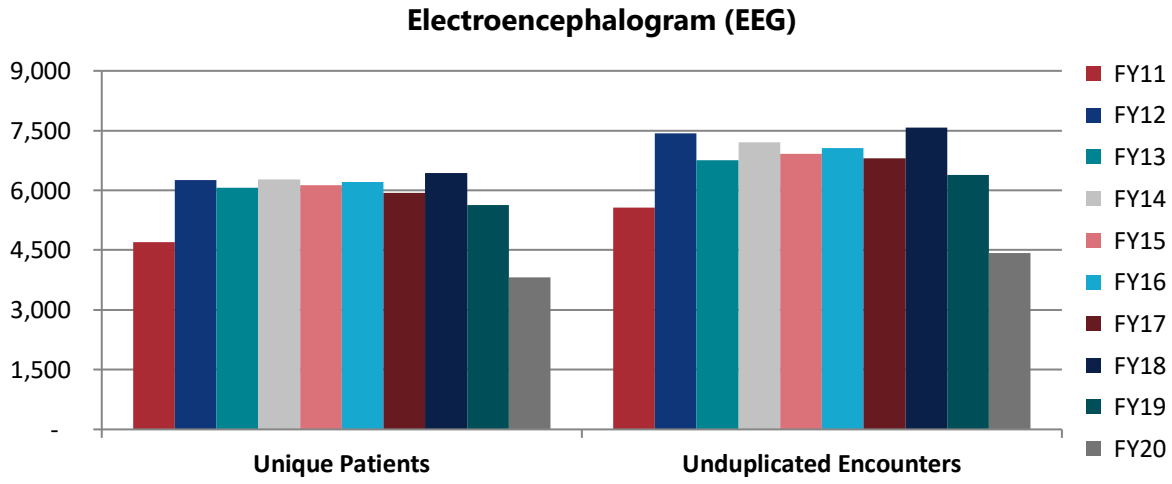
ECoE Surgery Workload

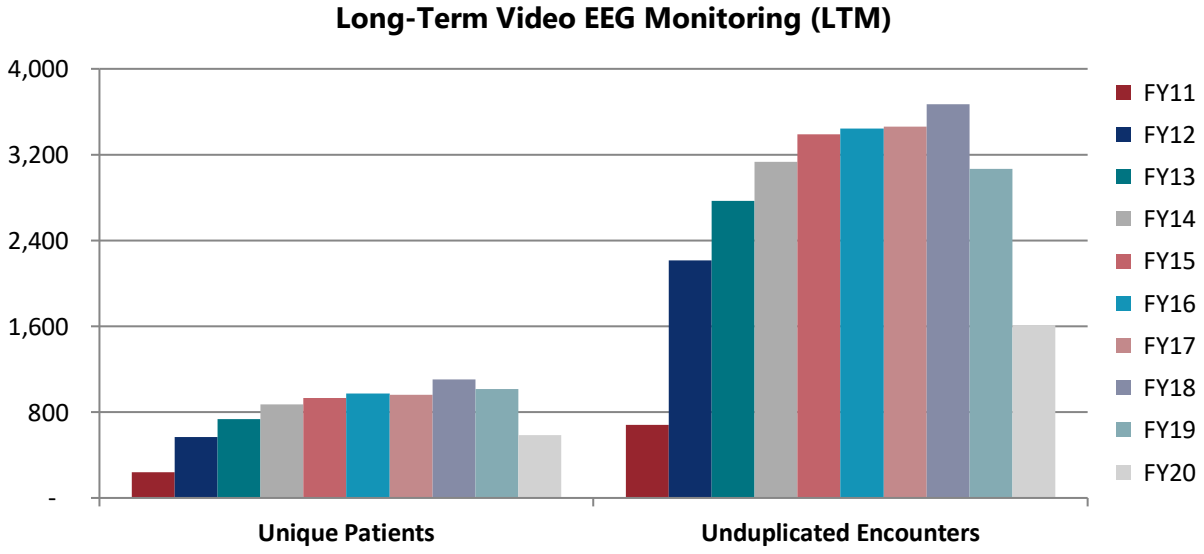
ECoE Surgery Workload FY19 to FY20	Resection Surgery		Intracranial Recordings - Grid Strip		Intracranial Recordings: Standard Depth (Free Hand and Neuro-Navigation		Intracranial Recordings: SteroEEG Depths- Sterotactic Frame		Intraoperative Electrocorticography (ECoG)		Intraoperative Cortical Stimulation/Mapping		Extraoperative Cortical Stimulation/Mapping		VNS		NeuroPace Implantation		DBS Implantation		Foramen ovale electrode implantation	
FY	19	20	19	20	19	20	19	20	19	20	19	20	19	20	19	20	19	20	19	20	19	20
(V01) (689) VA Connecticut HCS, CT																						
(V05) (512) Baltimore HCS, MD		1													1	1						
(V01) (523) Boston HCS, MA																						
(V06) (558) Durham, NC															1							
(V06) (652) Richmond, VA															1	1		1				
(V08) (546) Miami, FL																						
(V08) (573) Gainesville, FL																1						
(V08) (673) Tampa, FL																						
(V12) (607) Madison, WI	1	2	1	1	3		3	3							2		1	1				
(V16) (580) Houston, TX	2	1		1						1					1	1		1				
(V17) (671) San Antonio, TX																						
(V18) (501) Albuquerque, NM																						
(V20) (648) Portland, OR															1	2						
(V20) (663) VA Puget Sound, WA																						
(V21) (662) San Francisco, CA	1								1							1						
(V22) (691) West Los Angeles, CA	3				2		2	3	2	3			2	2		1	1	2			1	
(V23) (618) Minneapolis, MN																						
Total	**7**	**4**	**1**	**2**	**5**	**0**	**5**	**6**	**3**	**4**	**0**	**0**	**2**	**2**	**7**	**8**	**2**	**5**	**0**	**0**	**1**	**0**

ECoE Workload Trends

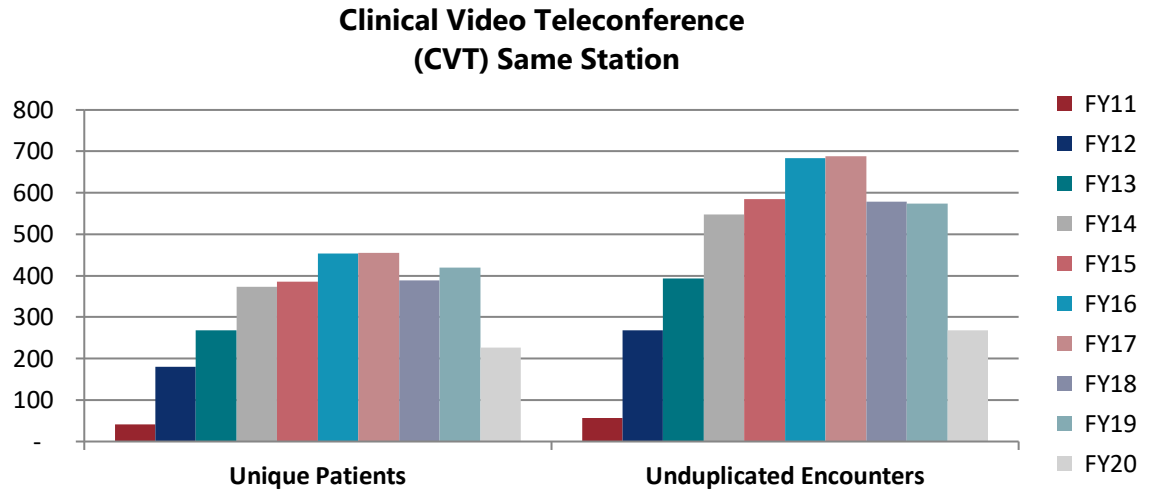
Epilepsy Clinic Visits

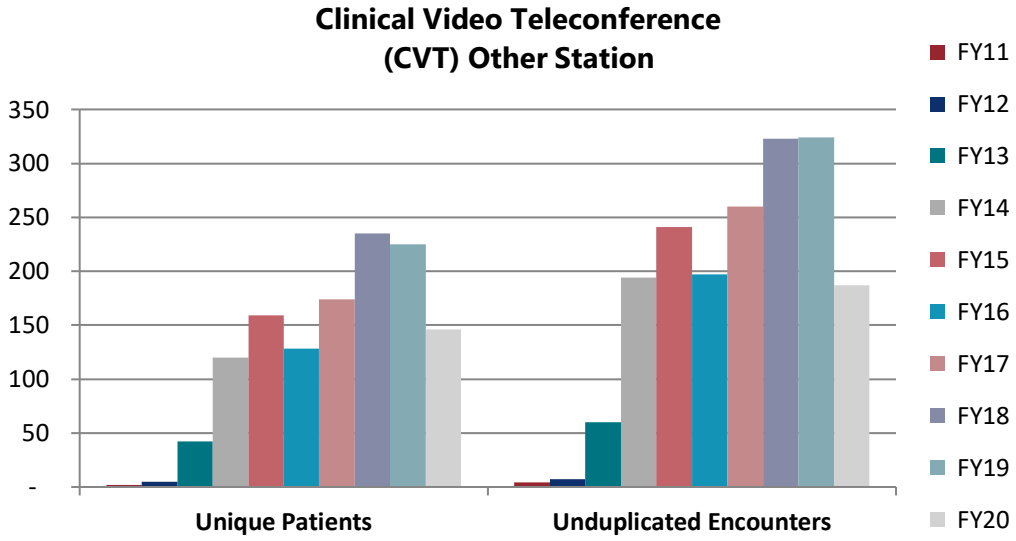






Outreach: Tele-Epilepsy

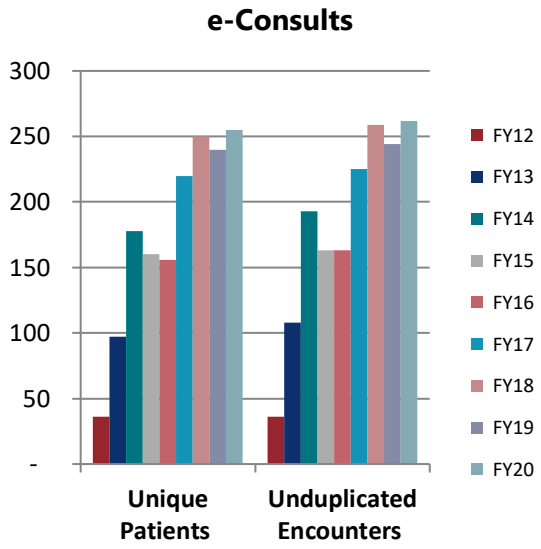


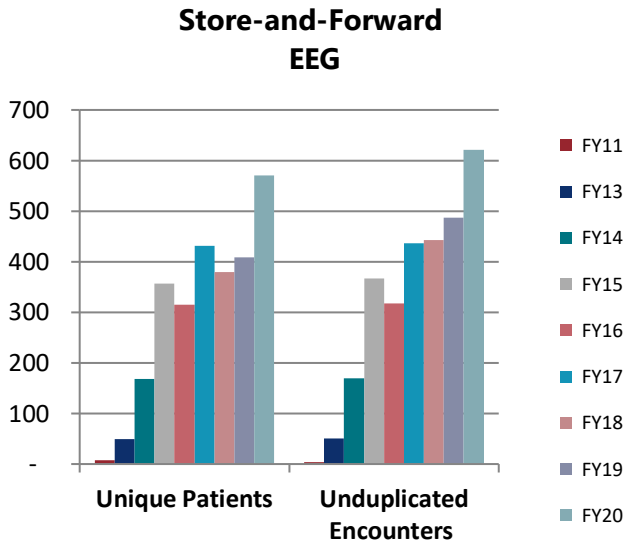


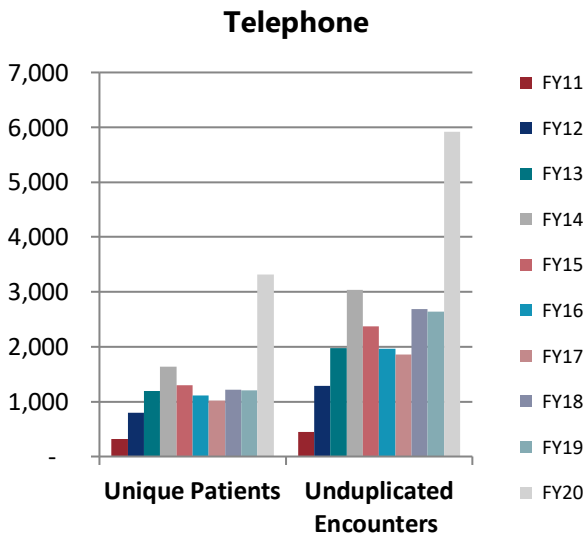
Data source: VSSC Encounter Cube

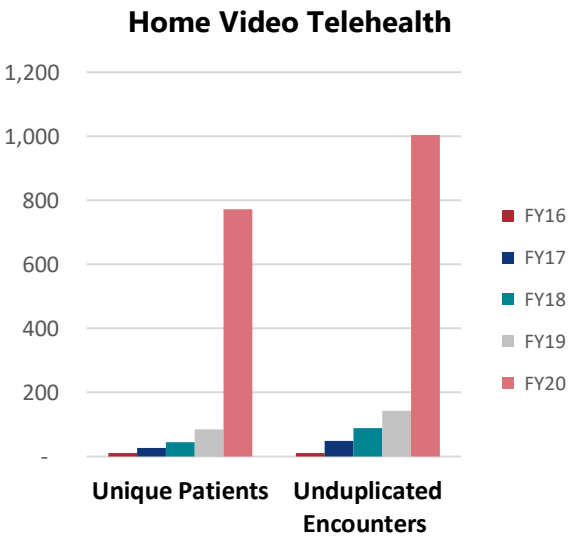
Numbers for FY11-FY12 may be underreported due to workload capture issues.

Outreach: Tele-Epilepsy *(continued)*





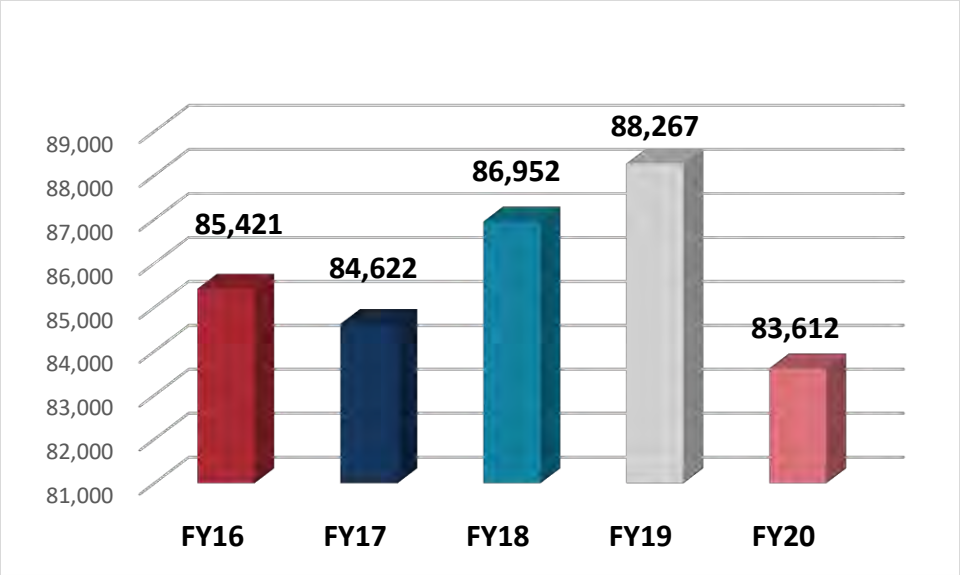




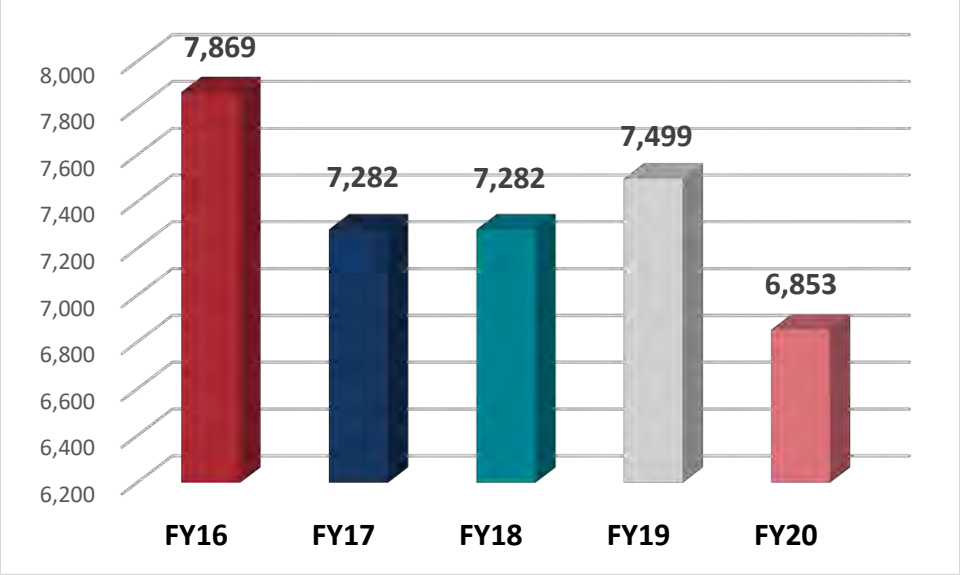
Data source: VSSC Encounter Cube. Numbers for FY11-FY12 may be underreported due to workload capture issues. FY18-20 data include self-reported workload from Boston VAMC.

VHA Seizure, Epilepsy, and Other Events
Unique Patient Counts

[1]Seizure, Epilepsy, Transient Alteration of Awareness



[2]Conversion Disorder with Seizures or Convulsions

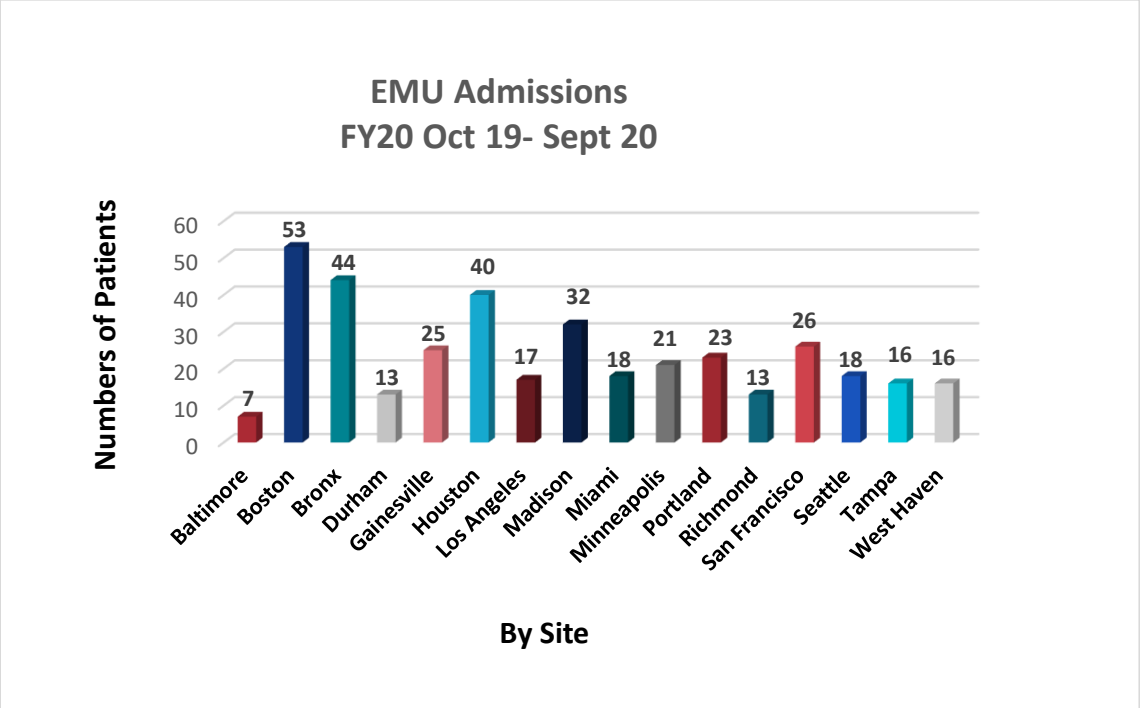


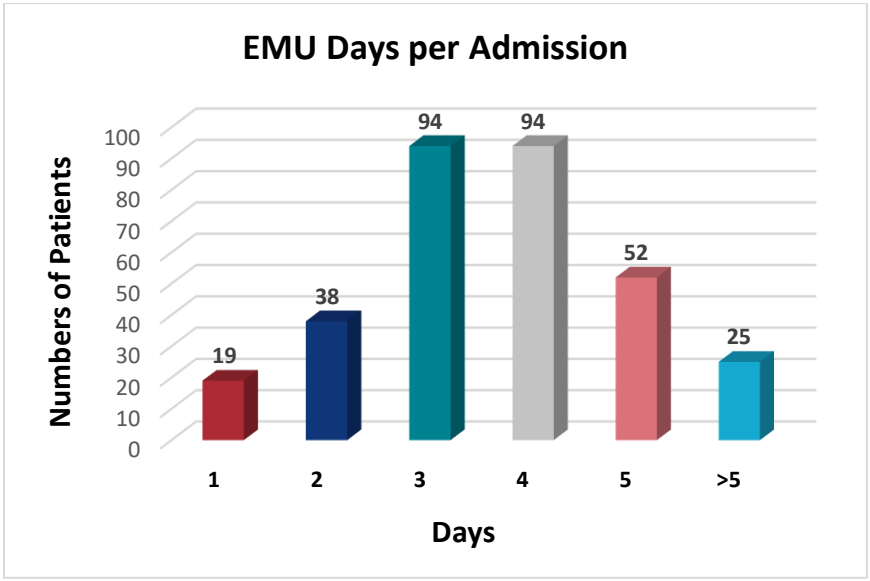
Data source: VSSC Diagnosis Cube: VA patients

Algorithm: Data collected using ICD-10-CM codes: [1]G40.xx Epilepsy, R56.9 Unspecified Convulsion, R40.4 Transient Alteration of Awareness, R56.1 Post-traumatic seizures. [2]F44.5 Conversion disorder with seizures or convulsions

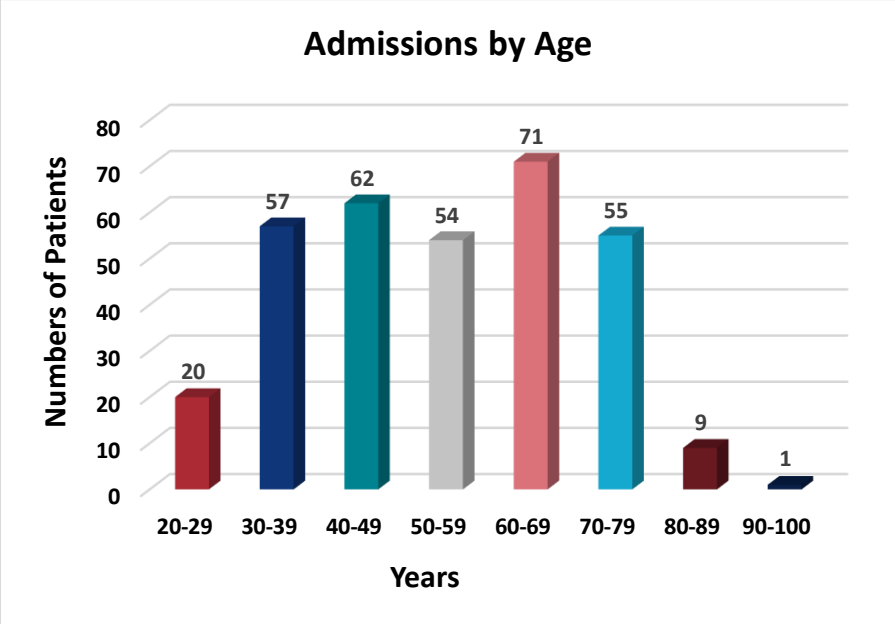
Epilepsy Monitoring Unit Database

Each of the 16 sites reporting epilepsy monitoring unit admissions collected information on the variables; age, gender and length of stay along with monitoring classifications for each visit and cumulative visits (if appropriate) and primary and secondary diagnoses. Traumatic brain injury information (when available) was also collected. The total number of EMU patient admissions was 382.

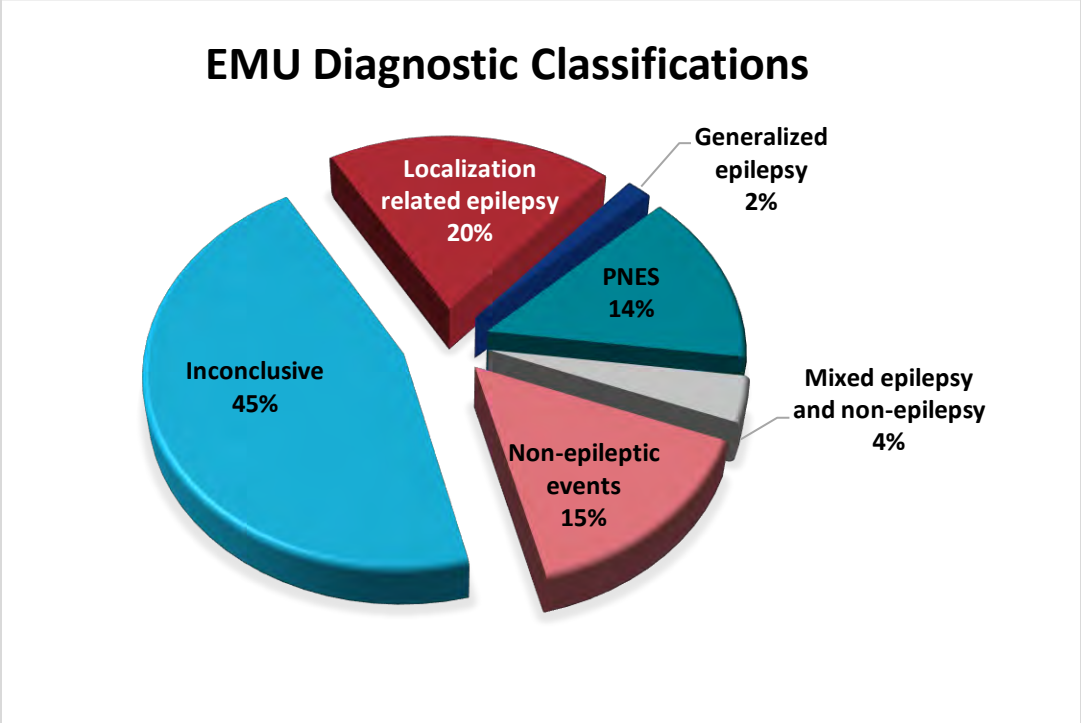




The median length of stay was 3-4 days with a maximum of 11 days and overall reported site admissions totaling 1,203 days.

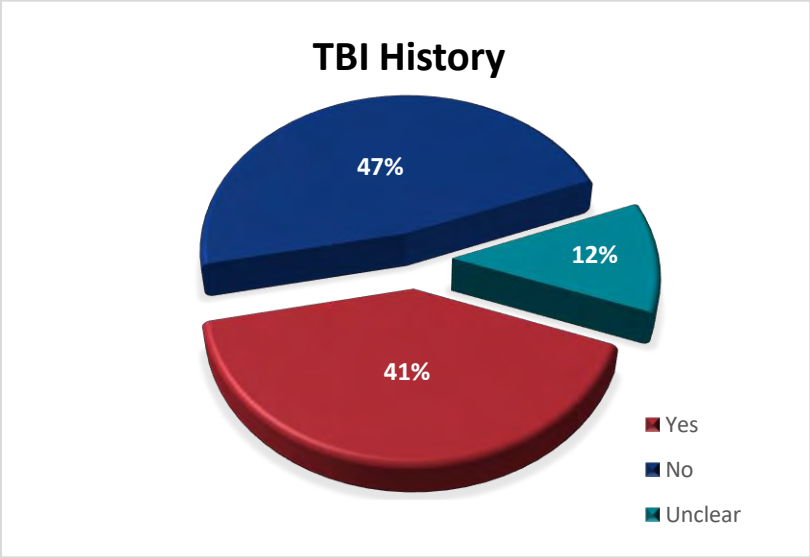


EMU admission ages ranged from 22-93 years with median ages between 60-69 and the majority (82%) of known gender patients being male.

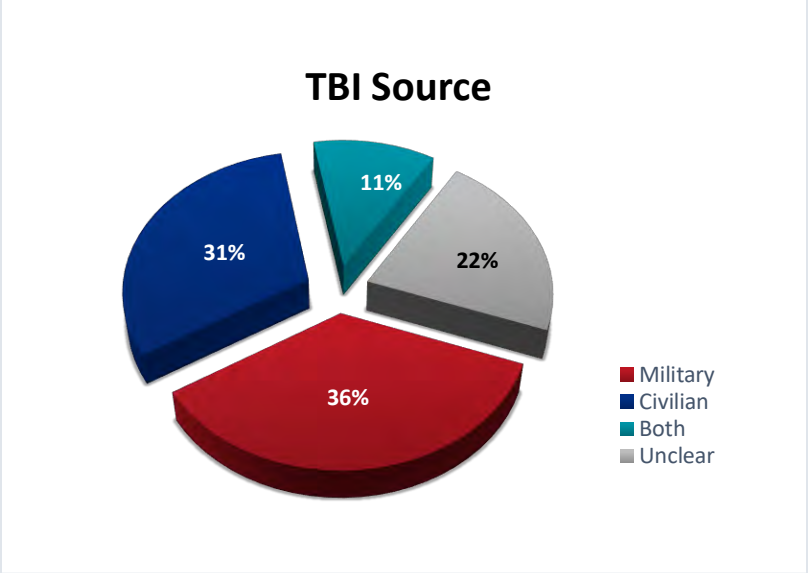


This chart illustrates EMU discharge diagnoses for all sites combined. Categories included localization-related epilepsy (20 percent of admissions) and PNES (14 percent).

For a majority of patients in the inconclusive category, useful information was obtained not meeting formal ECoE diagnostic criteria.

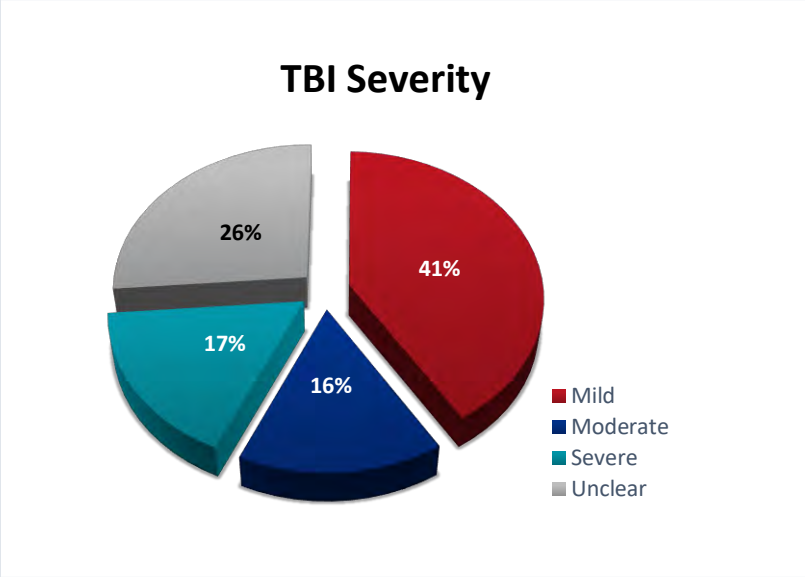


*Of the EMU admissions reporting on traumatic brain injury, 41 percent had a described TBI in the medical record.**



Of the admissions reporting traumatic brain injury, military injury was the greatest source of TBI (36 percent) followed by civilian injury (31 percent).

*Twenty-two percent of the injuries could not be attributed to a specific cause.**



*Of the Veterans who had a reported TBI, the majority were classified with mild injury (41 percent) and 26 percent unable to determine the severity of the injury.**

**Of the reported TBI data*

QI—Standard Assessments for EMU Patients

Results from 100 Consecutive Admissions

The ECoE is committed to continuous improvements in patient care. An area of particular concern for our population has been mental health. In 2020, one of our ECoE sites completed a quality improvement (QI) initiative evaluating the potential benefit of using a standard set of mental health screening questionnaires for every patient admitted to the epilepsy monitoring unit (EMU). One hundred consecutive patients were screened on admission using the Beck Depression Inventory-II, PTSD checklist, Quality of Life in Epilepsy Inventory-31P, and Pittsburgh Sleep Quality Index. Scored results were entered into CPRS within 48 hours of EMU admission. Provider feedback questionnaires were completed after hospital discharge.

An example of the results (Beck Depression) is shown in the figure on the next page. More than half of all EMU admissions screened positive for clinically relevant depression. Many patients had no previous mental health evaluation. There were similar findings for other measures, including >85 percent screening positive for poor sleep quality.

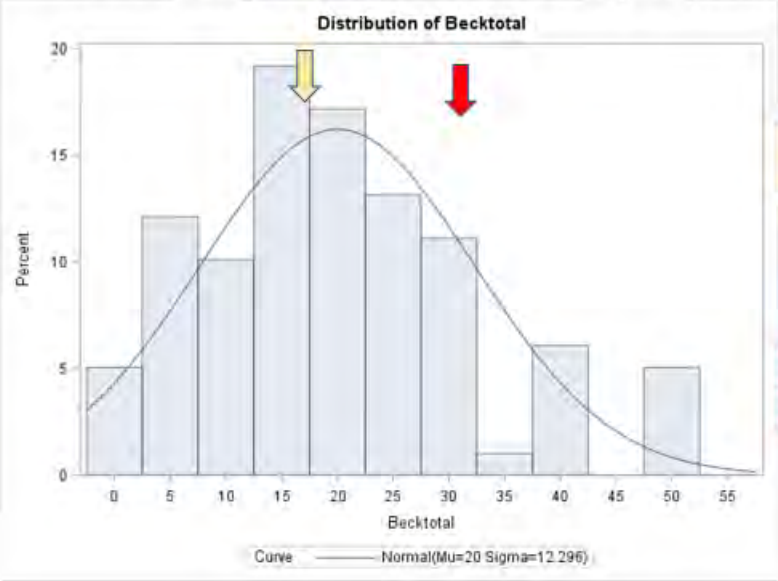
Attending providers indicated that these results influenced patient care in nearly 60 percent of cases. Recommendations to referring providers were influenced in 61 percent of the cases, and discharge instructions to the patient were influenced in 51 percent. Ongoing QI studies are evaluating the utility of seizure clinic outpatient mental health screening.

Patients and Assessments

- In total, 100 consecutive patients were admitted to the Portland VAMC EMU.
- All patients completed questionnaires on day 1 of admission (M).
- Questionnaire results were noted to the CPRS chart by day 3 of admission (W).
- Provider feedback forms were collected after patient discharge.
- The questionnaires included the following:*
    - Beck Depression Inventory II
    - PTSD Checklist
    - Quality of Life in Epilepsy-31P
    - Pittsburgh Sleep Quality Inventory
    - Patient Seizure Etiology Questionnaire [For assessing patient belief that TBI (civilian vs. military) was the likely cause of seizures]

** Not all patients completed all questionnaires (n = 98–100).*

Beck Depression Inventory II (total score; n=99)

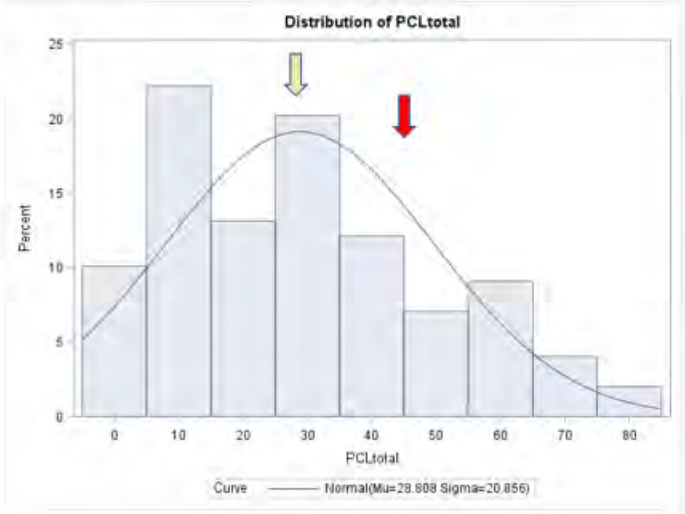


Depression	Range	# of patients (%)
Normal	1-10	24 (24)
Mild	11-16	19 (19)
Borderline*	17-20	9 (9)
Moderate	21-30	29 (29)
Severe	31-40	12 (12)
Extreme	>40	6 (6)

Cumulative borderline clinical to extreme = 56%

*Borderline clinical

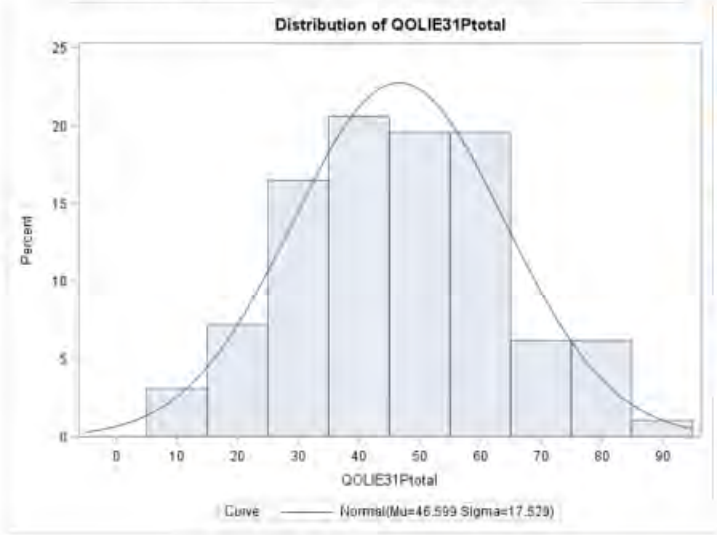
PTSD Checklist (PCL; n=99)



PCL Score	PTSD Symptom Severity	# of patients (%)
<28	Not clinical	48 (48)
28-29	Some symptoms	5 (5)
30-44	Moderate – mod. severe	24 (24)
45-50	High	22 (22)

PCL Score	PTSD Prevalence
30-35	<15%
36-44	16-39%
45-50	>40%

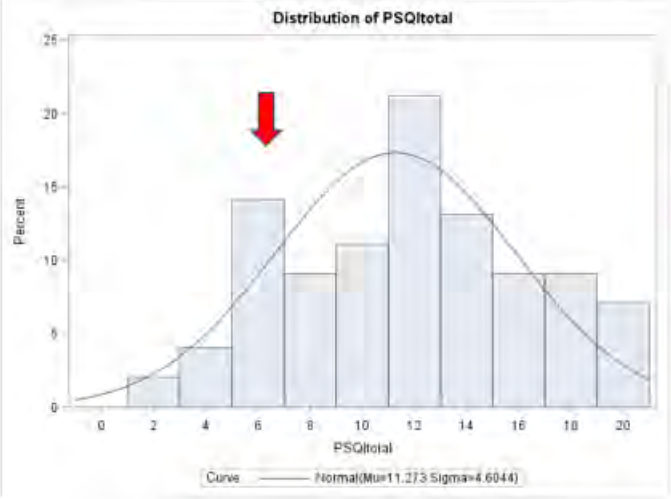
Quality of Life in Epilepsy 31P (QOLIE-31P; n=98)



Scale	Test Mean (SD)	VA EMU patients
Total	62.9 (16.3)	46.6 (17.5)
Seizure Worry	58.3 (25.8)	43.8 (29.6)
Overall QoL	67.2 (18.4)	51.1 (18.5)
Emotional well being	67.2 (19.3)	55.4 (21.1)
Energy/Fatigue	55.3 (21.1)	35.3 (21.4)
Cognitive function	60.0 (22.8)	40.5 (23.6)
Social function	67.3 (26.9)	48.2 (27.6)
Medication effects	55.3 (30.5)	75.6 (30.9)

Higher scores indicate better quality of life. Mean and SD from the QOLIE-31P test population were derived from ~300 patients with moderate to severe epilepsy (QOLIE-31P manual)

Pittsburgh Sleep Quality Index (PSQI; n=99)



PSQI scoring	Number of patients (%)
Good (<=5)	12 (12)
Poor (>=6)	87 (88)

Higher scores indicate worse sleep quality.

VHA FY19 Patient Counts

Cohort	Epilepsy Patients, %		All VA Patients, %	
All Patients	**77,511**		**6,313,622**	
Age <45	11,268	14.5%	1,211,453	19.2%
Age 45–65	26,527	34.2%	1,841,431	29.2%
Age ≥ 65	39,716	51.2%	3,260,738	51.6%
Males	**70,355**		**5,620,882**	
Age <45	9,029	12.8%	923,167	16.4%
Age 45–65	22,865	32.5%	1,534,212	27.3%
Age ≥ 65	38,461	54.7%	3,163,503	56.3%
Females	**7,156**		**692,740**	
Age <45	2,239	31.3%	288,286	41.6%
Age 45–65	3,662	51.2%	307,219	44.3%
Age ≥ 65	1,255	17.5%	97,235	14.0%
Epilepsy: Males 90.8%, Females 9.2%		**All VA:** Males 89.0%, Females 11.0%		

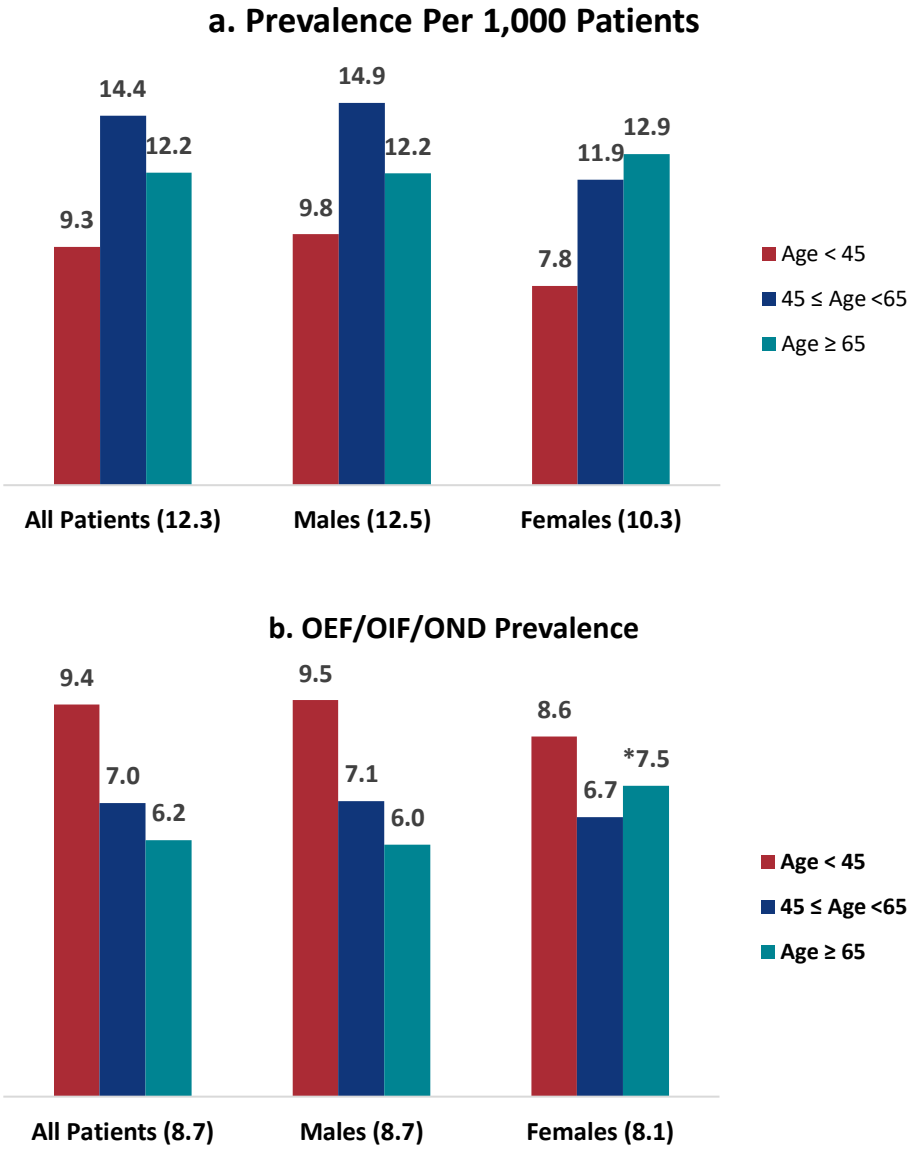
OEF/OIF/OND Patient Counts				
All Patients	**5,829**		**672,797**	
Age <45	4,366	74.9%	464,028	69.0%
Age 45–65	1,402	24.1%	198,867	29.6%
Age ≥ 65	61	1.0%	9,902	1.5%
Males	**5,192**		**594,038**	
Age <45	3,884	74.8%	408,285	68.7%
Age 45–65	1,253	24.1%	176,655	29.7%
Age ≥ 65	55	1.1%	9,098	1.5%
Females	**637**		**78,759**	
Age <45	482	75.7%	55,743	70.8%
Age 45–65	149	23.4%	22,212	28.2%
Age ≥ 65	6	0.9%	804	1.0%
Epilepsy: Males 89.1%, Females 10.9%		**All VA:** Males 88.3%, Females 11.7%		

Data sources: CDW (inpatient and/or outpatient encounters), VSSC Unique Patients Cube (VHA inpatient and/or outpatient encounters), and Pharmacy Benefit Management (PBM).

Algorithm: Patients prescribed at least 30 days of anti-epileptic drugs in FY19 were cross-matched with seizure diagnosis (ICD-10-CM G40.xxx, R40.4, R56.1, R56.9) during FY17–FY19. Diagnosis data from EEG and long-term monitoring (LTM) clinics were excluded. Estimated positive predictive value of 85.1 percent from chart review of 625 patients (95 percent; confidence interval: 82.1 percent to 87.8 percent). Numbers have been rounded to the nearest decimal digit for percentages. Unknowns have been excluded from the analysis.

VHA FY19 Epilepsy Prevalence Estimates

In this section, all prevalence estimates are reported for FY19 because the FY20 prevalence data were not yet available when the FY20 annual report was published.

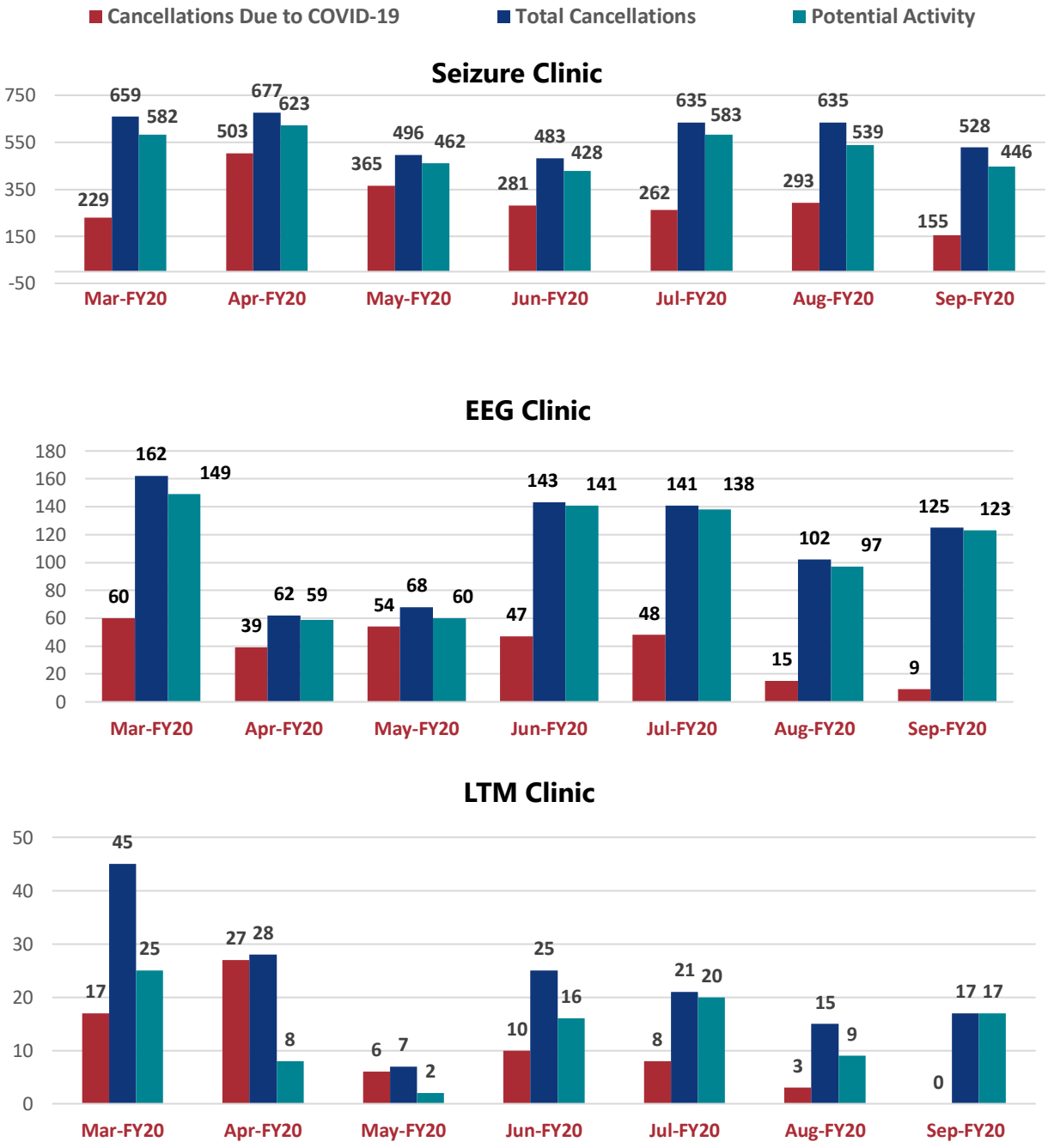


Data sources: CDW (inpatient and/or outpatient encounters), VSSC Unique Patients Cube (VHA inpatient and/or outpatient encounters) and Pharmacy Benefit Management (PBM). Numbers have been rounded to the nearest decimal digit for percentages. Unknowns have been excluded from the analysis.

Algorithm: Patients prescribed at least 30 days of anti-epileptic drugs in FY19 were cross-matched with seizure diagnosis (ICD-10-CM G40.xxx, R40.4, R56.1, R56.9) during FY17–FY19. Diagnosis data from EEG and LTM clinics were excluded. Estimated positive predictive value of 85.1 percent from chart review of 625 patients (95 percent; confidence interval: 82.1 percent to 87.8 percent).

**Estimate is unstable due to low count (n = 6).*

ECoE COVID-19 Cancellations and Evidence of Follow-Up



Data source: VSSC COVID-19 Cancellations Summary Report

Data extracted by activity in primary clinics (Seizure:345, EEG:106, LTM:128); cancellations due to COVID-19 indicated by clerk.

Outreach

Operations

- Telehealth services were expanded nationally: Epilepsy Clinic, EEG, LTM, CVT—Same Station, CVT—Other Station.
- VA ECoE-trained professionals provided PNES services in all four regions; two additional professionals were trained in FY19.

Social Media

- Website updates are ongoing at www.epilepsy.va.gov.
- VHA ECoE was recognized on the National Association of Epilepsy Centers website.
- The VA Caregiver website includes a link for the epilepsy website.

Partnerships

ECoE is partnering with the Epilepsy Foundation on activities associated with the Connectors Provider Outreach Program:

- The ECoE Consortium has an open membership.
- ECoE is a member of the Epilepsy Leadership Council (American Epilepsy Society).
- ECoE partners with the Center for SUDEP Research (CSR).
- ECoE participates in Nonprofit Education and Training Sponsorships for-Brain Sentinel, Eisai, LivaNova, Natus, Sunovion, UCB, and Upsher–Smith.
- ECoE hosted **Purple Day®** events with Anita Kaufmann.
- ECoE established a nonprofit partnership with Anita Kaufmann for the Heads Up for Vets program.

Heads Up for Vets awareness kits were mailed to all ECoE sites and consortium sites regarding their current membership role. The mailing coincided with recognition of Purple Heart Day, August 7, 2020.

Epilepsy Awareness Day on March 26, 2020, did not look like the events of years past because of social distancing, but the event was acknowledged across the nation and throughout the Veterans Health Administration.

Education

- An Epilepsy Basic Training Series was created for patients and caregivers.
- The CME Provider series was completed.
- The AED Physician Pocket Card was revised (a women's focus was added). It has been available since FY18 and is still being distributed on request.
- *Epilepsy Manual*, second edition, was printed, and copies were distributed widely to ECoE sites, affiliates, and consortium sites. It is also available electronically on the website.
- The PNES brochure was completed and is available in print and on the website.

Awareness Issues

- ECoE was represented on National Epilepsy Awareness Day.
- **Purple Day®** events were held at all sites (with information tables, silent auctions, and an open house).
- Multiple patient-education events were held.
- The ECoE/Duke Patient Education Symposium was held.
- Collaborative meetings were held with the Epilepsy Foundation and ECoE.
- ECoE was represented at an Anita Kaufmann-sponsored event at the Houston Space Center, in collaboration with Astronaut Ricky Arnold.

***Purple Day®**—Epilepsy Awareness Around the World, March 1, 2020, Disney (Epcot), Orlando Florida.*


SEIZURE
Simulation
And
RESPONSE

VHA Policy

Department of Veterans Affairs
Veterans Health Administration
Washington, DC 20420

VHA Directive 1215
Transmittal Sheet, February 14, 2017

Standards for Veterans Health Administration Centers of Excellence

1. **Reason for Issue:** This Veterans Health Administration (VHA) directive provides policy and direction for establishing standards and guidelines for VHA Centers of Excellence (COE) and ensures that VHA COE meets those standards.
2. **Summary of Content:** This directive establishes standards for the creation and continuation of VHA COE.
3. **Related Issues:** None.
4. **Responsible Office:** The VHA Chief of Staff (10B) is responsible for content of this VHA directive. Questions should be addressed to the Office of the Chief of Staff at 202-461-7016.
5. **Recertification:** This VHA directive is scheduled for recertification on or before the last working day of February 2022. This VHA directive will continue to serve as national VHA policy until it is recertified or rescinded.

David Shulkin, MD
Under Secretary for Health

Distribution: Emailed to the VHA Publications Distribution List on February 23, 2017.

Efforts to Meet VHA Directive 1215

I. VACO COE Task Force (June 2018) Recommendations to Meet Expectations for New Policy

- **Funding:**
  - The Task Force recommends that funds supporting the Mental Health, Neurology, and Polytrauma CoEs continue.
- **Oversight:**
  - The Task Force recommends a vigorous and transparent review process for CoEs, made up of both subject-matter experts and field representation. This review process should include input from the local host site and network, with oversight for the review process managed by the National Program Office.
- **VERA Modification:**
  - For the CoEs with a primary mission of providing direct clinical care, the Task Force recommends that the responsible VACO program office(s) ensure that VERA funding directly supports services where they are provided.
- **Program Office Review:**
  - The Task Force recommends that each responsible National Program Office conduct a review of all CoEs under tsI purview by June 2019, to be repeated no less than every five years.
- **Establishing New CoEs:**
  - The Task Force recommends creation of a process for the establishment of new CoEs that spells out clear standards for the funding model, goals, and objectives of the new CoE; performance reviews and oversight; scope; and sustainment expectations (i.e., what the source of sustainment funds will be: research funding, VERA, etc.); and which criteria for success will be measured.
- **Communication Plan:**
  - The Task Force recommends that the responsible National Program Offices, in coordination with individual CoEs and field host sites, undertake a concerted communication effort to raise the profile of all CoEs nationally and to better publicize their accomplishments and value generated.

Scoring of Performance Standards

This section of our annual report shows the metrics that are used to measure performance and progress in each region. The assessment of each region is an important part of this report.

All four ECoE sites met or exceeded Target for 2020, as shown in the following pages.

Administrative Standards (Remediation plan required if MOU, Self -Assessment, and Advisory Committee standards are not attained.)				
	Description	Scoring	Target	Max
MOU	Negotiate Memorandum of Understanding no later than October 15, annually, signed by CoE Director, VAMC Director, VISN Director, and Neurology National Director. MOU specifies expectations for the coming year. This will include how the CoE, through research and educational and clinical innovation/ demonstration activities, will address one or more of the VA strategic priorities during FY2019 and specify the resources that will be provided by the host VAMC to the CoE.	Yes = 1	1	1
Self-Assessment	Per VHA Directive 1215 COE Standards, the CoE will submit an annual self–assessment no later than 30 days after the end of the fiscal year.	Yes = 1	1	1
Advisory Committee	Per Public Law, each CoE will meet with the Local Advisory Committee at least annually.	Yes = 1	1	1
Collaborations/ Partnerships / Workgroups	Ensure engagement with VA and non-VA stakeholders in regional/national efforts to improve the specialized care available to Veterans.	Yes = 1	1	1
		Max = 4	**Target = 4**	**Subtotal = 4**

Research Standards				
	Description	Scoring	Target	Max
Research Projects	IRB- and/or IACUC-approved protocols	1=1 2=2 3=3 ≥4 =4	≥1	4
Research Projects	Collaborative Multi-Site Research Projects	1=1 2=2 3=3 ≥4 =4	≥1	4
Research Papers	Paper(s) authored/co-authored by a CoE investigator for COE-related research in a peer-reviewed publication	1=1 2=2 3=3 ≥4 =4	≥1	4
Research Posters	Poster presentation(s) concerning a topic relevant to the research mission of the COE during the reporting year	1=1 2=2 3=3 ≥4 =4	≥2	4
		Max = 16	**Target = ≥6**	**Subtotal = 16**

Education Standards: Professional				
	Description	Scoring	Target	Max
Grand Round Presentations	Grand Round presentation(s) at a VA/non-VA facility related to CoE activity	1=1 2=2 3=3 ≥4 =4	≥1	4
Invited Lectures	Presentation(s) at conference/ symposium related to CoE activity	1=1 2=2 3=3 ≥4 =4	≥2	4
Conferences	Conference(s), webinar(s), and other educational sessions with CoE consortium sites	1=1 ≥3=2 ≥5=3 ≥10 =4	≥2	4
Fellowship Program	Clinical Fellows in CoE	1=1 2=2 3=3 ≥4 =4	≥1	4
Other Trainee Programs	Medical Students Residents Allied (nurses, psychology, etc.)	Yes = 1 Yes = 1 Yes = 1	≥1	3
		Max = 19	**Target = ≥7**	**Subtotal = 19**

Education Standards: Patient/Caregiver				
	Description	Scoring	Target	Max
Patient/Caregiver Programs	Educational program(s) for patients and caregivers	1=1 ≥3=2 ≥5=3 ≥10 =4	≥2	4
VA Support Groups	Support groups for Veterans and Veteran's caregivers	1=1 ≥3=2 ≥5=3 ≥10 =4	≥2	4
Community Engagement	Participation in local community programs(s) such as support groups	1=1 ≥3=2 ≥5=3 ≥10 =4	≥2	4
		Max = 12	**Target = ≥6**	**Subtotal = 12**

Clinical Standards				
	Description	Scoring	Target	Max
Improve Timeliness of Services	CoE will see consults within 30 days of the provider/patient indicated date.	100% = 1	1	1
Quality Improvement	Conduct chart reviews. Review 10 randomly selected charts for each provider and evaluated by accepted disease-specific quality care standards	≥95% Level 1 = 1	1	1
Overall Clinical Productivity	Document unique patient encounters during the reporting period. Please provide raw data for following categories: • VAMC (care for Veterans assigned to medical center) • VISN (care for Veterans receiving care at other sites in VISN) • Extra-VISN (care for Veterans from outside VISN)	≥100 = 1 ≥250 = 2 ≥500 = 3 ≥1000 = 4		
Specialist Clinical Services	Chemodenervation Infusion Services Inpatient epilepsy monitoring Functional neurosurgery (DBS, VNS, RNS, etc.)	Present at CoE = 1 Present at CoE = 1 Present at CoE = 1 Present at CoE = 1		
Virtual Care	Proportion of encounters performed using virtual modalities. Please provide raw data for the following categories: • Electronic Consultation • Store-and-Forward Telehealth • Clinical Video Telehealth • CBOC • Interfacility • Home	≥2% = 1 ≥5% = 2 ≥10% = 3 ≥20% = 4		

Innovative Clinical Demonstration Developed	Clinical demonstration project(s), improving care of Veterans, initiated during the report year	≥1 = 1		
Innovative Clinical Demonstration Evaluated	Clinical demonstration project(s), improving care of Veterans, evaluated during the report year	≥1 = 1		
Innovative Clinical Demonstration Disseminated	Clinical demonstration project(s), improving care of Veterans, disseminated during the report year	≥1 = 1		
		Max = 17		**Sub = 9**
		Total Max = 68	**Total Target = 32**	

Review of the Four ECoE Regions

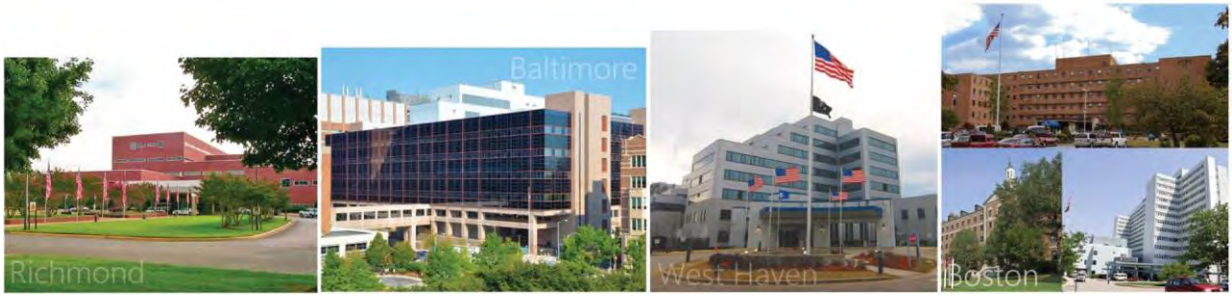
The following is a review of the four Regional Centers of Excellence. Staffing is funded at various levels of FTE with specialty-care funds and is supported by the local fiscal departments at the individual sites.

Northeast Region

Northeast ECoE Regional Director
Alan Towne, MD

Northeast ECoE Regional Administrative Director
Vacant

Northeast



VA Maryland Health Care System

VA Maryland Health Care System (127)
10 N. Greene St.
Baltimore, MD 21201
410-605-7414 | 410-605-7906
www.maryland.va.gov

Name	Position	Email	Phone
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Vacant	Associate Director		
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Rimmel, K.	EEG Technologist 1	N/A	410-605-7417
Yonathan Wldekirstos	EEG Technologist 1	yonathan.weldekirstos@va.gov	410-605-7417
Vacant	Nurse Case Manager		
Physician—*Vacant*	Epileptologist		
Program Assistant	Program Assistant		
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Konikkara, John	Physician	John.konikkara@va.gov	410-605-7417
Tang, Cha Min	Physician	ctang@som.umaryland.edu	410-605-7417
EEG (VAMHCS)—*Vacant*	EEG Technologist 1		
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Young, Angela	Program Specialist	angela.young4@va.gov	410-605-7417
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VA Boston Healthcare System

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857-364-4745
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Name	Position	Email	Phone
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Elizabeth Waterhouse, MD	Associate Director	Elizabeth.Waterhouse@va.gov	804-675-5127
Kenichiro Ono, DO	Director, Epilepsy Monitoring Unit	Kenichiro.Ono@va.gov	804-675-5127
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Rachel Van Aken, CNIM	Intraoperative Monitoring & EEG Technologist	Rachel.VanAken@va.gov	804-675-5000, ext. 4149
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Natacha Jean-Noel, NP	Telehealth Nurse Practitioner	Natacha.Jean-Noel@va.gov	804-675-5000, ext. 3508
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Amanda Squires	EEG Technologist	Amanda.Squires@va.gov	804-675-5000 ext. 4709

VA Connecticut Healthcare System

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Tolchin, Ben	Epileptologist	Benjamin.Tolchin@va.gov	203-932-5711, ext. 2420
Bottomley, Sharon	Nurse Practitioner	Sharon.Bottomley@va.gov	203-932-5711, ext. 2420
Vacant	AO		
James Vera	EEG Tech	James.Vera@va.gov	203-932-5711, ext. 2420
Dominica Rodriguez	EEG Tech	Dominica.Rodriguez@va.gov	203*932-5711, ext. 2420
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Northeast Region Self-Assessment Results, Accomplishments, and Future Initiatives

Regional Director: **Alan Towne, MD**
Regional Administrative Officer: **Vacant**

FY20 Self-Assessment Results

- **Final score:** The Region's 2020 Self-Assessment met or exceeded the target score.
- **Highlights:** The Boston VA became an additional 4th Northeast Epilepsy Center Site in 9/2018.
- **Concerns/issues:** The Regional epilepsy surgical volumes for our Northeast sites are not rising, in part, because several sites refer complex or other epilepsy surgery procedures to their University Hospital Affiliates or to VA ECoEs in other national regions.

FY20 Accomplishments

- Baltimore VA recruited and hired a new Site Director.
- Baltimore VA recruited and hired an EEG Tech and received approval for a second recruitment.
- Upgrade of EEG equipment was approved in Baltimore, with plans for installation in early 2020.
- Patient access to NE region EMUs was increased.
- PNES Clinic and Neuropsychology support was integrated in Baltimore.
- Epileptologist-based continuity clinics were expanded in Baltimore.

- A strategic partnership was formed with Epilepsy Foundation—Maryland.
- BWH ACGME Epilepsy Fellowship revision included support of three to four ABPN Epilepsy fellows per year in Boston.
- The Baltimore, Richmond, Boston, and VACT sites expanded their remote/virtual/telehealth services, upgraded EEG equipment, delivered PNES services, and caught up with EEGs to be ready for post-COVID care.
- Tele-EEG expansion: Boston coordinated the New NE Regional multidirectional Tele-EEG Network.
- Boston published a Tele-EEG standard operationg procedure (SOP) in the National Neurology Telehealth Supplement (1/2020).
- Boston VA conducted a Natus Upgrade and Tele-EEG Server construction (9/2020).
- A new virtual platform was launched for all weekly AM Epilepsy lectures and invited monthly Epilepsy CME talks at theBoston VA.
- Boston VA conducted a virtual Multidisciplinary PNES Clinic in place of F2F visits.
- VA Boston Clinical Innovations included the following:
    - Use of protective shields between patients and EEG Techs and Equipment during the COVID-19 pandemic (approved, not yet implemented).
    - ICU Initiative project; protocol for overnight monitoring for all ICU EEG requests, initiated 7/2020.
    - Cognitive Mental Status Assessments during EEG testing, started 2019; evaluating 2020.
    - IPad/Tablet-assisted clinical and EMU assessments. Equipment approved, starting 2021.
    - Use of Cerebell EEG off-hours and in COVID-positive patients. Approved, starting 2021.
    - Expansion of Tele-EEG to regional networks. Models for scaling nationally. Evaluating and disseminating 2020-21.
    - Methods for sharing clinical surveys and questionnaires in Virtual Video Visits. Starting 2020.
- Revised ACGME Visiting and Virtual CME Epilepsy Lectures in Boston.
- Expanded Epilepsy and PNES clinical rotations to BU Neurology Residency, Boston.
- Contined clinical and research collaboration with the Richmond Polytrauma Program.
- Continued neuro-volumetric studies in Richmond.
- Dr. Towne (Richmond) serves on the Professional Advisory Boards of the Epilepsy Foundation of Virginia and Community Brain Injury Services.
- Increased referrals from Polytrauma and expanded the CVT program, along with VA Video Connect (VVC) and video-to-home appointments.
- Implemented NeuroPace RNS® device implantation with programming in Richmond.
- Dr. Khan (Baltimore) served on the national council for the Cerner transition.
- Dr. Khan (Baltimore) serves as a member on the MSCoE Neurology Center Advisory Subcommittee (NCAS)
- Dr. Khan (Baltimore) and Dr. McCarthy and Cookie Riley (Boston) served on national councils for Natus and Caldwell EEG/EMG integration.
- Baltimore was able to catch up on all pending EEG and ambulatory EEG cancellations from COVID-19.
- EEG equipment was upgraded and completed in July 2020 in Baltimore.
- Plans to expand continuous EEG monitoring to the ICU are now in place in Baltimore.
- Baltimore completed an Operations Manual with guidelines and procedures for EEG operations, in compliance with ASNET requirements.

- PNES Clinic and Neuropsychology support integration was completed in Baltimore.
- Epileptologist-based continuity clinics were expanded in Baltimore.
- A strategic partnership with Walter Reed and the National Institutes of Health (NIH) is underway, with plans to expand access to RNS device implantation and programming at Baltimore.
- A weekly multidisciplinary Epilepsy Conference was started in Baltimore.
- At the Boston VA, host a New Stress Management and Resiliency Training (SMART) clinic for PNES and Epilepsy Clinics.

Future Initiatives, Goals, and Outreach

Services

- Restart routine EMU services, outpatient EEG services, and ambulatory EEG services with clinical innovations.
- Start ICU EEG service in Baltimore and Richmond.
- Establish telehealth services; conduct routine weekly telehealth clinics for at least 50 percent of the follow-ups.
- Increase support-group access for patients with epilepsy and caregivers.
- Increase Neuropsychology and cognitive training resources for patients with PNES.
- Launch a new epilepsy cognitive health and wellness group.
- Begin RNS programming at the Boston VA.
- Work on clinical innovation projects approved for 2021, which include iPad/Tablet-assisted virtual patient assessments and Cerebell EEG testing in Boston.
- Explore VA-based synchronous Tele-EEG monitoring: ICU and VEEG monitoring.
- Focus on "same-provider care" to establish continuity and trust.
- Expand CVT patient sites with store-and-forward capabilities and Video on Demand.

Patient Access

- Expand CVT patient sites with store-and-forward capabilities and Video on Demand in the NE region.
- Conduct routine weekly telehealth clinics with a target of at least 50 percent of follow-ups to be completed via telehealth.
- Start a First Seizure Clinic with a wait time of less than one week in Baltimore.
- Integrate mental health and epilepsy patient clinics in Richmond.
- In Richmond, provide same-day seizure clinic appointments for those patients needing immediate attention.
- Continue expansion of the Boston VA's Tele-EEG Network and multidirectional ECOE networks. Explore options to scale up Tele-EEG nationally.
- Expand PNES clinic services. Improve access to NTMH Tele-PNES from Dr. Lafrance PVAMC. Expand the mindfulness-based CBT training program in Boston.
- Establish a collaboration between the Headache Center of Excellence and ECoE.
- Create and put up **Purple Day** and Epilepsy Day displays in hospital lobbies; practice social distancing.
- The West Haven site hopes to expand ICU EEG and to acquire Cerebell for emergency EEGs.

Quality Improvement

- Pilot a NE Regional Surgical Epilepsy conference.
- Start a weekly multidisciplinary epilepsy conference with video conference ability.
- Continue to work with National EHR/Cerner integration, Natus/Caldwell integration, and the National Neurology Director to optimize EEG, Tele-EEG and HL7 in new Cerner EHR.
- Develop the Baltimore site with emergency status epilepticus care inpatient protocol.
- Optimize remote EEG reading from all sites.
- Pursue an EEG waiver for current national VA Citrix restrictions.
- Publish an SOP to assist remote VA sites.
- Lobby to set up more timely reads at all sites.
- Strengthen and expand collaboration with NE Region VA Consortium Facilities.

Research

- Measure the impact of Tele-EEG and epilepsy Telehealth.
- Measure the impact of peer support in epilepsy patient satisfaction, quality of life, seizure rates, and compliance completed.
- Conduct EEG signal analysis in patients with refractory epilepsy, especially with TBI. Focus on microstate analysis in Baltimore.
- Expand the epilepsy research portfolio at the Richmond VAMC, in collaboration with the Headache COE.
- Have all NE site directors participate in clinical research group activities.

Clinical Education

- Expand curriculum for polytrauma/TBI fellowship and epilepsy at all sites.
- At the Baltimore VA, conduct nursing education for routine and emergent seizure care.
- Establish Clinical Neurophysiology and Clinical Polytrauma/Epilepsy Fellowships at all NE sites.
- Expand local Virtual Epilepsy Lectures (Boston, others) to regional and national audiences.

Patient Education

- Establish a monthly patient/caregiver support group and a topics-of-discussion calendar.
- Increase support-group access for patients with epilepsy and caregivers.
- Explore virtual support groups.
- Develop patient-education materials for subspecialty clinics of the Epilepsy Centers of Excellence.

Northeast Region Fellowships

Boston Fellowships

Name	Fellowship	ACGME	VA FTE	Start Date	End Date
Mauricio Villamar	Neurophysiology	Yes	0.25	7/1/19	6/30/20
Souzana Obretenova	Neurophysiology	Yes	0.25	7/1/19	6/30/20
Behnaz Esmaeili	Neurophysiology	Yes	0.25	7/1/19	6/30/20
Steven Tobochnik	Neurophysiology	Yes	0.25	7/1/19	6/30/20
Jonathan Dashkoff	Neurophysiology	Yes	0.33	7/1/20	6/30/21
Saeedeh Azary	Neurophysiology	Yes	0.33	7/1/20	6/30/21
Regan Lemley	Neurophysiology	Yes	0.33	7/1/20	6/30/21

Richmond Fellowships

Name	Fellowship	ACGME	VA FTE	Start Date	End Date
Jamie Jacobs	Epilepsy	Yes	0.50	7/2020	6/2021
LaTangela Smith	Epilepsy	Yes	0.30	7/2019	8/2020

Northeast Region Publications and Presentations

In this section and those that follow, names shown in bold are ECoE staff in that region. Names that are not bolded are non-ECoE VA or affiliate staff.

Boston

Publications/Manuscripts/Chapters

Tobochnik S, Tai P, McKhann GM II, Schevon CA. Seizure activity across scales from neuronal population firing to clonic motor semiology. J Clin Neurophysiol. 2020; 37(5):462-464. doi: 10.1097/WNP.0000000000000706.

Obretenova S, Villamar MF, Tobochnik S. Addition of anterior temporal EEG electrodes to improve seizure detection. Neurohospitalist. 2020; Online ahead of print. doi: 10.1177/1941874420945888.

Philip M. Dussault, Pharm D., David McCarthy, MD**,** Samuel A. Davis, R.T., Manisha Thakore-James, MD, Antonio A. Lazzari, MD, PhD, CCD, FACR. Osteoporosis International/Archives of Osteoporosis. High Prevalence of Vertebral Fractures in Seizure Patients with Normal Bone Density Receiving Chronic Anti-Epileptic Drugs (In Press).

Abstracts/Posters/Presentations

Invited Faculty, *Experiential Learning Activity – Asynchronous Telehealth (Store and Forward TeleEEG).* American Academy of Neurology Annual Meeting, Toronto, CA, 4/20 (Postponed due to COVID19).

Richmond

Publications/Manuscripts/Chapters

Ryan MS, Richards A, Perera R, Park YS, Stringer JK, **Waterhouse E**, Dubinsky D, Khamishon, Santen S. Generalizability of the Ottawa Surgical Competency Operating Room Evaluation (O-SCORE) scale to assess medical student performance of the Core EOAs in the workplace. *Academic Medicine*, 2020, submitted.

Ryan MS, Bradner M, Rigby F, Lee B, Waterhouse E, Grossman, C. Improving Passage Rate on Step 2 Clinical Skills: Results from a Pilot Program. *Medical Science Educator* (2019) 29:709-714.

Hussain A, **Towne AR**, Chen DA, Whitmire LE, Voyles, SR, Cardenas D. Detecting PNES with single-Channel sEMG, *Journal of Clinical Neurophysiology*. 2020.

Pugh MJ, Van Cott, A, Lopez R, Altalib, H, **Towne AR**, Amuan M, Salinsky M, Mayo J, Diaz Arrastia R. Neurobehavioral Symptoms and Suicidality: The impact of Epilepsy and Gender in Post-9/11 Veterans with Deployment-related mild TBI. *Epilepsia*, 2019.

Abstracts/Posters/Presentations

Invited Faculty, *C72 The Development of Neurologic Subspecialties—Epilepsy.* American Academy of Neurology Annual Meeting, Toronto (postponed due to COVID-19), 4/20.

Invited Faculty, The Development of Neurologic Subspecialties—Epilepsy. American Academy of Neurology Annual Meeting, San Francisco, CA. 4/20.

Localization in Neurology. Weekly workshops with M-3 students rotating through Neurology, 7/12–12/19.

Schachter J, Waterhouse E. *The Neurolympics: A Student-Centered Tool in Neurology Clerkship Education.* Abstract P5.015. American Academy of Neurology Annual Meeting, 2020.

Ryan M, **Waterhouse E**, Lee B, Rigby F, Dubinsky B, Browning J, Santen S, Deiorio N, Bishop S. *Incorporation of the Ottawa Clinical Assessment Tool Scale (OCAT) to Measure Entrustability in Clinical Clerkships*. AAMC Annual Meeting, 2019.

Schachter J, Waterhouse E. *The Neurolympics: A Novel Tool in Neurology Clerkship Education.* Presented at VCU Resident Research Symposium, 2019.

Northeast Region Research Grants

Boston

Principal Investigator Last, First, MI	Grant/Study Title	Project Start Date mm/dd/yyyy	Project End Date mm/dd/yyyy	Name of Funding Source
McCarthy, David (site PI)	A device to detect and quantify seizures using noncerebral sensory modalities. Multicenter prospective observational study	10/1/2018	09/30/21	DoD CDMR Idea Development Award W81XWh-18-1-0712
Tobochnik, Steven (site PI)	Clinical response to perampanel and association with peritumoral hyperexcitability in newly diagnosed high-grade glioma	08/18/20	Ongoing	Eisai IIS FYC-IIS-M001-1100 Investigator-initiated Non-monetary research
Tobochnik, Steven (site PI)	Predicting epileptogenic zones by stimulation-induced seizure recruitment	07/01/2020	06/30/21	American Epilepsy Society, RTFC 704541
Tobochnik, Steven (sub-project PI)	Clinical response to perampanel and association with peritumoral hyperexcitability in newly diagnosed high-grade glioma	12/01/19	08/31/20	NIH/NCI 2P50CA165962-06A1, Sub-Project ID: 5140
McCarthy, David (site PI)	PTSD severity and imaging biomarkers in Veterans with PNES: A pilot. Prospective study of emotional linguistic fMRI probes and psychometric measures of PTSD severity in Veterans with PNES.	10/1/18	09/30/20	Epilepsy Foundation: Targeted Research Initiative for Veterans with non-Epileptic Seizures

Richmond

Principal Investigator Last, First, MI	Grant/Study Title	Project Start Date mm/dd/yyyy	Project End Date mm/dd/yyyy	Name of Funding Source
Towne, Alan R (Sub I)	Chronic Effects of Neurotrauma Consortium (CENC) Award. Study 1. Longitudinal case-controlled cohort study of OEF-OIF Veterans to evaluate for the late effects of combat-related mTBI	10/1/14	10/1/19	DoD
Towne, Alan R (site PI)	Detecting PNES with single-channel sEMG	10/1/17	9/30/19	Brain Sentinel
Towne, Alan R (site PI)	Evaluation of an epilepsy peer-support program in the US Veterans Affairs' Epilepsy Centers of Excellence (ECoE): A pilot study	3/20/19	Ongoing	UCB
Towne, Alan R (site PI)	Epidemiology of epilepsy and traumatic brain injury: Severity, mechanism, and outcomes	7/2017	Ongoing	DoD
Towne, Alan (collaborator)	Posttraumatic epileptogenesis: role of neocortical-hippocampal interactions, U.S. Department of Veterans Affairs	1/1/2020	Pending	Department of Veterans Affairs
Waterhouse, Elizabeth (site PI)	XENON XPF-008-201: A randomized, double-blind, placebo-controlled, multicenter study to evaluate the safety, tolerability, and efficacy of XEN1101 as adjunctive therapy in focal-onset epilepsy	7/2019	Ongoing	Xenon Pharma-ceuticals Inc.

Northwest Region

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Martin Salinsky, MD

Northwest ECoE Regional Administrative Officer
Vacant

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Northwest Region Self-Assessment Results, Accomplishments, and Future Initiatives

Regional Director
Martin Salinsky, MD

Regional Administrative Officer
Vacant

FY20 Self-Assessment Results

- **Final score:** The Region's self-assessment score met or exceeded the target score.
- **Highlights:**
  - The regional expansion of telehealth continued, with some urgency due to the COVID-19 pandemic.
  - Despite the COVID-19 crisis and restrictions on face-to-face activities, EEGs, EMU studies,and overall clinical activities (unique encounters) for the year decreased <20 percent vs. FY19.
  - CSSEC reviewed a VA co-op study for the treatment of PNES, and the study is pending revision.
  - A NW ECoE advisory committee was formed following the Federal Advisory Committee guidelines. A meeting is planned for FY21.
- **Concerns/issues:**
  - The retirement of Dr. Holloway has left a critical vacancy at the Minneapolis VAMC.
  - COVID-19 led to EMU closures, and there is a backlog that is gradually being addressed.
  - There is still no administrative support for NW ECoE. The position has remained vacant for more than five years.

FY20 Accomplishments

Program/Operational

- Reopened EMUs (all sites) following closure due to COVID-19. Established appropriate infection/safety protocols.
- Hired an EEG technologist in Portland.
- Education—conducted the following:
  - Monthly Scan-Echo case conferences (all sites + consortium)
  - Epilepsy awareness event (Minneapolis)
  - Educational/outreach lectures on diagnosis of seizure disorders to Internal Medicine Residents and staff (Chief of Medicine conference), Primary Care, and Neuropsychology (Seattle)
  - Regular Inpatient nursing education/training sessions (all sites)
- Tracy Broomhead, RN, MSN serves as co-chairperson for Nursing Workgroup.
- Nik Dembrow serves as chair for the Basic Science workgroup.
- Organized the NW ECoE Advisory Committee (Chair: B. Hermann) according to Federal Advisory Committee guidelines.

Clinical Care

- Expanded RNS placement to Madison.
- Expanded store-and-forward EEG to Minneapolis VAMC (read from Madison). This is helpful, given Dr. Holloway's retirement.
- Achieved >50 percent increase in store-and-forward EEGs (Portland, Madison) vs. FY2019.
- Achieved >500 percent expansion of VVC programs (in-home CVT) (Portland, Seattle, Madison).
- Julie Min, ARNP, added as a Seattle ECoE provider.
- Operated local CBT-ip for PNES treatment clinics (Portland, Seattle).
- Established a monthly virtual epilepsy support group (Minneapolis).

Research/Surveillance

- Completed a quality-improvement: "Analysis of a Standardized EMU Questionnaire Package in 100 Consecutive Admissions" (QOLIE, PCL, BDI-II, PSEQ, PSQI).
- Received the following funded grants: RO1 NINDS (Seattle), NIHHSS (Seattle). Merit review (Seattle), NIH translational medicine (Seattle), CDA (Madison), and Foundation (Madison).
- Submitted a grant to DoD VA IDEA (epilepsy): "Long-Term Follow-Up of Veterans with PNES" (Portland).
- Submitted a Merit Review proposal on GABAergic signaling after TBI; resubmitted it in the fall of 2020 (Seattle).
- New physician-scientist Amber Nolan-Munn, MD PhD, has joined Ransom lab (Seattle) to study dysfunction of neocortical GABAergic interneurons in experimental TBI.
- Wrote and published 18 publications.
- Continued progress toward VA co-op study 2013 (Salinsky, Portland, and LaFrance, co-PIs). Completed the CSSEC review in July 2020; a revision was requested, and the submission is pending review in December 2020. The proposed research (if approved) will involve all ECoE sites nationally and three additional consortium sites.

Future Initiatives

Program

- Hire an AO for the NW ECoE, a position that has been vacant for more than five years.
- Recruit an epileptologist; Dr. Holloway has retired (Minneapolis).
- Recruit an additional EEG technologist (Seattle).
- Expand and maintain an educational portfolio and recurring lectures with Primary Care and Medicine providers at VA Puget Sound and associated CBOCs.
- Fully implement the EMU questionnaire screening packet (all sites).

Clinical

- Expand the telehealth (CVT) program (one additional site for each medical center).
- RNS placement and programming at one additional site (currently available at Madison).
- Expand the VVC program (all sites; goal of >100 percent increase).

Research:

- Funding for VA cooperative study 2013; startup in FY 2021
- Collaboration with other VA centers on TBI research (Seattle, Portland).

Education

- Establish a fellowship program in Seattle.

Outreach

- Expand the epilepsy awareness event in Minneapolis.

Other Future Initiatives

- Bring availability of NeuroPace into all regional ECoE centers (Madison has recently initiated this).
- Integrate whole-health treatment with ECoE treatment.
- Improve consistent monitoring for mental health issues and pathways for assessment and treatment. This will consist of standard OPC screening for depression/anxiety, and inpatient EMU screening using the EMU admission screening packet (QOLIE, PCL, BDI-II, PSEQ, PSQI).

Northwest Region Fellowships

Madison Fellowships

Name	Fellowship	ACGME	VA FTE	Start Date	End Date
Pankratz, Josh	Epilepsy	Yes	0.25	7/1/2019	6/30/2020
Szabo, Zsofia	Clinical Neurophysiology	Yes	0.25	7/1/2019	6/30/2020
Jones, Asher	Epilepsy, Clinical Neurophysiology	Yes	0.25	7/1/2020	6/30/2021

Portland Fellowships

Name	Fellowship	ACGME	VA FTE	Start Date	End Date
Kathryn Hagen	Epilepsy	No	1.0	7/1/2019	6/30/2020
Eric Valenti	Epilepsy	Yes	0.5	7/1/2019	6/30/2020
Eric Valenti	Epilepsy	No	1.0	7/1/2020	6/30/2021
Brett Lee	Epilepsy	Yes	0.5	7/1/2020	6/30/2021

Seattle Fellowship

Name	Fellowship	ACGME	VA FTE	Start Date	End Date
Alejandro Parga, MD, PhD	Senior Fellow in Neurology		1.0 (VA Merit Review – C. Ransom PI)	6/2016	

Northwest Region Publications/Presentations

Madison

Publications/Manuscripts/Chapters

Singla S, Garcia GR, Rovenolt GT, Soto AL, Gilmore EJ, Hirsch LJ, Blemendelf H, Sheth KN, Omay SB, **Struck AF**, Westover MB, Kim JA. Detecting Seizures and Epileptiform Abnormalities in Acute Brain Injury. Current Neuro Neurosci Rep 2020 20(9):42.

Hermann B, Conant LL, Cook CJ, Hwang G, Garcia-Ramos, C, Dabbs K, Nair VA, Mathis J, Bonet CNR, Allen L, Almane DN, Arkush K, Birn R, DeYoe EA, Felton E, Maganti R, Nencka A, Raghavan M, Shah U, Sosa VN, **Struck A.**, Ustine C, Reyes A, Kaestner E, McDonal C, Prbhakaran V, Binder JR, Meyerand ME. Network, clinical and sociodemographic features of cognitive phenotypes in temporal lobe epilepsy. Neuroimag Clin, 2020 27:102341.

Zafar SF, Amorim E, Williamsom CA, Jing J, Gilmore EJ, Haider HA, Swisher C, **Struck A**, Rosenthal ES, Ng M, Schmitt S, Lee JW, Westover MB. A standardized nomenclature for spectrogram EEG patterns: Inter-rater agreement and correspondence with common intensive care unit EEG patterns. Clin Neurophysiol. 2020 S13388-2457(20)30369-2.

Cisse FA, Osman GM, Legros B, Depondt C, Hirsch LJ, Struck AF, Gaspard N. Validation of an algorithm of time-dependent electro-clinical risk stratification for electrographic seizures (TERSE) in critically ill patients. Clin Neurophysiol. 2020 131(8):1956-1961.

Hermann BP, **Struck AF**, Stafstrom CE, Hsu DA, Dabbs K, Gundlach C, Almane D, Seidenberg M, Jones JE. Behavioral phenotypes of childhood idiopathic epilepsies. Epilepsia 2020.

River Bonet CN, Hwang G, Hermann B, **Struck AF**, Cook C, Nair V, Mathis J, Allen L, Almane DN, Arkush K, Birn R, Conant LL, DeYoe EA, Felton E, Maganti R, Nencka A, Raghavan M, Shah U, Sosa VN, Ustin C, Parbhakarn V, Binder JR, Meyerand ME. Neuroticism in temporal lobe epilepsy is associated with altered limbic-frontal lobe resting-state functional connectivity. Epilepsy Behav. 2020 13;110

Elmer J, Coppler PJ, Solanki P, Westover MB, **Struck AF**, Baldwin ME, Kurz MC, Callaway CW. Sensitivity of Continuous Electroencephalograph to Detect Ictal Activity After Cardiac Arrest. JAMA Netw Open 2020 Apr 1;3(4):e203751.

Zafar SF, Subramaniam T, Osman G, Herlopian A, **Struck AF**. Electrographic seizures and the ictal-interictal continuum (IIC) patterns in critically ill patients--Review. Epilepsy Behav 2020 Mar 25;106.

Moffet EW, Subramaniam T, Hirsch LJ, Gilmore EJ, Lee JW, Rodriguez-Ruiz AA, Haider HA, Dhakar MB, Jadeja N, Osman G, Gaspard N, **Struck AF**. Validation of the 2HELPS2B Seizure Risk Score in Acute Brain Injury Patients. *Neurocrit Care* 2020 Feb 27.

Hwang G, Hermann B, Nair VA, Conant LL, Dabbs K, Mathis J, Cook CJ, Rivera-Bonet CN, Mohanty R, Zhao G, Almane DN, Nencka A, Felton E, **Struck AF**, Birn R, Maganti R, Humphries CJ, Raghavan M, DeYoe EA, Prabhakaran V, Binder JR, Meyerand ME. Brain again in temporal lobe epilepsy: Chronological, structural, and functional. *Neuorimage Clin* 2020 Jan 14; 25:102183.

Kang X, Boly, M, Findlay G, Jones B, Gjini K, Maganti R, **Struck AF**. "Quantitative spatio-temporal characterization of epileptic spikes using high density EEG: Differences between NREM sleep and REM sleep". *Scientific Reports* 2020 Feb 3; 10(1):1673.

Struck AF, Fesharaki MT, Schmitt SE, Ruiz AR, Swisher CB, Subramaniam T, Hernandez C, Kaleem S, Haider HA, Cisse AF, Dhakar MB, Hirsch LJ, Rosenthal ES, Zafar SF, Gaspard N, Westover MB. Assessment of the Validity of the 2HELPS2B Score for Inpatient Seizure Risk Prediction, *JAMA Neuro*, 2020 Jan 13.

Kotloski, RJ, Rutecki, PA, Sutula, TP. Genetic background influences electrophysiologic activity and BDNF expression after acute TBI in kindling-susceptible, kindling-resistant, and outbred rats. *Frontiers in Neurology* 10 1286 (2020).

Abstracts/Posters/Presentations

National/International

Struck, AF, "Critical Care EEG," University of Washington Department of Neurology Grand Rounds, May 2020.

Struck, AF, "Inpatient Seizure Risk," Northwestern VA Epilepsy Center of Excellence Quarterly Meeting, presented via teleconference, May 2020.

Struck, AF, "Predictor of Seizures," American Clinical Neurophysiology Society. New Orleans, LA.

Kotloski, R.J., Rutecki, P.A., Sutula, T.P. Genetic background in rats influences gene expression in response to TBI. Poster presented at American Epilepsy Society Meeting. New Orleans, LA, December 2018.

Portland

Publications/Manuscripts/Chapters

Martin Salinsky 1 , Laurence Binder 2 , Daniel Storzbach 3 , Karen Parko 4 , Paul Rutecki 5 , Elizabeth Goy 3 , Sandy Tadrous-Furnanz. Validity testing in veterans with epileptic seizures and psychogenic nonepileptic seizures. Epilepsy Behav 2020 Jul 7;111:107246. doi: 10.1016/j.yebeh.2020.107246. Online ahead of print.

Binder LM, **Salinsky M**, Storzbach D, Tadous-Furnanz S. RBANS validity measures and TOMM in Veterans with epileptic and psychogenic non-epileptic seizures. Archives of Clinical Neuropsychology. 2020: in press.

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Mark Quigg 1, Tara L Skarpaas 2, **David C Spencer** 3, Nathan B Fountain 4, Beata Jarosiewicz 2, Martha J Morrell 5. Electrocorticographic events from long-term ambulatory brain recordings can potentially supplement seizure diaries. Epilepsy Research 2020 Mar;161:106302. doi: 10.1016/j.eplepsyres.2020.106302. Epub 2020 Feb 24.

David C. Spencer 1, Saurabh R. Sinha 2, Eun Jung Choi 3, Jody M. Cleveland 4, Aliceson King 3, Tze-Chiang Meng 5, William E. Pullman 5, David J. Sequeira 5, Peter J. Van Ess 5, James W. Wheless 6. In press (Epilepsia): Safety and efficacy of midazolam nasal spray for the treatment of intermittent bouts of increased seizure activity in the epilepsy monitoring unit: A double-blind, randomized, placebo-controlled trial; Epilepsia (in press).

Abstracts/Posters/Presentations

Erik Valenti, Sumeet Vadera, Mona Sazgar, Neil Sen-Gupta, Jack J. Lin, **Martin Salinsky,** and Lilit Mnatsakanyan. Prevalence and Outcomes of Mood Disorder Following Temporal Lobectomy. Presented at the annual meeting of the American Epilepsy Society, 2019.

Martin Salinsky 1, 4, Laurence Binder 4, Daniel Storzbach 1, Karen Parko 3, Paul Rutecki 2, Elizabeth Goy 1, Sandy Tadrous-Furnanaz. Performance Validity Testing in Veterans with Psychogenic Non-Epileptic and Epileptic Seizures. Presented at the annual meeting of the American Epilepsy Society, 2019.

Seattle

Publications/Manuscripts/Chapters

Trygve, E.B., **Spain, W.J.,**Lein, E.S, et al. Evolution of cellular diversity in primary motor cortex of human, marmoset 1 monkey, and mouse. in review Evolution of cellular diversity in primary motor cortex of human, marmoset, monkey and mouse. (Invited submission, Nature, revised manuscript under review). https://www.biorxiv.org/content/10.1101/2020.03.31.016972v2.

Parga, A., Logsdon, A., Banks, W, **Ransom, C.B.** Traumatic brain injury broadly affects GABAergic signaling in dentate gyrus granule cells. eNeuro, in press.

Abstracts/Posters/Presentations

Kalmbach. B, de Frates, R, Graybuck, L, Daigle, T, Chong, P, Opitz-Araya, X, Walker, M, Sorensen, S, Berg, J, **Dembrow, N,** Spain, W, Horwitz, G, Tasic, B, Lein, E, Ting J. Intrinsic membrane properties, morphology and transcriptomic profile of a rare human L5-projection neuron type. Society for Neuroscience 252.14, Chicago October 2019.

Guan, D, **Spain, WJ,** Foehring, RC. Layer 5 pyramidal neuron subtypes differ in plasticity in response to conditioning with repeated action potentials. Accepted *Soc Neurosci Abstr* for meeting Chicago, Society for Neuroscience, Chicago, October 2019.

Spain, WJ. Influence of Neuron Intrinsic Properties on Circuit Rhythm Generation. Northwest Epilepsy Center of Excellence Scan Echo. 1/15/2020.

Spain, WJ. Post-Synaptic Mechanisms Matter: Dendritic High Pass Filtering and Gain Control, U. of Washington, Neuroscience Program Seminar Series. April 20, 2020.

Leon, G., Li, N., Parga, A., **Ransom, C.B.** $GABA_B$ receptor dysfunction in dentate gyrus granule cells after experimental TBI (controlled cortical impact). Accepted *American Epilepsy Society Annual Meeting,* Seattle (virtual), 2020.

Ransom, CB. Tuning the tone of extrasynaptic GABA receptors in health and disease. U. of Washington, Neurology Grand Rounds, October 2019.

Dembrow, N. Potassium channel dysfunction in human neuronal models of Angelman syndrome. Presented to the UW Epilepsy Journal Club on 01/10/2020.

Northwest Region Research/Grants

Madison

Principal Investigator Last, First, MI	Grant/Study Title	Project Start Date mm/dd/yyyy	Project End Date mm/dd/yyyy	Name of Funding Source
Struck, Aaron, F	R01-NS1111022-01A1-Juvenile Myoclonic Epilepsy Connectome Project (JMECP)	2020	2025	NINDS-NIH
Struck, Aaron, F	Quantitative electrophysiology and functional neuroimaging in epilepsy and acute brain injury	2019	2023	University of Wisconsin Department of Neurology and University of Wisconsin
Struck, Aaron, F (Mentor)	ICTR-MSTP Pilot Award	2020	2021	University of Wisconsin Institute of Clinical and Translational Research
Struck, Aaron, F	Acute inflammation from focal seizures using [18F]-FEPPA PET/MR	7/2019	7/2021	Lily Fund, Grace Grant
Hermann, Bruce Prabhakaran, Vivek Struck, Aaron, F (Co-I)	Molecular and structural imaging of neurologic disease	2016	2021	
Stacy, William, Jones, John C. (Co-I)	Characterizing high-frequency oscillations as an epilepsy biomarker with Big Data tools	01/01/2021	01/01/2025	Biomedical Laboratory Research and Development (BLRD)
Kotloski, Robert, J	TBI and post-traumatic epilepsy in plasticity susceptible and resistant rats	04/04/2016	04/03/2021	Department of Veterans Affairs Career Development Award

Portland

Principal Investigator Last, First, MI	Grant/Study Title	Project Start Date mm/dd/yyyy	Project End Date mm/dd/yyyy	Name of Funding Source
Salinsky, M; LaFrance, WC (co-principal proponents)	Treatment of psychogenic non-epileptic seizures in Veterans (CSP2013); submitted, pending approval of revision	Proposed 2021		VA Cooperative Studies
Salinsky, M; Storzbach D.	Factors influencing long-term outcome of Veterans with psychogenic non-epileptic seizures; submitted, pending approval	Proposed 7/2021		Department of Defense

Seattle

Principal Investigator Last, First, MI	Grant/Study Title	Project Start Date mm/dd/yyyy	Project End Date mm/dd/yyyy	Name of Funding Source
Spain, William	Mechanisms of synaptic integration in central neurons.	11/1/2013	10/30/2019 (no-cost extension)	Veterans Administration Merit Review
Spain, William	Dynamics of Kv channel function in identified populations of pyramidal neurons in neocortex	02/01/2018	1/31/2023	NIH (NINDS) RO1
Ransom, Christopher	Regulation of extrasynaptic GABAA receptors in health and disease	10/1/2015	09/30/2019 (no-cost extension)	Veterans Administration Merit Review
Robert Fraser, PhD (Ransom, co-Investigator)	MEW Collaborating Center: PACES replication (Veteran's RCT)	09/30/2015	9/29/2019 (no-cost extension)	DoD

Southeast Region

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Southeast Region Self-Assessment Results, Accomplishments, and Future Initiatives

Regional Director: **Maria Lopez, MD**
Regional Administrative Officer: **Pamela Kelly, DHA, MBA/HCM**

FY20 Self-Assessment Results

- **Final score:** Achieved a final scoreof 94; the region's 2020 self-assessment met and exceeded the target score.
- **Highlights:** The region doubled the VVC/VOD clinics, improving access to epilepsy care significantly. The region made a heavy investment in educating medical students, neurology and psychiatry residents, and epilepsy and EEG fellows.
- **Concerns/issues**:
  - Additional administrative support is needed. There was a decreased number of EMU admissions due to COVID.
  - There is a need to guarantee payment to MIT EEG working after hours and weekends in order to provide EEG coverage in Gainesville.
  - Tampa lost an EEG lead tech due to health issues during the pandemic.
  - All Neurology administrative and workspace, including the EEG lab, shut down during the COVID-19 pandemic in Tampa, and EMU beds in Miami closed due to the need for COVID negative-pressure rooms.

FY20 Accomplishments

Program/Operational:

- The Miami VA was able to increase the numbers of beds with the capacity of continued monitoring in six PCU beds and all MICU beds.
- Tampa secured a contract with community care vendors to temporarily handle routine outpatients' EEGs and ambulatory long-term video EEGs read by physicians at University affiliates.
- Store-and-forward EEG reading is in use at one site (Durham).

Clinical Care:

- Comprehensive inpatient and outpatient services were maintained at four centers.
- Patient access through VVC/VOD significantly increased at the sites.
- Patient access also improved with increase of e-Consults.
- VVC/VOD CBT clinics were established for the treatment of PNES at three sites.
- Gainesville established home encounters via GHV NEURO ECoE phone.
- Two Neurophysiology fellows began training in Gainesville in 2020.
- Store-and-forward EEG reading is in use at one site.
- Gainesville continues research in evaluating the utility of urgent EEG following stroke to determine post-stoke epilepsy.
- Gainesville and Miami increased the capacity of live EEG reviews from EMU, MICU, PCU, and SICU.

Research/ Surveillance:

- The Miami VA was accepted as a Co-PI participating in the Merritt Grant Proposal titled "A Novel Dry Electrode Headset for Electroencephalography Telehealth."
- A PNES study abstract was submitted to the FND conference.

Education:

- ACGME Epilepsy and/or Neurophysiology fellowship training continues at three sites.
- An RN refresher training program for EMU safety care continues in Miami.
- Faculty at Tampa and Gainesville gave multiple grand rounds.

Outreach:

- Tampa participated in a community presentation on emergency management of epileptic seizures.

Future Initiatives

Program/Operational:

- Hire an REEG Technician in Gainesville.
- Hire a TEEG Technician in Tampa.
- Hire a Program Coordinator in Miami.
- Add telehealth clinics in Durham.
- Add a telehealth site (Gainesville).
- Add another VOD epilepsy clinic in Miami.

Clinical Care:

- Restart EMU admissions after the current delay due to COVID.
- Stabilize epilepsy care, which experienced a dramatic increase in telemedicine due to COVID.
- Continue to complete training for cognitive behavioral medicine in Durham.
- Establish tele-EEG services in Jacksonville and Tallahassee.
- Initiate intraoperative monitoring in Gainesville.
- Assist in the establishment of CBT availability for Veterans with diagnosis of PNES at four sites (three are currently equipped).
- Maintain comprehensive outpatient, inpatient, and telehealth services across the region.

Research:

- Increase participation in ECoE-related research.
- Ensure that all sites participate in the PNES multisite DoD study.
- Ensure Miami participation in Merit-Putman research.
- Ensure Miami participation in Empatica Researchon physiological and seizure markers.

Outreach:

- Increase home telehealth.

Other Future Initiatives

- Provide training on women with epilepsy beyond seizure control for the Neurology resident and Fellows at the Boston VA.
- Provide training on women with epilepsy and race disparities for the AAN course 2021, pending approval.

Outreach Activities

- Educate healthcare providers on the identification and treatment of seizure disorders through grand rounds and patient/provider seminars.
- Plan and host at least one awareness event.

Southeast Region Fellowships

Durham Fellowships

Name	Fellowship	ACGME	VA FTE	Start Date	End Date
Steven Gangloff	Clinical Neurophysiology	+	0.25	7/1/2020	6/30/2021
Abhi Kapuria	Clinical Neurophysiology	+	0.25	7/1/2020	6/30/2021
Derek Neupert	Clinical Neurophysiology	+	0.25	7/1/2020	6/30/2021
Linh Tran	Clinical Neurophysiology	+	0.25	7/1/2020	6/30/2021

Gainesville Fellowships

Name	Fellowship	ACGME	VA FTE	Start Date	End Date
Christine Smith, MD	Clinical Neurophysiology	Yes	0.5	July 1, 2020	June 30, 2021
Varalakshmi Reddy, MD	Clinical Neurophysiology	Yes	0.5	July 1, 2020	June 30, 2021

Miami Fellowships

Name	Fellowship	ACGME	VA FTE	Start Date	End Date
Latrice Irving	Epilepsy	Yes	0.25	7/1/2019	6/30/20
Salem Jafilan	Clinical Neurophysiology	Yes	0.25	7/1/2019	6/30/20
Linda Xiu	Clinical Neurophysiology	Yes	0.25	7/1/2019	6/30/20
Donald Barr	Epilepsy	Yes	0.25	7/1/2019	6/30/20

Tampa Fellowships

Name	Fellowship	ACGME	VA FTE	Start Date	End Date
Colby Richardson	Clinical Neurophysiology	Yes	0.67	7/1/2020	6/30/21
Kathleen Murray	Clinical Neurophysiology	Yes	0.67	7/1/2020	6/30/21
Chirag Savani	Clinical Neurophysiology	Yes	0.66	7/1/2020	6/30/21

Southeast Region Publications/Presentations

Southeast Regional

Publications/Manuscripts/Chapters

Shawniqua Williams Roberson, **Rizwana Rehman**, **Gabriel Bucurescu**. Antiepileptic Drugs and Suicidality in Veterans with Seizures. *EC Neurology* 11.12 (2019):01-08.

Poster Presentations

Moving Veteran-Centric Care Through Telemedicine in the Veterans Health Administration Epilepsy Centers of Excellence. **Rizwana Rehman**, Epilepsy Center of Excellence; **Pamela R. Kelly**, Epilepsy Center of Excellence; **Aatif M. Hussain**, Duke University Medical Center. (Abst. 1.399), AES Annual Meeting 2019.

Cognitive Behavioral Based Group Treatment for Psychogenic Nonepileptic Seizures: A Prospective, Multi-Center Pilot Study. **David K. Chen**, Baylor College of Medicine; **Karen L. Parko**, San Francisco VA Medical Center; Kristi Chambers, San Francisco VA Medical Center; Yoon Jung, Sacramento VA Medical Center; **Rizwana Rehman**, Durham VA Medical Center; Grayson Baird, University of Rhode Island; Lee Wiegand, University of Houston; W. Curt LaFrance Jr., Brown University. (Abst. 1.374), AES Annual Meeting 2019.

Durham

Publications/Manuscripts/Chapters

Albert, Dara V. F., Rohit R. Das, Jayant N. Acharya, Jong Woo Lee, John R. Pollard, Vineet Punia, Joy A. Keller, and **Aatif M. Husain**. The Impact of COVID-19 on Epilepsy Care: A Survey of the American Epilepsy Society Membership. *Epilepsy Curr* 20, no. 5 (September 2020): 316–24. https://doi.org/10.1177/1535759720956994.

Mandge, Vishal, and **Aatif M. Husain**. Drug Trials in Status Epilepticus: Current Evidence and Future Concepts. *J Clin Neurophysiol* 37, no. 5 (September 2020): 434–45. https://doi.org/10.1097/WNP.0000000000000713.

Husain, A. M. To Wean or Not to Wean: Machine Learning to the Rescue. *Epilepsy Currents*, January 1, 2020. https://doi.org/10.1177/1535759720949257.

Husain, Aatif M. Finally, Some Neurophysiologic Good News-Favorable Prognosis in Coma. *Epilepsy Curr* 19, no. 6 (November 2019): 387–89. https://doi.org/10.1177/1535759719879900.

Lewinski, Allison A., Abigail Shapiro, Jennifer M. Gierisch, Karen M. Goldstein, Dan V. Blalock, Matthew W. Luedke, Adelaide M. Gordon, **Saurabh R.Sinha,** et al. Barriers and facilitators to implementation of epilepsy self-management programs: a systematic review using qualitative evidence synthesis methods. *Syst Rev* 9, no. 1 (April 25, 2020): 92. https://doi.org/10.1186/s13643-020-01322-9.

Heavin, Sinéad B., Mark McCormack, Stefan Wolking, Lisa Slattery, Nicole Walley, Andreja Avbersek, Jan Novy, **Saurabh R.Sinha,** et al. Genomic and clinical predictors of lacosamide response in refractory epilepsies. *Epilepsia Open* 4, no. 4 (December 2019): 563–71. https://doi.org/10.1002/epi4.12360.

Kang, Jennifer H., G Clay Sherill, **Saurabh R. Sinha**, and Christa B. Swisher. A Trial of Real-Time Electrographic Seizure Detection by Neuro-ICU Nurses Using a Panel of Quantitative EEG Trends. *Neurocrit Care* 31, no. 2 (October 2019): 312–20. https://doi.org/10.1007/s12028-019-00673-z.

Lewinski, Allison A., Abigail Shapiro, Jennifer M. Gierisch, Karen M. Goldstein, Dan V. Blalock, Matthew W. Luedke, Adelaide M. Gordon, **Tung T. Tran,** et al. Barriers and facilitators to implementation of epilepsy self-

management programs: a systematic review using qualitative evidence synthesis methods. *Syst Rev* 9, no. 1 (April 25, 2020): 92. https://doi.org/10.1186/s13643-020-01322-9.

Perucca, Piero, Alison Anderson, Dana Jazayeri, Alison Hitchcock, Janet Graham, Marian Todaro, Torbjörn Tomson, **Rodney Radtke,** et al. Antiepileptic Drug Teratogenicity and De Novo Genetic Variation Load. *Ann Neurol* 87, no. 6 (June 2020): 897–906. https://doi.org/10.1002/ana.25724.

Heavin, Sinéad B., Mark McCormack, Stefan Wolking, Lisa Slattery, Nicole Walley, Andreja Avbersek, Jan Novy, **Rodney Radtke,** et al. Genomic and clinical predictors of lacosamide response in refractory epilepsies. *Epilepsia Open* 4, no. 4 (December 2019): 563–71. https://doi.org/10.1002/epi4.12360.

Abstracts/Posters/Presentations

Changes In Mirna Profiles In Cryptogenic, Focal Epilepsy Compared to Control Subjects and Subjects With Migraines. Timothy H. Veldman, Duke University; Yiling Liu, Duke University; Thomas Burke, Duke University; **Rodney Radtke**, Duke University Medical Center; **Saurabh R. Sinha**, Duke University Medical Center. (Abst. 3.092), AES Annual Meeting 2019.

Perampanel in Real-World Clinical Care of Patients with Epilepsy at Duke University Medical Center, Durham, North Carolina: A Regional Comparison of Results from PROVE Study 506. Authors: **Saurabh R. Sinha**, Duke University Medical Center, NC, USA; **Selim R. Benbadis**, University of South Florida, Tampa, FL, USA; Muhammad S. Zafar, Duke University, Durham, NC, USA; Anna Patten, Eisai Ltd., Hatfield, Hertfordshire, UK; Manoj Malhotra, Eisai Inc., Woodcliff Lake, NJ, USA. (Abst. 1.306), AES Annual Meeting 2019.

Gainesville

Publications/Manuscripts/Chapters

Eisenschenk S, Wang Y, Surabhi S. "Seizures associated with non-neurological medical conditions." In: The Treatment of Epilepsy: Principles and Practice, 4th ed., Elaine Wyllie, ed. Lippincott Williams and Wilkins Co., 2021.

Abstracts/Posters/Presentations

Six Steps to Increase Brain Health, VA "Living in Balance" series, 02/10/2020.

Psychogenic Non-Epileptic Seizures, Psych-Mental Health NP Residency Program, 06/19/2020.

Miami

Abstracts/Posters/Presentations

Neurobehavioral symptoms and suicidality: The impact of epilepsy and gender in Post 9/11 Veterans with deployment-related mild TBI.

Tampa

Publications/Manuscripts/Chapters

Original Research

Syed TU, LaFrance WC, **Benbadis S**, et al. Outcome of ambulatory video-EEG monitoring in a ~10,000 patient nationwide cohort. Seizure 2019; 66:104-111.

Kasischke K, Pennington A, **Benbadis SR**. Sleep-onset REM period (SOREMP) during routine EEG. Neurology 2019;93: e1123-e1124.

Murray K, Amin U, MacIver S, **Benbadis S**. EEG findings in PRES. Clin EEG Neurosci 2019 Jun 19:1550059419856968. doi: 10.1177/1550059419856968.

Amin U, **Benbadis SR**, **Frontera AT**. Outcome of prolonged EEG-video monitoring in a new V.A. monitoring unit. Epilepsy Behav, in press.

Tatum WO, Hirsch LJ, …, **Benbadis SR**, et al. Assessment of the predictive value of outpatient smartphone videos for diagnosis of epileptic seizures). JAMA Neurology January 21, 2020. doi:10.1001/jamaneurol.2019.4785.

Primiani CT, Rivera-Cruz A, Trudeau P, Sullivan L, MacIver S, **Benbadis S**. The Yield of Ambulatory EEG-Video Monitoring. Clinical EEG & Neuroscience 2020. DOI: 10.1177/1550059420949768.

Reviews, Commentaries, etc.

Benbadis SR, Engel J Jr. The next level of care in epilepsy: delays, more delays, delays everywhere. Neurology Clinical Practice 2019;9(4): 284-285.

Zemina K, Pennington A, **Benbadis SR**. Phasing out the fallacy of phase reversals. European Neurology 2019 pp. 1-2. PMID: 31671421.

Benbadis SR, Beniczky S, Bertram E, MacIver S, Moshé S. The EEG in epilepsy. In: Seminars in Epileptology. Epileptic Disord 2020; 22 (2): 143-55.

Wolf P, **Benbadis SR**, Dimova P, Ko V, Michaelis R, Reuber M, Yacubian EM. Semiological information: the history of patients with seizures. In: Seminars in Epileptology. Epileptic Disord 2020; 22 (1):15-31.

Kara SD, Amin U, **Benbadis SR.** Reversing the myth of phase reversals. Exp Rev Neurother 2019; Nov 27:1-3. doi: 10.1080/14737175.2020.

Amin U, **Benbadis SR**. The consequences of complacency in refractory epilepsy. Expert Review of Neurotherapeutics, doi: 10.1080/14737175.2020.1713100.

Benbadis SR. Functional seizures? So I still have seizures, right? [Letter to the editor]. Epilepsy Behav 2020 May 22;107082. doi: 10.1016/j.yebeh.2020.107082.

Amin U, **Benbadis, SR**. Two epilepsy types (not seizure types) in the same patient: a rare but interesting occurrence. Eur Neurol 2020; https://doi.org/10.1159/000506197.

Cuello Oderiz C, **Benbadis SR**. Cone Waves: Another Normal Variant Overread as Epileptiform Discharges. Eur Neurol 2020; pp. 1-2. 10.1159/000506106.

Pooya AA, Nicholson TR, **Benbadis SR,** et al. Driving a motor vehicle and psychogenic nonepileptic seizures: ILAE Report by the Task Force on Psychogenic Nonepileptic Seizures. Epilepsia Open 2020. https://doi.org/10.1002/epi4.12408.

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Wolf P, **Benbadis S,** Dimova PS, et al. The importance of semiological information based on epileptic seizure history. Epileptic Disord 2020;22:15-31.

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Savani C, Kumar V, **Richardson C**, Amin S, MacIver S, **Frontera A**, **Benbadis S**. Predictors of 30-day readmission after ondex hospitalization for epilepsy: A 5-year national estimate using the Nationwide Readmission Database (NRD). Poster presented at the American Academy of Neurology Annual Meeting, April 2019, Philadelphia, PA.

Amin S, **Savani C**, **Richardson C**, Kumar V, MacIver S, **Frontera A**, **Benbadis S**. Incidence and predictors of in-hospital mortality associated with status epilepticus: An estimate using the Nationwide Inpatient Sample (NIS) Database 2011–14. Poster presented and selected as a Platform Presentation at American Academy of Neurology Annual Meeting, April 2019, Philadelphia, PA.

Southeast Region Research/Grants

Durham

Principal Investigator Last, First, MI	Grant/Study Title	Project Start Date mm/dd/yyyy	Project End Date mm/dd/yyyy	Name of Funding Source
Tran, Tung (site PI)	Evaluation of an epilepsy peer-support program in the US Veteran Affairs Epilepsy Centers of Excellence (ECoE): A pilot study	03/01/2019	In process of closing	UCB

Gainesville

Principal Investigator Last, First, MI	Grant/Study Title	Project Start Date mm/dd/yyyy	Project End Date mm/dd/yyyy	Name of Funding Source
Eisenschenk, Stephan	Impact of SPEAC System data on therapeutic decisions related to convulsive seizure patients with a new diagnosis (IRB 2019-00239)	02/18/2020	03/27/2020	Brain Sentinel, Inc
Eisenschenk, Stephan	EEG predictors of post-stroke seizures (IRB 2017-000121)	October 2017	Ongoing	Wayne Densch Epilepsy Research Fund

Miami

Principal Investigator Last, First, MI	Grant/Study Title	Project Start Date mm/dd/yyyy	Project End Date mm/dd/yyyy	Name of Funding Source
Maria Raquel Lopez	The impact of mindfulness meditation in veterans with epilepsy. Can seizure and psychiatric comorbidities improve?	Expected 9/2019	9/2021	None
Maria Raquel Lopez	Impact of SPEAC System data on therapeutic decisions related to convulsive seizure patients with recent non-diagnostic EMU visit	7/2019	7/2010	Sentinel

Southwest Region

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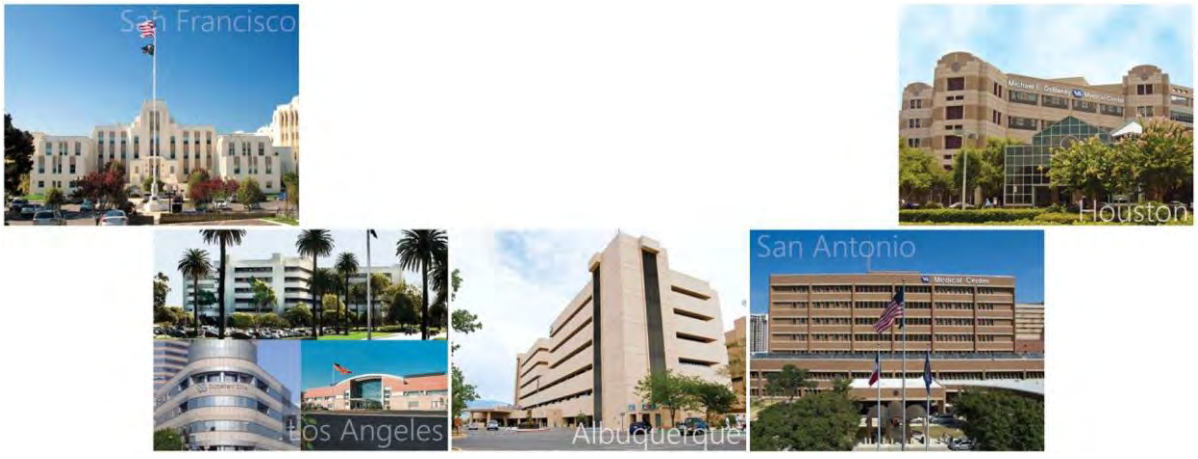
Nina Garga, MD

Southwest ECoE Regional Administrative Director
Vacant



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Southwest Region Self-Assessment Results, Accomplishments, and Future Initiatives

Regional Director: **Nina I. Garga, MD**

Regional Administrative Officer: **Vacant**

FY20 Self-Assessment Results

- **Final score:** 56
- **Highlights:** Consistently productive research and professional education accomplishments. Outpatient and virtual clinical workload high despite coronavirus pandemic. Leading in breadth of services. Houston nurse, Melissa Fadipe, received multiple honors and awards at the local, VISN and national levels. New equipment and/or servers installed and functioning at multiple sites. Expanded video to home telehealth care substantially in the coronavirus pandemic. Houston PNES support group moved to virtual/VVC.
- **Concerns/issues:** extremely limited administrative support, particularly at Houston with no local AO nor regional ECoE AO. Policies at our sites prevented reopening EMUs until September impacting at least half of our workload (outpatient workload mostly spared). Need funding for directors at Houston, ABQ. Need local support to backfill physician vacancies in org chart.

FY20 Accomplishments

Program/Operational:

- Hiring/staffing: New local epilepsy faculty positions were approved, and recruitments are in progress at Houston and Albuquerque. Increased EEG technologist coverage at Houston.
- Equipment: New EEG acquisition systems, reading stations, and servers were installed at West LA and San Francisco, along with software upgrades at WLA. Houston and WLA purchased a Ceribell rapid-EEG system. A FIPS WiFi data transfer was installed and approved at WLA.
- Awards: Melissa Fadipe received nurse leadership awards locally, at the VISN level, and nationally. Dr. Haneef received two education/teaching awards at Baylor College of Medicine.

Clinical Care and Outreach:

- Maintained comprehensive epilepsy services, inpatient and outpatient, including pre-surgical evaluations, phase 2 evaluations, cortical mapping, device implantations/programming, and epilepsy surgery.
- Adapted outpatient services rapidly to care for patients during the COVID-19 pandemic, with expanded telephone clinics and video-to-home telehealth clinic volume at all sites, newly established at WLA.
- Maintained telehealth clinics for CBT-informed therapy for PNES; increased provider training by Dr. Lafrance.
- Improved patient safety in the EMU at WLA with 24/7 EMU monitoring and a technician addition.
- Houston deployed the Standardized Epilepsy Center of Excellence Seizure Documentation Nursing Note.
- Houston expanded its PNES support group to include home telehealth, and staff incorporated Virtual Support Groups during the COVID-19 pandemic.

Research/Surveillance:

- Continued funded research in posttraumatic epilepsy, the genetics of epilepsy, basic mechanism of status epilepticus, basic mechanism of seizures, quantitative EEG analysis, PNES biomarkers, PNES characteristics, pharmacy, and nursing research.
- Concluded a peer-support study.

Education:

- Provided ACGME-accredited fellowship training in Clinical Neurophysiology and Epilepsy at multiple sites.
- Provided ASHP accredited fellowship training for Neuropharmacy residency at WLA.
- Provided training to sleep fellows in the EMU at SF.
- Developed a virtual EMU nursing education for staff nurses, including lecture and virtual simulation, at WLA.
- Presented at the Epilepsy Awareness and Education Expo in November 2019, Disneyland, Anaheim, CA:
  - Ask the Doctor, Presentation, Q&A, "Epilepsy from Traumatic Brain Injury"
  - Ask the Pharmacist, Presentation, Q&A

Future Initiatives

Program/Operational:

- **Hiring/staffing:** Pending budget approval, Houston is ready to recruit a Southwest ECoE Region Administrative Office (AO). Several sites are pursuing local support to backfill physician vacancies.
- **Equipment:** Houston obtained approval for new EEG equipment. Technical approval for use of the Ceribell 8-channel Rapid Response EEG is underway.

Clinical Care:

- Maintain comprehensive epilepsy services (inpatient and outpatient).
- Maintain epilepsy surgical services, including implantation and programming of RNS devices; expand to include laser ablations.
- As we enter the recovery phase of the COVID-19 pandemic, address the backlog of elective EMU admission requests, and increase volume in FY21, within local and national safety guidelines.
- Explore high-tech, high-cost funding to purchase a surgical robot (ROSA) at Houston to expand the stereo-EEG implantation program.
- Continue increasing VVC care, as well as reopening and returning to face-to-face care, when permitted.

Research/Surveillance:

- Increase collaborative research initiatives within the ECoE.
- Participate in the VA Cooperative study on PNES.

Education:

- Collaborate with mental health providers to reduce teratogenic anticonvulsant prescriptions for mental health indications in women Veterans with childbearing potential.

- A Neurobehavioral fellowship starting at the Houston VA in 2020 (Mental Health Care Line) plans to have fellows rotate within the VA EMU and clinics.

Outreach Activities:

- Outreach to other facilities within our region to foster EEG/Epilepsy services.
- Continue exploring options to provide store-and-forward EEG reading for Hawaii and areas with reduced access.
- Strengthen partnership with EFA for patient support programs

Other Future Initiatives:

- Use the VSSC Cube resource to explore epilepsy health care utilization and identify areas of improvement at the local and regional levels.

Southwest Region Fellowships

Houston Fellowships

Name	Fellowship	ACGME	VA FTE	Start Date	End Date
LaTanya Agurs	Clinical Neurophysiology	Yes	0.29	July 1, 2019	June 30, 2020
Steven Fussner	Clinical Neurophysiology	Yes	0.29	July 1, 2019	June 30, 2020
Mohammad Ghatali	Clinical Neurophysiology	Yes	0.29	July 1, 2019	June 30, 2020
Maureen Handoko	Epilepsy	Yes	0.29	July 1, 2019	June 30, 2020
Cemal Karakas	Epilepsy	Yes	0.29	July 1, 2019	June 30, 2020
Danielle Takacs	Epilepsy	Yes	0.29	July 1, 2019	June 30, 2020
Taqie Zafar	Epilepsy	Yes	0.29	Oct 1, 2019	Sep 30, 2020

San Francisco Fellowships

Name	Fellowship	ACGME	VA FTE	Start Date	End Date
Patrick Hullett, MD, PhD	Epilepsy	Yes	0.25	07/01/19	06/30/20
Joline Fan, MD	Epilepsy	Yes	0.25	07/01/19	06/30/20
Joseph Sanford, MD	Epilepsy	Yes	0.25	07/01/20	06/30/21
LeeAnn Chang, MD	Epilepsy	Yes	0.25	07/01/20	06/30/21

WLA Fellowships

Name	Fellowship	ACGME	VA FTE	Start Date	End Date
Seyedali Hejazi	Epilepsy	Yes	1	07/01/19	06/30/20
Kira Dillard	Clinical Neurophysiology	Yes	1	07/01/19	06/30/20
Janice Joo	Clinical Neurophysiology	Yes	1	07/01/20	06/30/21
Anna Koblik	Clinical Neurophysiology	Yes	1	07/01/20	06/30/21
Jalanta Marszalek	Epilepsy	Yes	1	09/04/20	09/03/21
Jeremy Liu	Neuropharmacy	No	1	07/01/19	06/30/20
Naomi Wu	Neuropharmacy	No	1	07/01/19	06/30/20
Caroline Kim	Neuropharmacy	No	1	07/01/20	06/30/21
Katherine Liao	Neuropharmacy	No	1	07/01/20	06/30/21

Southwest Region Publications/Presentations

Houston

Books

Haneef, Z (chief editor), Englot D, Maheshwari A, Matsumoto J, Pillai J (Asso. Editors): A Concise Manual of Epilepsy. 3rd edition. 2017. Neurogroups publishers, Boston, MA, USA. ISBN-10: 1499563477.

Stereotactic and Functional Neurosurgery: Principles and Applications. Pouratian N and **Sheth SA** [eds.], Springer, New York, NY (in press).

Chapters

Hunt PJ, Zhang X, Storch E, Christian C, Viswanathan A, Goodman W, **Sheth SA**. "Deep Brain Stimulation for Obsessive Compulsive Disorder" in Stereotactic and Functional Neurosurgery: Principles and Applications. Pouratian N and Sheth SA [eds.], Springer, New York, NY (2020).

Karas PJ, **Sheth SA**, Yoshor D. "Epilepsy: Mesial Temporal" in Stereotactic and Functional Neurosurgery: Principles and Applications. Pouratian N and Sheth SA [eds.], Springer, New York, NY (2020).

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Tatum, W. O., Hirsch, L. J., Gelfand, M. A., Acton, E. K., LaFrance, W. C., Jr, Duckrow, R. B., **Chen, D. K.,** Blum, A. S., Hixson, J. D., Drazkowski, J. F., Benbadis, S. R., Cascino, G. D., & OSmartViE Investigators (2020). Assessment of the Predictive Value of Outpatient Smartphone Videos for Diagnosis of Epileptic Seizures. JAMA neurology, 77(5), 593–600. PMID 31961382.

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Ozturk M, Telkes I, Jimenez-Shahed J, Viswanathan A, Tarakad A, Kumar S, **Sheth SA**, Ince NF. "Randomized, Double-Blind Assessment of LFP Versus SUA Guidance in STN-DBS Lead Implantation: A Pilot Study." *Frontiers in Neuroscience*. 14:611. (2020). (PMID 32655356, PMCID PMC7325925).

Mohan UR, Watrous AJ, Miller JF, Lega BC, Sperling MR, Worrell GA, Gross RE, Zaghloul KA, Jobst BC, Davis KA, **Sheth SA**, Stein JM, Das SR, Gorniak R, Wanda PA, Rizzuto DS, Kahana MJ, Jacobs J. "The effects of direct brain stimulation in humans depend on frequency, amplitude, and white-matter proximity." *Brain Stimulation*. 13(5):1183-1195. (2020). (PMID 32446925).

Goyal A, Miller J, Qasim SE, Watrous AJ, Zhang H, Stein JM, Inman CS, Gross RE, Willie JT, Lega B, Lin J-J, Sharan A, Wu C, Sperling MR, **Sheth SA**, McKhann GM, Smith EH, Schevon C, Jacobs J. "Functionally Distinct High and Low Theta Oscillations in the Human Hippocampus." *Nature Communications*. 11(1):2469. (2020). (PMID 32424312, PMCID PMC7235253).

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Tsitsiklis M, Miller J, Qasim SE, Inman CS, Gross RE, Willie JT, Smith EH, **Sheth SA**, Schevon CA, Sperling MR, Sharan A, Stein JM, Jacobs J. "Single-Neuron Representations of Spatial Targets in Humans." *Current Biology*. 30(2):245-253.e4. (2020). (PMID 31902728, PMCID PMC6981010).

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Bartoli E, Bosking W, Chen Y, Li Y, **Sheth SA**, Beauchamp MS, Yoshor D, Foster BL. "Functionally Distinct Gamma Range Activity Revealed by Stimulus Tuning in Human Visual Cortex." *Current Biology*. 29(20):3345–3358.e7. (2019).

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Mattioli, F., Hayot, G., Drouot, N., Isidor, B., Courraud, J., Hinckelmann, M.-V., Mau-Them, F.T., Sellier, C., Goldman, A., Telegrafi, A., Boughton, A., Gamble, C., Moutton, S., Quartier, A., Jean, N., **Van Ness, P.**, Grotto, S., Nambot, S., Douglas, G., Si, Y.C., Chelly, J., Shad, Z., Kaplan, E., Dineen, R., Golzio, C., Charlet-Berguerand, N., Mandel, J.-L., Piton, A., 2020. De Novo Frameshift Variants in the Neuronal Splicing Factor NOVA2 Result in a Common C-Terminal Extension and Cause a Severe Form of Neurodevelopmental Disorder. Am. J. Hum. Genet. 106, 438–452. https://doi.org/10.1016/j.ajhg.2020.02.013.

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Tubi, M.A., Lutkenhoff, E., Blanco, M.B., McArthur, D., Villablanca, P., Ellingson, B., Diaz-Arrastia, R., **Van Ness, P.**, Real, C., Shrestha, V., Engel, J., Vespa, P.M., 2019. Early seizures and temporal lobe trauma predict post-traumatic epilepsy: A longitudinal study. Neurobiol. Dis. 123, 115–121. https://doi.org/10.1016/j.nbd.2018.05.014.

Van Ness, P.C., 2019. Are Seizure Detection Devices Ready for Prime Time? Epilepsy Curr. 19, 36–37. https://doi.org/10.1177/1535759719827430.

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Abstracts/Posters/Presentations

Posters:

Fadipe, M. (2019). Epilepsy: Identification and Seizure Basics**.** Presented at the MEDVAMC Annual APRN Collaborative Updates in Clinical Practice Conference, Houston, TX.

Haneef, Z. Student Satisfaction and NBME Outcomes with Team Based Learning on the Neurology Clerkship, a Pilot Study" at the American Academy of Neurology 71st Annual Meeting, May 4 to May 10, 2019 in Philadelphia, PA.

Fadipe, M. (2019). Epilepsy: Identification and Seizure Basics**.** Presented at the MEDVAMC Annual APRN Collaborative Updates in Clinical Practice Conference, Houston, TX.

BRAIN poster: Provenza NR, **Sheth SA**, Dastin-van Rijn E, Mathura R, Goodman WK, Borton DA. "Chronic VC/VS DBS for OCD modulates VC/VS spectral power during rest." (2020).

Invited Presentations:

Haneef, Z. Invited speaker on "Utilization of epilepsy surgery- Evidence & practice" organized by the Indian Epilepsy Society (IES), ECON India, Jan 18, 2020.

Haneef, Z. Invited speaker on "Anti-seizure medications- an update" organized by the Indian Epilepsy Society (IES), ECON India, Jan 18, 2020.

Sheth SA. Grand Rounds, Cleveland Clinic Department of Neurosciences (August 21, 2020), Cleveland, OH (virtual). "The Network Basis of Epilepsy and Other Neuropsychiatric Disorders."

Sheth SA. NIH BRAIN Initiative Neuroethics Working Group Meeting (August 20, 2020) (online webinar). "Investigator perspectives on ethical challenges re: COVID-induced protocol changes for human subjects research."

Sheth SA. CNS Webinar Series: Functional Radiosurgery (July 21, 2020) (online webinar). "Psychiatric Radiosurgery."

Sheth SA. NIH BRAIN Initiative Principle Investigator's Meeting: Research Opportunities in Humans (ROH) Consortium (May 31, 2020), Bethesda, MD (virtual). "Mechanisms of Rapid, Flexible Cognitive Control in Human Prefrontal Cortex."

Sheth SA. NIMH Division of Translational Research (May 14, 2020), Bethesda, MD (virtual). "Deep Brain Stimulation for Depression Using Directional Current Steering and Individualized Network Targeting."

Sheth SA, Visiting Professor, University of California, Los Angeles Department of Neurosurgery (May 13, 2020), Los Angeles, CA (virtual). "Psychiatric Neurosurgery: Current State and Future Directions."

Sheth SA. Neurological Surgery Society of India (NSSI) Annual Conference (February 28, 2020), Kolkata, India. "DBS for Obsessive-Compulsive Disorder."

Sheth SA. Neurological Surgery Society of India (NSSI) Annual Conference (February 28, 2020), Kolkata, India. "DBS for Psychiatric Disorders."

Sheth SA. Neurological Surgery Society of India (NSSI) Annual Conference (February 28, 2020), Kolkata, India. "The Network Basis of Epilepsy Surgery."

Visiting Professor, Barrow Neurological Institute Department of Neurosurgery (December 13, 2019), Phoenix, AZ. "Psychiatric Neurosurgery: Current State and Future Directions."

Sheth SA. ASSFN Course on Stereotactic and Functional Neurosurgery (November 15, 2019), Denver, CO. "DBS for Psychiatric Disorders."

Sheth SA. Neurosurgical Treatments for Psychiatric Disorders Summit at Ruijin Hospital (November 9, 2019), Shanghai, China. "Connectomic Imaging in the Neurosurgical Management of OCD."

Sheth SA. Neurosurgical Treatments for Psychiatric Disorders Summit at Ruijin Hospital (November 9, 2019), Shanghai, China. "DBS for Depression."

Sheth SA. CME Symposium at NYU: Emerging Neuropsychiatric Uses of Brain Stimulation (October 25, 2019), New York, NY. "DBS for Depression."

Sheth SA. Congress of Neurological Surgeons (CNS) Annual Meeting (October 19, 2019), San Francisco, CA. "DBS for Depression."

San Francisco

Publications/Manuscripts/Chapters

George A, Kuzniecky R, Rusinek R, Pardoe HR for the Human Epilepsy Project Investigators (includes **Hegde, M** as a named member). Standardized Brain MRI Acquisition Protocols Improve Statistical Power in Multicenter Quantitative Morphometry Studies. *J Neuroimaging*. 2020 Jan;30(1):126-133. doi: 10.1111/jon.12673. Epub 2019 Oct 30. PMID: 31664774.

Hirsch LJ, Mirro EA, Salanova V, Witt TC, Drees CN, Brown MG, Lee RW, Sadler TL, Felton EA, Rutecki P, Shin HW, Hadar E, **Hegde M,** Rao VR, Mnatsakanyan L, Madhavan DS, Zakaria TJ, Liu AA, Heck CN, Greenwood JE, Bigelow JK, Nair DR, Alexopoulos AV, Mackow M, Edwards JC, Sotudeh N, Kuzniecky RI, Gwinn RP, Doherty MJ, Geller EB, Morrell MJ. Mesial temporal resection following long-term ambulatory intracranial EEG monitoring with a direct brain-responsive neurostimulation system. *Epilepsia*. 2020 Mar; 61(3):408-420. PMID: 32072621. PMCID: PMC7154711

Birbeck G, **Parko K**. Systemic Review of Intervention Studies for Stigma Reduction in Epilepsy: It is Time to Fill the Vacuum. Report from the International League against Epilepsy Task Force on Stigma in Epilepsy. *Epilepsia*. *In Press*.

Salinsky M, Binder L, Storzbach D, **Parko K**, Rutecki P, Goy E, Tadrous-Furnanz S. Validity testing in veterans with epileptic seizures and psychogenic nonepileptic seizures. *Epilepsy Behav*. 2020 Jul 7;111:107246. doi: 10.1016/j.yebeh.2020.107246. Epub ahead of print. PMID: 32650290.

Salinsky M, Rutecki P, **Parko K**, Goy E, Storzbach D, Markwardt S, Binder L, Joos S. Health-related quality of life in Veterans with epileptic and psychogenic nonepileptic seizures. *Epilepsy Behav*. 2019 May;94:72-77. doi: 10.1016/j.yebeh.2019.02.010. Epub 2019 Mar 17. PMID: 30893618.

Hixson JD, Braverman L. Digital tools for epilepsy: Opportunities and barriers. *Epilepsy Res*. 2020 May;162:106233. doi: 10.1016/j.eplepsyres.2019.106233. Epub 2019 Nov 2. PMID: 32199221.

Shegog R, Braverman L, **Hixson JD**. Digital and technological opportunities in epilepsy: Toward a digital ecosystem for enhanced epilepsy management. *Epilepsy Behav*. 2020 Jan;102:106663. doi: 10.1016/j.yebeh.2019.106663. Epub 2019 Nov 26. PMID: 31778878.

Tatum WO, Hirsch LJ, Gelfand MA, Acton EK, LaFrance WC Jr, Duckrow RB, Chen DK, Blum AS, **Hixson JD**, Drazkowski JF, Benbadis SR, Cascino GD; OSmartViE Investigators. Assessment of the Predictive Value of Outpatient Smartphone Videos for Diagnosis of Epileptic Seizures. *JAMA Neurol*. 2020 May 1;77(5):593-600. doi: 10.1001/jamaneurol.2019.4785. PMID: 31961382.

Mueller SG, Bateman LM, Nei M, Goldman AM, Laxer KD. Brainstem atrophy in focal epilepsy destabilizes brainstem-brain interactions: Preliminary findings. *Neuroimage Clin*. 2019;23:101888. doi: 10.1016/j.nicl.2019.101888. Epub 2019 Jun 3. PMID: 31203171; PMCID: PMC6580328.

Kang JI, **Mueller SG**, Wu GWY, Lin J, Ng P, Yehuda R, Flory JD, Abu-Amara D, Reus VI, Gautam A; PTSD Systems Biology Consortium, Hammamieh R, Doyle FJ 3rd, Jett M, Marmar CR, Mellon SH, Wolkowitz OM. Effect of Combat Exposure and Posttraumatic Stress Disorder on Telomere Length and Amygdala Volume. *Biol Psychiatry Cogn Neurosci Neuroimaging*. 2020 Jul;5(7):678-687. doi: 10.1016/j.bpsc.2020.03.007. Epub 2020 Mar 31. Erratum in: Biol Psychiatry Cogn Neurosci Neuroimaging. 2020 Jun 23;: PMID: 32439402.

Mueller SG, Meyerhoff DJ. The gray matter structural connectome and its relationship to alcohol relapse: Reconnecting for recovery. *Addict Biol*. 2019 Dec 20:e12860. doi: 10.1111/adb.12860. Epub ahead of print. PMID: 31860777; PMCID: PMC7305049.

Abstracts/Posters/Presentations

Posters:

Barnard, S.N.; Friedman, D; **Hegde, M**.; Haut, S.; Kälviäinen, T.; **Hixson, J.;** French, J. When Do Patients Track Their Seizures in an Electronic seizure Diary? An Interim Analysis of the Human Epilepsy Project. 73rd Annual Meeting of the American Epilepsy Society, Baltimore MD, 2019.

Hegde, M.; Barnard, S.N.; Cassard, L.; Detyniecki, K.; Holmes, M.; Haut, S.; Kälviäinen, T.; **Hixson, J**.; French, J. With and without seizures: Characteristics of seizure frequency cohorts in the Human Epilepsy Project. 73rd Annual Meeting of the American Epilepsy Society, Baltimore MD, 2019.

Cassard, L.; **Hegde, M**.; Gidal, B.; Glauser, T.; Faught, E.; Ficker, D.; Mintzer, S.; Abou- Khalil, B.; Alldredge, B.; Klein, P.; Barnard, S.N.; Shadan, J.; French, J. Levetiracetam versus Sodium Channel Blockers as First Prescribed Antiepileptic Drug: Data from the Human Epilepsy Project. 73rd Annual Meeting of the American Epilepsy Society, Baltimore MD, 2019.

Nancy Santilli, Lana Braverman, and **John Hixson**. A Survey of Epilepsy Digital Technology Awareness and Usage Among Neuroscience Nurses. American Epilepsy Society Annual Meeting, Baltimore MD, 2019.

John Hixson, David Jost, and Patty Shafer. Cluster Seizure and Rescue Therapy Reporting via the My Seizure Diary. American Epilepsy Society Annual Meeting, Baltimore MD, 2019.

Pablo Pino, Das Sampath, **John Hixson**. Use of a Seizure Similarity Machine-Learning Algorithm for EEG Screening. American Epilepsy Society Annual Meeting, Baltimore MD, 2019.

Invited Presentations:

Global Health in Epilepsy: The Need for a Global Health Repository. Panel Chair and Speaker: Karen Parko. American Epilepsy Society 2019 Annual Meeting, Baltimore.

Caring for a Diverse Patient Population. Speaker: Karen Parko. American Epilepsy Society 2019 Annual Meeting, Baltimore.

October 2019 UCSF Psychiatry Department Case Conference. "Functional Neurological Disorders." Speaker: Karen Parko.

Epilepsy Care in Resource-Limited Settings: Challenges and Opportunities. Organizer and speaker: Manu Hegde. 2019 UCSF Global Neurology Forum.

When Biases Emerge in Treatment: The Interaction Between Providers' and Patients' Intersectional Identities. Panelist: Nina Garga. 2019 UCSF-SFVA Clinical Psychology Training Program Annual Diversity Panel.

West LA

Publications/Manuscripts/Chapters

Josue M. Avecillus-Chasin, Monica Justo, Simon Levinson, Ralph Koek, Scott E. Krahl, James **W.Y. Chen**, Seung Jin Lee, Jean-Philippe Langevin, Ausaf Bari. Structural correlates of emotional response to electrical stimulation of the amygdala in subjects with PTSD, *Brain Stimulation* 13 (2020) 424e426.

George Lai, Jean-Philippe Langevin, Ralph J. Koek, Scott E. Krahl, Ausaf A. Bari **James W Chen**: Acute Effects and the Dreamy State Evoked by Deep Brain Electrical Stimulation of the Amygdala: Associations of the Amygdala in Human Dreaming, Consciousness, Emotions, and Creativity, *Front. Hum. Neurosci*., 25 February 2020, https://doi.org/10.3389/fnhum.2020.00061.

Niquet J, Lumley L, Baldwin R, Suchomelova L, Rossetti R, Schultz M, de Araujo Furtado M, Naylor D, Franco-Estrada I, **Wasterlain CG**. Early polytherapy for benzodiazepine-refractory status epilepticus. *Epilepsy Behav*. 2019 Oct 18:106367. doi: 10.1016/j.yebeh.2019.06.011. PMID: 31636007.

Niquet J, Lumley L, Baldwin R, Rossetti F, Suchomelova L, Naylor D, Franco-Estrada IB, Schultz M, Furtado MA, **Wasterlain CG**. Rational Polytherapy in the Treatment of Cholinergic Seizures, *Neurobiol Dis*, 2020 Jan;133:104537. doi: 10.1016/j.nbd.2019.104537. PMID: 31454548.

Lumley LA, Rossetti F, de Araujo Furtado M, Marrero-Rosado B, Schultz CR, Schultz MK, Niquet J, **Wasterlain CG**. Dataset of EEG power integral, spontaneous recurrent seizure and behavioral responses following combination drug therapy in soman-exposed rats. *Data Brief*. 2019 Oct 8;27:104629. doi: 10.1016/j.dib.2019.104629. eCollection 2019 Dec. PMID: 31687442.

Gaspar ME, Polack PO, **Golshani P**, Lengyal M, Orban G. Representational untangling of the firing rate nonlinearity in V1 simple cells. *E-Life*, Published online 09/11/2019.

Sun, Y, Jin S, Zhou P, Johnston KG, **Golshani P**, Nie Q, Holmes TC, Nitz DA, Xu X. A Novel Cortico-Hippocampal Pathway Facilitates Object-Place Learning. *Nature Neuroscience* 22(11):1857-1870, 2019.

Donzis EJ, Estrada-Sanchez AM, Indersmitten T, Tran CH, Wang C, Latifi S, **Golshani P**, Cepeda C, Levine MS Neuronal calcium dynamics are altered in the cerebral cortex of Huntington's Disease model mice. *Cerebral Cortex* 00:1-17, 2019.

Shuman T, Aharoni D, Cai DJ, Lee CR, Chavlis S, Taxidis J, Flores SE, Cheng K, Javaherian M, Kaba CC, Shtrahman M, Bakhurin KI, Masmanidis S, Khakh BS, Poirazi P, Silva AJ, **Golshani P** Breakdown of spatial coding and neuronal synchronization in epilepsy. *Nature Neuroscience,* 2020.

Latifi, S, Levine M, **Golshani P**, Carmichael ST. In vivo calcium imaging reveals disruption of neuronal network topology after stroke. Published online *Cerebral Cortex* on 7/30/20.

Saravanapandian V, Frohlich J, Hipp JF, Hyde C; Scheffler AW, **Golshani P**, Cook EH, Reiter LT, Senturk D, Jeste SS Properties of beta oscillations in Dup15q syndrome. Accepted at *Journal of Neurodevelopmental Disorders* in 7/2020.

Taxidis J, Pnevmatikakis E, Mylavarapu A, Arora JS, Samadian KD, Hoffberg EA, **Golshani P** Emergence of stable sensory and dynamic temporal representations in the hippocampus during working memory. Accepted at *Neuron* August 2020.

Pharmacotherapy First (Nov, 2019) American Pharmacists Association, 2019.

Chapter: Epilepsy; Author: Viet Nguyen and Sunita Dergalust.

Nguyen VH, Dergalust S, Chang E. Epilepsy: Pharmacotherapy: A Pathophysiologic Approach, 11e (Editors: Joseph T. DiPiro, Gary C. Yee, L. Michael Posey, Stuart T. Haines, Thomas D. Nolin, Vicki Ellingrod) Chapter 73.

Abstracts/Posters/Presentations

Zahra M. Aghajan, Jean-Philippe Langevin, Diane Villaroman, Ausaf Bari, Sonja Hiller, Uros Topalovic, Ralph J. Koek, Scott Krahl, **James W.Y. Chen**, Nicholas R. Hasulak, Michael Fanselow, and Nanthia Suthana. Intracranial Neurophysiology of Hypervigilance in Posttraumatic Stress Disorder, The Society of Neuroscience meeting 2019

Josue M. Avecillus-Chasin, Monica Justo, Simon Levinson, Ralph Koek, Scott E. Krahl, **James W.Y. Chen**, Seung Jin Lee, Jean-Philippe Langevin, Ausaf Bari. Structural Correlates of Emotional Response to Electrical Stimulation of the Amygdala in Subjects with PTSD**,** The 2020 Annual North American Neuromodulation Society Meeting, Las Vegas

Wasterlain CG, Suchomelova L, Thompson KW, Niquet J, Baldwin R, Of Weeds and Fits, Proc. WCBR, 2019.

J Niquet , R. Baldwin,, L. Suchomelova, K. Thompson, I. B. Franco-Estrada, **C. G. Wasterlain**, Comparison of Brivaracetam with Levetiracetam in the Treatment of Benzodiazepine-refractory Status Epilepticus, Proc. 7th London-Innsbruck Colloquium on Status Epilepticus and Acute Seizures, 2019.

J Niquet, L Lange-Lumley, D Naylor, H Liu, R Baldwin, **C Wasterlain**, Rational Polytherapy of Status Epilepticus, Proc. 7th London-Innsbruck Colloquium on Status Epilepticus and Acute Seizures, 2019.

J Niquet, L Lange-Lumley, R Baldwin, **C Wasterlain**, Drug Combinations for the Treatment of Status Epilepticus, ILAE Abstr, 2019.

C. Wasterlain. Cannabinoids and epilepsy: the science and the hype. EWCBR Abstracts 2019.

Niquet J, Franco Estrada I and **Wasterlain C**. Late perampanel treatment stops midazolam-refractory seizures in an experimental model of status epilepticus. EWCBR Abstracts 2020.

Niquet J, Franco Estrada I and **Wasterlain CG**. Late perampanel treatment stops midazolam-refractory seizures in an experimental model of status epilepticus. Proc. WCBR 2020.

J Niquet, L Lange-Lumley, **David Naylor**, H Liu, R Baldwin, **C Wasterlain**. Rational Polytherapy in the Treatment of Status Epilepticus. Proc. WCBR 2020.

C Wasterlain. Epileptogenesis: in search of the Holy Grail. Proc. WCBR 2020.

Niquet J, Franco Estrada I and **Wasterlain CG**. Late perampanel treatment stops midazolam-refractory seizures in an experimental model of status epilepticus. ANA Abstracts 2020.

Alexander Crossley, Neha Gautam, Brian Toh, Jeremy Liu, Naomi Wu, Sidarth Ethiraj, **Hyo-Jin C. Suh, Sunita Dergalust.** Characterization of Antiepileptic Dosages and their Response in Veterans with Medically Refractory Focal Onset Epilepsy. Annual American Epilepsy Society Meeting, Baltimore, December 2019.

Alexander Crossley, Brian Toh, **Hyo-Jin Chae Suh**, Neha Gautam, **Sunita Dergalust.** Risk of Anti-Epileptic Drug related adverse effects in Veterans with Medically Refractory Epilepsy. International Epilepsy Congress, Bangkok, Thailand, June 2019.

Luthra S, Crossley A, Butani P, **Suh H**, Kamali-Greforian M, **Dergalust S**, Liu J, Wu N, Rao N, Wallis RA, Hinman JD. Medication Adherence as a Modulator of Ischemic Stroke Recurrence in the Veteran Population: The MISTER-VA Study. International Stroke Conference (ISC) Poster Presentation, Los Angeles, CA, February 2020.

Platform Presentations/Invited Talks

Wasterlain. Rational polytherapy in the treatment of Status Epilerpticus. Winter Conference on Brain Research, Big Sky, MO, 2020.

Wasterlain. Preventing Epileptogenesis: The Search for the Holy Grail. Winter Conference on Brain Research, Big Sky, MO, 2020.

Golshani P. Bridging the gap between network dynamics and network connectivity with new imaging tools." Pecs University, Pecs, Hungary, September 5, 2019**.**

Golshani P. Bridging the gap between network dynamics and network connectivity with new imaging tools. Institute for Experimental Medicine, Budapest, Hungary, September 8, 2019.

Golshani P. Bridging the gap between network dynamics and network connectivity with new imaging tools." University of Montreal, Montreal, Canada, September 27, 2019.

Golshani P. New open-source tools for combining miniaturized microscopy and electrophysiology." 2019: NSF NeuroNex Meeting, Chicago, Illinois, October 2019.

Reduced prefrontal synaptic connectivity and disturbed oscillatory population dynamics in the **Golshani P.** CNTNAP2 model of autism. Society for Neuroscience Nanosymposium, Chicago, Illinois, October 2019.

Golshani P. Bridging the gap between network dynamics and network connectivity with new imaging tools." Northwestern University, Chicago, Illinois, November 2019.

Golshani P. Bridging the gap between network dynamics and network connectivity with new imaging tools. Optogen Conference, Venice, Italy, December 14, 2019.

Golshani P. Bridging the gap between synaptic physiology and behavior using new tools to image network dynamics. Weizmann Institute UCLA/Weizmann Symposium, Rehovot, Israel, January 20, 2020.

Golshani P. Bridging the gap between synaptic physiology and behavior using new tools to image network dynamics. Winter Conference in Neural Plasticity, St. Kitts, February 10, 2020.

Golshani P. Bridging the gap between network dynamics and network connectivity with new imaging tools. Yale University Department of Neuroscience Lecture, New Haven, Connecticut, 2020.

Golshani P. Bridging the gap between synaptic physiology and behavior using new tools to image network dynamics. Center for Domain Specific Computing Keynote Address. Los Angeles, CA, February 27, 2020.

Golshani P. Development of place cell instability in temporal lobe epilepsy. VA Epilepsy Centers of Excellence Seminar, ,virtual talk, June 17, 2020.

Golshani P. Development of place cell instability in temporal lobe epilepsy. UCLA Brain Research Institute Neuroscience Lecture, virtual talk, June 30, 2020.

Golshani P. Interneuron desynchronization and breakdown of long-term place cell stability in epilepsy. University of College, London, online talk, August 2020.

Golshani P. 2020: University of Texas, San Antonio, "New tools for recording neural dynamics in freely behaving animals." San Antonio, Texas Online talk September 2020.

Golshani P. Bridging the gap between synaptic physiology and behaviors using new tools to image network dynamics. Sainsbury-Wellcome Center, London, England, online talk.

Southwest Region Research/Grants

Houston

Principal Investigator Last, First, MI	Grant/Study Title	Project Start Date mm/dd/yyyy	Project End Date mm/dd/yyyy	Name of Funding Source
Haneef, Zulfi (PI)	Multi-modal sensors in diagnosing drug-resistant epilepsy	10/1/2020	09/30/2020	Michael E. DeBakey VAMC Bridge and Seed Award Program
Chen, David (site PI)	Treatment of Psychogenic Non-epileptic Seizures in U.S. Veterans			VA Cooperative Studies Program, LOI accepted
Chen, David, Site (PI)	Detecting psychogenic nonepileptic seizures with single-channel sEMG			Brain Sentinel, IRB protocol submitted
Yoshor, Daniel (site PI)	BISC Bioelectronic Interfacing to Sensory Cortex with massive, fully implanted, flexible wireless CMOS surface recording and stimulating arrays	04/24/2017	04/23/2021	Defense Advanced Research Projects Agency (DARPA)
Sheth, Sameer, Goodman, A Wayne, K, Pouratian, Nader	UH3 NS103549. "Deep Brain Stimulation for Depression Using Directional Current Steering and Individualized Network Targeting."	09/2017	08/2022	NINDS
Sheth, Sameer, A	R01 MH106700. "Cognitive Control Mechanisms in Human Prefrontal Cortex."	04/2016	03/2021	NIMH
Sheth, Sameer, A	Dana Foundation Neuroscience Research Program. "Investigating the role of medial and lateral prefrontal cortex in human decision-making."	11/2013	10/2020	Dana Foundation
Sheth, Sameer, A	I01 CX001122. "Multisensory Processing of Human Speech Measured with msec and mm Resolution."	Pending	12/2023	VA
Beauchamp, Michael Sheth, Sameer, A (Co-I)	U01 NS113339. "Dynamic Neural Mechanisms of Audiovisual Speech Perception."	08/2019	07/2024	NINDS
Ince, Nuri Sheth, Sameer, A (Co-I)	R01 NS112497. "Investigation of Stereotyped High-Frequency Oscillations with Computational Intelligence for the Prediction of Seizures Onset Zone in Epilepsy."	07/2019	04/2024	NINDS

Principal Investigator Last, First, MI	Grant/Study Title	Project Start Date mm/dd/yyyy	Project End Date mm/dd/yyyy	Name of Funding Source
Gault, Judith, M Davis, Rachel, A Saks, Elyn, R Sheth, Sameer, A (Co-I)	RF1 MH121362. "Leveraging Ethical Dissension Among Capacity, Beneficence, and Justice in Clinical Trials of Neurotherapeutics in the Severely Disabled: Lessons From Schizophrenia."	09/2019	03/2023	NIMH
Goodman, Wayne, K Sheth, Sameer, A (Co-I)	UH3 NS100549. "Adaptive DBS in Non-Motor Neuropsychiatric Disorders: Regulating Limbic Circuit Imbalance."	12/2016	11/2022	NINDS
Dorn, Jessy, D Yoshor, Daniel Pouratian, Nader Sheth, Sameer A (Co-I)	UH3 NS103442. "Early Feasibility Clinical Trial of a Visual Cortical Prosthesis."	9/2018	3/2024	NINDS

San Francisco

Principal Investigator Last, First, MI	Grant/Study Title	Project Start Date mm/dd/yyyy	Project End Date mm/dd/yyyy	Name of Funding Source
Mueller, Susanne (PI) Garga, Nina (co-I)	The Imprint of Psychogenic Nonepileptic Seizures on the Brain: A New Model and Imaging Biomarker	09/01/2017	09/01/2020	DoD/CDMRP
Parko, Karen (site PI) Salinsky, Martin (PI)	Characteristics of Veterans with Epilepsy	08/12/2012	Present	VA Merit Review Award (CSR&D)
Parko, Karen (site PI) Chen, David (PI)	Novel Group Treatment for Patients with Non-Epileptic Seizures	08/30/2016	January 2020	
Hixson, John (national PI)	Peer Support for U.S. Veterans with Epilepsy	01/01/2018	12/31/2019	UCB Inc.

West LA

Principal Investigator Last, First, MI	Grant/Study Title	Project Start Date mm/dd/yyyy	Project End Date mm/dd/yyyy	Name of Funding Source
Chen, James WY	The Genetic Factor and Altered EEG Network in the Development of Posttraumatic Epilepsy	2020	2023	CDMRP/DoD
Wasterlain, Claude	Perampanel in the Treatment of Status Epilepticus			Eisai, Inc
Delgado-Escueta, Antonio	A Prospective, Longitudinal Observational Study of the Natural History and Functional Status of Patients with Lafora Disease	2019	2022	Valerion Therapeutics LLC
Langevin, Jean-Philippe	Responsive Neurostimulation for Post-Traumatic Stress Disorder	2019	2022	NIH UH3NS107673
Bari, Ausaf	Deep Brain Stimulation of the Subgenual Cingulate Cortex for the Treatment of Medical Refractory Low Back Pain	2019	2024	NIH UH3NS113661
Golshani, Peyman	Epilepsy related cell loss and cognitive dysfunction	2017	2022	NIH/NINDS R01NS099137
Golshani, Peyman	GABA Receptor Plasticity and Tonic Inhibition in Epilepsy	2017	2021	NIH/NINDS 2 R01 NS075245-06A1
Golshani, Peyman	Miniaturized open-source devices for calcium imaging, electrophysiology, and real-time control of neural activity	2017	2022	NSF Neurotech hub
Golshani, Peyman	Inhibitory neuron circuit organization and function in prefrontal cortex	2015	2021	NIH R01 MH105427
Golshani, Peyman	An open source, wireless, miniature microscope for monitoring neuronal activity	2018	2021	NIH UF1NS107668

Principal Investigator Last, First, MI	Grant/Study Title	Project Start Date mm/dd/yyyy	Project End Date mm/dd/yyyy	Name of Funding Source
Golshani, Peyman	Neural dynamics underlying epileptogenesis	2020	2024	VA Cooperative Merit Review
Golshani, Peyman	Multiplexing working memory and timing: Encoding retrospective and prospective information in transient neural trajectories	2020	2025	NIH R01NS116589

National ECoE Workgroups

Basic Science Research Seminar Group

VA Puget Sound Health Care System
1660 S. Columbian Way, Seattle, WA 98108

Chair: **Nikolai Dembrow, PhD**
Admin Support: **Linda L. Benson, MPH, CCRC**

Workgroup Members		
Nikolai Dembrow PhD, Chair—Seattle	**Christopher B. Ransom, MD, PhD—Seattle**	**William Spain, MD—Seattle**
Claude Wasterlain M—Los Angeles	**Peyman Golshani MD, PhD—Los Angeles**	**David Naylor MD, PhD—Los Angeles**
Andre Lagrange MD, PhD—Nashville	**Cha-Min Tang MD, PhD—Baltimore**	**Alan Towne, MD—Richmond**
Robert Kotloski MD, PhD—Madison	**Jack Parent MD—Michigan**	**James Chen, MD, PhD—Los Angeles**

FY20 Accomplishments

- The monthly ECoE Basic Science Research Group Conference continues to attract a national audience from both within and outside the VA system. It provides high-quality scientific presentations from accomplished investigators that are of broad interest to epilepsy clinicians and researchers.
- All workgroup members are actively engaged in basic science research projects, two of which were presented throughout this series. Other individual accomplishments are listed by site elsewhere in this annual report.
- Several members have developed research projects under the Collaborative Merit Award (CMA) "Network plasticity in acquired epileptogenesis" that was awarded this year.
- We have upgraded to video-based conference research presentations by VA and non-VA investigators and discuss recent, exciting epilepsy-related literature. Three main topics were targeted: (1) physiological properties of *ex vivo* human from patients with epilepsy, (2) the role of GABAergic interneurons in temporal lobe epilepsy, and (3) *in vivo* live imaging of seizures in animal models.
- Conducted ECoE Basic Science Workgroup teleconference calls in FY2020.
- The topic of the Journal Club discussion on 09/19/2019 was "Mitochondrial Regulation of the Hippocampal Firing Rate Set Point and Seizure Susceptibility."
- The topic of the Journal Club discussion on 10/19/2019 was "Altered Dynamics of Canonical Feedback Inhibition Predicts Increased Burst Transmission in Chronic Epilepsy."
- On 11/13/2019, Dr. Christopher Ransom MD, PhD, made a presentation titled "Regulation of Extra Synaptic GABAa Receptors inHealth and Disease."
- The topic of the Journal Club discussion on 01/08/2020 was "Acute Focal Seizures Start as Local Synchronizations of Neuronal Ensembles."
- The topic of the Journal Club discussion on 02/12/2020 was "Dendritic Action Potentials and Computation in Human Layer 2/3 Cortical Neurons."

- The topic of the Journal Club discussion on 03/11/2020 was "GABA Bouton Subpopulations in the Human Dentate Gyrus Are dDifferentially Altered in Mesial Temporal Lobe Epilepsy."
- The topic of the Journal Club discussion on 05/13/2020 was "Inhibition of Epileptiform Activity by Neuropeptide Y in Brain Tissue from Drug-Resistant Temporal Lobe Epilepsy Patients."
- On 06/10/2020, Dr. Peyman Golshani, MD PhD, made a presentation titled "Breakdown of Spatial Coding and Interneuron Synchronization in Epileptic Mice."
- The topic of the Journal Club discussion on 07/08/2020 was "Interneuron Desynchronization Precedes Seizures in a Mouse Model of Dravet Syndrome."
- On 09/09/2020, a discussion was held on the topic of "A Link Between a Blast Injury Model in Mice with Seizures and Altered Hippocampal Excitability."

Future Initiatives

- Invite and include VA development award recipients studying epilepsy to the seminar series.
- Schedule a discussion on the topic of "Post-Traumatic Epilepsy: How Traumatic Brain Injury (TBI), Stroke, and InflammationRrelate to Epileptogenesis."
- Revisit the road map—set aside one seminar to discuss the VA ECoE 10-year road map and what collaborative research awards are being developed to meet its goals.
- Recruit clinician seminar series group members who have interest in basic research to help improve bridging basic science topics to clinical research.

Clinical Research Workgroup

Chair: **Alan Towne, MD, MPH**
Admin Support: **Linda L. Benson, MPH, CCRC**

Workgroup Members		
Alan Towne, Richmond, Chair	Rizwana Rehman, Durham	Chris Ransom, Seattle
Linda L. Benson, Richmond, Admin	Karen Parko, San Francisco	Mary Jo Pugh, Salt Lake City
Curt LaFrance, Providence	Maria Lopez, Miami	Anne VanCott, Pittsburgh
Hamada Altalib, West Haven	Rachel Lopez, Miami	Pamela Kelly, Durham
Tung Tran, Durham	Martin Salinsky, Portland	

FY20 Accomplishments

- Dr. LaFrance continued CBT training at sites for PNES diagnosis.
- Dr. Altalib published the first article from the DoD-funded PNES study and continues to analyze data.
- Continued obtaining normalized volumetric NeuroQuant data from brain MRIs in patients with TBI.
- Collaborated with the CENC Epidemiology Project on a longitudinal study to examime TBI and epilepsy.
- Concluded the Brain Sentinel device trial, "Detecting PNES with Single-Channel sEMG,: at three ECoE sites (Durham, Richmond, and Houston).
- Concluded a peer-support study (UCB).

- Participated in the Interagency Collaborative to Accelerate Research on Epilepsy (ICARE) hosted by NINDS.
- Worked on development of the Neurology Cube.
- Salinsky/LaFrance (CSP#2013) completed the Co-op proposal titled "Treatment of Psychogenic Non-Epileptic Seizures in U.S. Veterans."
- Dr. LaFrance submitted the Embrace device trial in EMU for Merit review.
- Dr. McCarthy completed the PNES/PTSD fMRI study.
- The Women's Health Group completed the study on gender difference in PNES.
- IRB review is pending for the research titled "Effectiveness of Tele-EEG."
- Leeman-Markowski – Developing Double Blind Crossover cognition study w methylphenidate for Merit review

Future Initiatives

- Develop a TBI and epilepsy initiative with CURE.
- Explore research opportunities and shared resources between the Headache Center of Excellence (HCoE) and the ECoE.
- Continue with MINUTE analysis and publications.
- Document ECoE/Consortium site experiences pre- and post-COVID.
- Develop and submit an abstract from the standardized EMU database.
- Examine other collaborative arrangements with outside agencies.

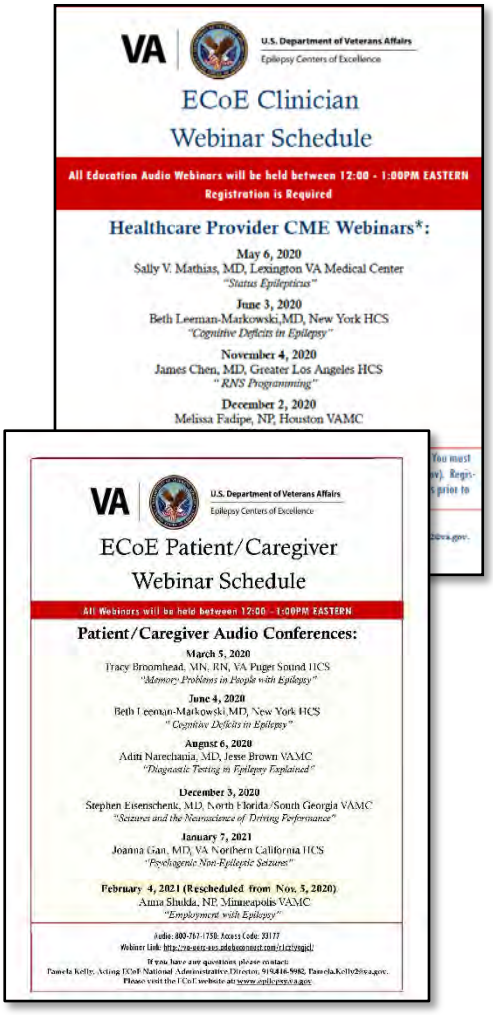
Education Workgroup

Chair: **Pamela Kelly, DHA, MBA/HCM**

Workgroup Members		
Denise Riley	Karen Parko	Leslie Perry (Grayson)
Janet Spencer	Mary Jo Pugh	Aatif Husain
Tung Tran	Guiomar Scheid	Natalya Tyan
Angela Young	Rizwana Rehman	Tracy Broomhead
Nina Garga	Sean Gamble	Zulfi Haneef
Janice Broughton	Barry Gidal	Samatha Dearn
Ann Carncross	Cornelia Meeks-Gordon	Shari Nicholas
Winona Finley	Suzanne Milligan	Elizabeth Waterhouse
Pamela Kelly	Rizwana Rehman	

FY20 Accomplishments

- Hosted webinars.
- Sponsored the attendance of 17 EEG technicians at the Virtual American Society of EEG Technicians (ASET) Conference (includes consortium sites).
- Applied for re-approval: BIS #14059 Epilepsy Centers of Excellence Webinar Series.
- Hosted **Purple Day®** among the Stars; the keynote speaker was Astronaut Ricky Arnold (through a nonprofit partnership with Anita Kaufmann).
- Held Epilepsy Day—Disney Expo 2020 through a nonprofit partnership with Anita Kaufmann.
- Hosted the Heads Up for Vets evenbt through a nonprofit partnership with Anita Kaufmann.
- Prepared Annual Report FY19.
- Completed website updates, which were scheduled for completion by 9/30/20.


VA U.S. Department of Veterans Affairs
Epilepsy Centers of Excellence

ECoE Clinician Webinar Schedule

All Education Audio Webinars will be held between 12:00 - 1:00PM EASTERN
Registration is Required

Healthcare Provider CME Webinars*:

May 6, 2020
Sally V. Mathias, MD, Lexington VA Medical Center
"Status Epilepticus"

June 3, 2020
Beth Leeman-Markowski,MD, New York HCS
"Cognitive Deficits in Epilepsy"

November 4, 2020
James Chen, MD, Greater Los Angeles HCS
"RNS Programming"

December 2, 2020
Melissa Fadipe, NP, Houston VAMC

VA U.S. Department of Veterans Affairs
Epilepsy Centers of Excellence

ECoE Patient/Caregiver Webinar Schedule

All Webinars will be held between 12:00 - 1:00PM EASTERN

Patient/Caregiver Audio Conferences:

March 5, 2020
Tracy Broomhead, MN, RN, VA Puget Sound HCS
"Memory Problems in People with Epilepsy"

June 4, 2020
Beth Leeman-Markowski,MD, New York HCS
"Cognitive Deficits in Epilepsy"

August 6, 2020
Aditi Narechania, MD, Jesse Brown VAMC
"Diagnostic Testing in Epilepsy Explained"

December 3, 2020
Stephen Eisenschenk, MD, North Florida/South Georgia VAMC
"Seizures and the Neuroscience of Driving Performance"

January 7, 2021
Joanna Gan, MD, VA Northern California HCS
"Psychogenic Non-Epileptic Seizures"

February 4, 2021 (Rescheduled from Nov. 5, 2020)
Anna Shukla, NP, Minneapolis VAMC
"Employment with Epilepsy"

Future Initiatives

- Continue webinars.
- Maintain the website.
- Host at least one awareness event.

EEG Technologist Workgroup

National Coordinator: **Aatif Husain, MD**
Chair/Admin**: Ronda Tschumper**

NW Acting AO: Ronda Tschumper	**NE AO:** *Vacant*	**SW AO:** *Vacant*	**SE AO:** Pamela Kelly
Northwest: Martin Salinsky	**Northeast:** Alan Towne	**Southwest:** Nina Garga	**Southeast:** Tung Tran
Madison: **John C. Jones** Ronda Tschumper Vonda Elmer Joan Schultz Breely Minick **Minneapolis:** **Stephen Holloway** Melanie Seal Yuliya Volkov Valerie Howard **Portland:** **Martin Salinsky** Michael Wilson Bryanna Lilies Robert Dorsett **Seattle:** **William Spain** Debra Marwitz-Perkins	**Baltimore:** **Omar Khan** Kimberly Rimel Yonathan Weldekirstos Angela Young **Boston:** **David McCarthy** Carol Riley Roberta Sausville Adele Mirabella **Richmond:** **Alan Towne** Rachel Van Aken Sharon Banks Brenda Robert-Wilson **West Haven:** **Hamada Altalib** James Vera Dominica Rodriguez	**Albuquerque:** **Sarah Pirio Richardson** Robert Spears **Houston:** **David Chen** Betty Calahan Ritu Jain Phenita Groves Harold Walker Debra Dennis Rodney Hall **San Antonio:** **Joshua Robert** Deborah Hernandez Norma Ferguson **San Francisco:** **Nina Garga** Christina Mapp Jeffrey Reznic **West Los Angeles:** **James Chen** Joaquin Barreda Gloria Laghari	**Durham:** **Tung Tran** Susan Hayes Josie Brame Lisa Sisk **Gainesville:** **Stephan Eisenschenk** Paula Crew Adam Shugan Gerald Hayes **Miami:** **Maria Lopez** Rosario Carballo Michael Perez **Tampa:** **Alfred Frontera** Cynthia Jackson Chris Holt

Names shown in bold are ECoE Directors.

Consortium Medical Instrument Technologists (MITs)

Boise: Michael Brown J.P. Osler **Captain James A. Lovell:** Valerie Krasne **Fargo:** Pamela McKinnon **Hines:** Paz Martinez **Iron Mountain:** Patty Leatherman **Jesse Brown:** Mary Ocansey Victor Cabrales **Milwaukee:** Juba Mattice **Saginaw:** David Morgan	**Buffalo:** Vicky Olson **Cleveland:** Galina Khutoryan **Huntington, WV:** Mary Miller **Pittsburgh:** Donna Leppla Bethany Hollis **Providence:** Ann Richard **Stratton:** Tarita Owens	**El Paso:** Elva Richey **Loma Linda:** Roy Batiste **Rocky Mountain:** Tesia James **San Diego:** Richie Secody	**Augusta:** Sonja McGhee **Atlanta:** James Coleman **Birmingham:** Anna Tucker Kathy Johnson **Kansas City:** Rhonda Reliford LeeAnna Pierce **Little Rock:** Corena Johnson Larae Bearden **Orlando:** Wonya Mitchell **Salisbury, NC:** Ashley Griffin **Saint Louis, MO:** Ruby McClean

FY20 Accomplishments

- The Minneapolis VA ECoE hosted its 4th Annual Epilepsy Awareness Event on November 14, 2019, which increased attendees' knowledge and access to important resources.
- Held partnership external events with the following: Epilepsy Foundation of Minnesota—UCB with the Jane Virtual Reality Experience, Canine Assistants, LivaNova, Brain Sentinel, and NeuroPace.
- Held events with VA internal partners: Equal Employment Opportunity, Education Department with SimMan, Volunteer Services, TBI Department, Annie and My HealtheVet, Defense and Veterans Brain Injury Center, Nutrition, Pharmacy, Recreational Therapy.
- Updated the EEG Technologist facility and email list.
- Conducted an ECoE EEG technologist survey on electrode cleaning and disinfecting.
- Conducted an ECoE EEG technologist survey on procedures.
- The Baltimore VA assisted in reviewing qualifications for a potential new employee (MIT EEG).
- The San Francisco VA (VISN 12 PSB) assisted in converting an employee from temporary (TERM) to full-time permanent status.
- The Pittsburgh VA (VISN 12 PSB) assisted in hiring one new employee and promoting an MIT EEG.
- Conducted a CPT Coding Webinar on 2020 LTM updated codes/encounters.
- Mitigated the recall of Mavidon—collodion, Remover, and Lemon Prep products used in EEG labs.

- The Baltimore VA (VISN 12 PSB) assisted in hiring one MIT EEG and two employees for MIT ECHO.
- Shared "best practices" for EMU duties.
- The Kansas City VA shared Madison VA "Procedures for LTM, EEG, and Ambulatory EEG."
- The Madison VA had 4 ASET Institutional Memberships and 11 add-on members ($86).
- Hosted **Purple Day®** for Epilepsy Awareness Around the World in Orlando, FL, on March 1, 2020, to increase awareness about seizures/epilepsy.
- On **Purple Day®** (March 26, 2020), the VA MIT EEG staff were encouraged to wear purple to increase awareness about seizures/epilepsy. The Boston VA and Madison VA participated.
- Added a discussion about ACNS standards for protocols to take during COVID-19: in the Pittsburgh VA SOP, Miami VA SOP, and Madison SOP.
- The Bronx VA: shared MIT (EEG) Qualification Standards and GS levels/pay scale/locality.
- Conducted a Tele-EEG between Madison and Minneapolis, with Carol Riley at the Boston VA serving as project leader.
- Encouraged and shared e-seminars (Natus) and ECoE webinars (CEUs).
- Held the 2020 ASET ECoE Virtual Meeting; ECoE funding paid for 17 EEG workgroup members to participate.
- Submitted Professional Standards Board Member: Recommendations (VISN 12, 23).
- March 17, 2020 – Notification of Dissolution of PSB for Hybrid Title 38
- Incorporated case studies into each call, and discussed "best practices" to enhance learning opportunities for EEGs/RNs.

Future Initiatives

- Maintain Standard Routine Procedures and Long-Term Monitoring; follow the ACNS Guidelines.
- Continue efforts to increase consortium and non-consortium site involvement.
- Continue efforts to provide information for ABRET Registration in EEG and LTM.
- Continue efforts to seek educational opportunities offered by ASET and ABRET.
- Continue efforts in promoting ASET Institutional Membership.
- Offer member-rate discounts on events and online course registrations—CEUs.

Mental Health Workgroup

Chair: **Hamada Altalib, MD**
Admin Support: **Linda Benson, MPH, CCRC**

Workgroup Members		
Terry Lee-Wilk	Mary Jo Pugh	Denise Y. Riley
David Chen	Maria R. Lopez	Aneeta R. Saxena
Natasha S. Depesa	Janice C. Marceaux	Janet D. Spencer
Moira C. Dux	Martin Salinsky	Tung T. Tran
Ariela Karasov	Kristen Mordecai	Ronda J. Tschumper
Pamela Kelly	Adriana Ortega	
William C. LaFrance	Karen Parko	

FY20 Accomplishments

- For the Q1 project, implemented a mental health screen in the EMUs.
- Dr. Curt LaFrance (Providence, RI) conducted PNES CBT training for mental health champions.
- Continued the Journal Club.
- Researched local and national didactic talks for Veteran education.
- Submitted a PNES and CBT research grant to DoD.
- Investigated possibilities for CBT use in the tele-mental health for all ECoE sites.
- Used tele- and video visits in place of face-to-face visits during the pandemic.
- For the Q1 project, researched medication adverse events with Perampanel, Lacosamide, and Levetiracetam.
- Used tele-mental health as an adjunct to tele-seizure clinics; implemented an MOU and TSAs for all ECoE sites.

Future Initiatives

- Assess a mental health follow-up after a patient is discharged from the EMU.
- Ensure representation from each ECoE to develop mental health champions and to monitor care.
- Re-evaluate gap analysis on mental health care.
- Continue to monitor the volume of PNES cases managed.

Nursing Workgroup

Co-Chair: **Natalya Kan Tyan, BSN, RN, CNRN**
Co-Chair: **Tracy Broomhead, MN, RN, SCRN, CNRN, CMSRN**
Administrative Support: **Pamela Kelly, DHA, MBA/HCM**

Workgroup Members		
Adriana Valadez, San Antonio	Esmeralda Sanchez, San Antonio	Elizabeth Aprile, Charleston
Amanda Everhart, Durham	Greg Head, Boston	Natalya Kan Tyan, Los Angeles
Anna Shukla, Minneapolis	Huda Terraz, San Antonio	Pamela Kelly, Durham
Ann Carncross, Madison	Katherine McMillan, San Antonio	Regina McGuire, Baltimore
Brooke L. Keenan, Madison	Kathy Browning, Richmond	Roanna Bamford, Boston
Carol Riley, Boston	Linda Benson, Richmond	Ronda J. Tschumper, Madison
Collette Evrard, Portland	Lynne Bailey-Hammel, Kansas	Sharon Bottomley, West Haven
David (Mike) Schoof, Durham	Maria Quiane, San Francisco	Sheela Sajan, Durham
Denise Riley, Gainesville	Mary Jo Pugh, San Antonio	Tracy Broomhead, Seattle
Doug South, San Francisco	Melissa Fadipe, Houston	Winona Finley, Durham
Elise Boucher, San Antonio	Natacha Jean-Noel, Richmond	Yvonne Davila, San Antonio

FY20 Accomplishments

- Developed an EMU brochure template for prospective patients who are being referred.
- Developed an accompanying EMU patient admission letter template.
- Performed a needs-assessment survey for nurses at ECoE sites and consortium sites.
- Reviewed the ECoE Nursing Website files (external), pending external specialist collaboration.
- Explored and found funding to update the *Safety in the EMU* video.
- Supported continuation of the ECoE Patient/Caregiver and ECoE Clinician Webinar series for FY 2020-21.

Future Initiatives

- Develop a script for an update and part 2 of the *Safety in the EMU* video; filming will depend on pandemic resolution.
- Review the Cerner Seizure Template and provide feedback to Cerner developers.
- Examine ECoE nurses' access to educational resources.
- Explore the expansion epilepsy nursing educational programs.
- Update the ECoE Nursing Competencies.

ECoE Technology Workgroup

Chair: **David C. McCarthy, MD**
Admin Support: **Pamela Kelly, DHA, MBA/HCM**

Workgroup Members		
David McCarthy (Bos)	James Chen (Los CA)	Tung Tran (Dur)
Carol "Cookie" Riley (Bos)	Ann VanCott (Pitt)	Paul Fishman (Bal)
Martin Salinsky (Port)	Maria Muzfeldt (Brx NY)	Victor Cabrales (JB Chi)
Stephan Eisenschenk (Gainsv)	Aditi Narechania (JB CHI)	Rachel Van Aken (Rich)
Omar Khan (Bal)	Zulfi Haneef (Hou)	Angela Young (VHA)
Kenichiro Ono (Rich)	Elizabeth Barry (retired) (Bal)	Sheela Sajan (Dur)
Alan Town (Rich)	Ronda Tschumper (Mad)	Steven Castaneda (Orl FL)
Jack Jones (Mad)	Pamela Kelly (Dur)	Michael Perez (Mia)
James Chen (WY)	Rizwana Rehman (Dur)	Deborah Marwitz-Perkins (Sea)
Nina Garga (SF CA)	Winona Finley (Dur)	

FY20 Accomplishments

- Drafted, distributed, and analyzed the FY19 technology surveys.
  - Achieved a 100 percent return from ECOEs and a limited return from Consortium sites; learned valuable information.
  - Completed the inventory of EEG resources, services, and connectivity from all ECoE sites.
  - Achieved a better understanding of the limitations and barriers that each site faces, with respect to connectivity, Telehealth, and remote EEG access:
    - Remote EEG access varies depending on the site and on recent software, hardware, and security changes.
    - Ambulatory EEG and home-based EEG is performed at multiple sites but is not tracked well in workload data.
    - There is a high proportion of inactive Tele-EEG sites due to staff vacancies and/or the inability to re-establish connectivity.

ECOE Technology Survey Summary	
EEG System	Natus (13) Nihon Khoden (3) Nicolet (1)
# EEG Technologists	1-6, mean 2.2
Epilepsy Monitoring Unit	15
ICU EEG	15
Ambulatory 24-hr. EEG	12
Persyst EEG Analysis	10
Home-based EEG (non-VA)	2
Remote EEG Access	12
HL7 EEG Reporting	1
EEG Citrix Server	5
Tele-EEG Support	3
Tele-EEG Interest	11

All numbers in column 2 pertain to the counts of ECoE supporting these services, except for the number of EEG technologists.

- For the Cerner/Natus/Caldwell integration, several members served on national councils to develop EEG and Tele-EEG order sets, establish efficient data, consult workflow models, and integrate an optional HL7 pathway.
- Reviewed and shared new devices and technologies for seizure detection, EEG recording, analysis, and COVID protection. This work included increased use of Brain Sentinel, a review of Embrace, optimization of an EEG review via Persyst, and a review of Ceribell systems for EEG testing in COVID-19-positive patients.
- Analyzed HL7 advantages and limitations; successfully implemented HL7 at VA Pittsburgh.
- Regarding remote EEG access, conducted Regional and National Meetings with VA OIT, Citrix, and Telehealth to establish alternatives to RDP-RDP remote EEG connections.

Future Initiatives

- Change workgroup organization to improve efficiency:
  - Continue to conduct separate Telehealth and Technology Meetings.
  - Assign Lead roles to members of the group with expertise in the following active categories: Cerner integration, home-based EEG, HL7, devices, remote access, and VVC/Teleclinic.
  - Improve communication channels and develop topic-based forums to improve access to tools and advice from workgroups.
- Update and redistribute surveys for FY2021.
- Finalize the remote EEG access SOP. Continue to lobby for direct EEG Citrix access; assess the performance of other RDP and terminal server strategies.
- Assess COVID-19 impact on EEG services and the role for new rapid EEG devices and other technological innovations.
- Pilot one technical innovation that improves safety or efficiency of EEG testing during the COVID pandemic.
- Continue to be active involved in the Cerner transition and EEG Vendor integrations.

ECoE Telehealth Workgroup

Chair: **David C. McCarthy, MD**
Admin Support: **Pamela Kelly, DHA, MBA/HCM**

Workgroup Members		
David McCarthy (Bos)	Ann VanCott (Pitt)	Paul Fishman (Bal)
Carol "Cookie" Riley (Bos)	Maria Muzfeldt (Brx NY)	Victor Cabrales (JB Chi)
Martin Salinsky (Port)	Aditi Narechania (JB CHI)	Rachel Van Aken (Rich)
Stephan Eisenschenk (Gainsv)	Zulfi Haneef (Hou)	Angela Young (VHA)
Omar Khan (Bal)	Elizabeth Barry (retired) (Bal)	Sheela Sajan (Dur)
Kenichiro Ono (Rich)	Ronda Tschumper (Mad)	Steven Castaneda (Orl FL)
Alan Town (Rich)	Pamela Kelly (Dur)	Michael Perez (Mia)
Jack Jones (Mad)	Rizwana Rehman (Dur)	Deborah Marwitz-Perkins (Sea)
Nina Garga (SF CA)	Winona Finley (Dur)	
James Chen (Los CA)	Tung Tran (Dur)	

FY20 Accomplishments

- Expanded Tele-EEG:
    - New Site Connections for Boston and Portland.
    - New Tele-EEG Network between Madison and -Minneapolis (project manager CRiley Boston).
    - New bidirectional Tele-EEG between Pittsburgh and Boston.
    - New Tools to help other sites: Tele-EEG SOP, Site and group MOU, TSAs, Neurology Telehealth Supplement.
    - Implemented New Regional Multidirectional Tele-EEG Network: Boston, Richmond, Baltimore, Connecticut. New group Tele-EEG TSA created and administratively cleared at all sites. Network connections established and tested at all sites except Bal (in progress).
    - Reviewed site specific advantages and costs of using VA Ambulatory 24-hr. EEG vs. home-based EEG as practical alternatives for EMU admissions. Increased homebased EEG use at some sites (Richmond). Discussed models of how both strategies could be complementary.
    - Reviewed methods to import/access dissimilar EEG data.

- Expanded telemedicine:
    - Guided broader use of VVC and CVT during COVID-19 restrictions.
    - Discussed incorporating a video neuro exam, integration of clinical education, and supervision via virtual platforms.
    - Reviewed technical barriers for VA-based VVC and approved alternatives like Doximity.

Future Initiatives

- Expand Tele-EEG further.
  - Achieve the goal of creating two new ECoE or Consortium sites supporting Tele-EEG and adding two new sites connected to existing networks. Analyze barriers to reactivating inactive sites, and establish tools and methods to assist in reactivating sites. Achieve one site reactivation.
- Develop a pilot for remote synchronous EEG support.
- Execute automated backup and shared EEG reading in new bidirectional and multidirectional networks.
- Assess the feasibility of regional Tele-EEG servers.
- Assess clinical impact of Telemedicine and Tele-EEG innovations.

Women Veterans with Epilepsy (WVE) Workgroup

Chair: **Anne C. Van Cott, MD, FAAN, FAES**
Admin Support: **Pamela Kelly, DHA, MBA/HCM, and Winona Finley**

Workgroup Members		
Elizabeth Felton	Mary Jo Pugh	Jignasa Patel
Winona Finley	Rizwana Rehman	Hamanda Altalib
Nina Garga	Divya Singhal	Sunita Dergalust
Pamela Kelly	Kathy Tortorice	Barry Gidal
Maria Lopez	Anne Van Cott (Chairperson)	Natacha Jean-Noel
Karen Parko	Denise Riley	

FY20 Accomplishments

- American Academy of Neurology 2020 Course, Women with Epilepsy (WWE): Beyond Seizure Control (canceled)
- Women's Health Webinar for the Epilepsy Association of Western and Central PA, August 2020
- Boston VA ECoE/ Brigham and Women's Hospital Trainee Lectures, October 21 and 28, 2020
- Established Mentoring relationship with Children's Hospital of Pittsburgh Trainee in conjunction with Chair of Women's Issues in Neurology Section, AAN
- Examined the Impact of Epilepsy and Sex on Neurobehavioral Symptoms in Veterans with Deployment-related Mild Traumatic Brain Injury (Department of Defense Epilepsy Research Program PI: Pugh, MJ WVE (members: Van Cott, Lopez)
- Developed a CPRS teratogenicity counseling template.
- Maintained the ECoE WVE SharePoint Site and expanded WVE library reference on the ECoE website.

Future Initiatives

- Host an American Academy of Neurology 2021 course, Women with Epilepsy (WWE): Beyond Seizure Control II.
- Conduct an ECoE webinar: Women with Epilepsy (WWE): Beyond Seizure Control II, 2021.
- Conduct an annual review of Table 3 of the ECoE AED Drug Guidance Document, and share information with Women's Health Services.
- Develop patient/caregiver educational material based on AED Pocket Card/Antiseizure Drug Guidance that addresses unique concerns associated with the treatment of women diagnosed with epilepsy.
- Submit the following for publication:
    - The Unique Impact of Epilepsy and Sex on Neurobehavioral Symptoms in Veterans with Deployment-Related Mild Traumatic Brain Injury
    - QI/QA project results (fracture risk of veterans treated for new onset epilepsy) for publication to Neurology: Clinical Practice

- Survey results of neurologist caring for young women with epilepsy

- Continue to maintain the ECoE WVE SharePoint Site and expand the WVE library reference resource on the ECoE website.

National Peer Review Committee

The National Peer Review Committee is an important part of the ECoE overall team. This committee is responsible for providing guidance and direction to the ECoE It will assist in the planning phases of the ECoE to maximize cooperation among the facilities and enhance referral patterns across the VA healthcare system. The National Advisory Committee will also assist in the collaboration between VA sites and affiliate universities. It will establish performance measures, with an emphasis on measurable outcomes for the ECoE, and will provide oversight of all clinical, educational, and research-related activities within the ECoE.

National Advisory Committee Members

Marc Dichter, MD, PhD, University of Pennsylvania, ECoE Advisory Committee Chair
John Booss, MD, American Academy of Neurology
Derek Brandt, Esq., American Academy of Neurology
Joseph Brown, MD, Chief of Epilepsy—Walter Reed National Military Medical Center
David Cifu, Senior TBI Specialist, US Dept of Veterans Affairs; PI, VA/DoD Long-term Impact of Military-Relevant Brain Injury (LIMBIC-CENC)
Ramon Diaz-Arrastia, MD, University of Pennsylvania
Sandy Finucane, Executive Vice President, Epilepsy Foundation
Phil Gattone, CEO, Epilepsy Foundation
Glenn Graham, MD PhD, VA Deputy Director of Neurology
Donald Higgins, MD, Former VA National Director of Neurology
Lauren Harte-Hargrove, PhD, Associate Research Director, Citizens United for Research in Epilepsy (CURE)
Pat Horan, Veteran
Patty Horan, Military Officers Association of America
Debra Josephs, Executive Director of The Anita Kaufmann Foundation
Rosemarie Kobau, MPH, MAPP, Centers for Disease Control and Prevention, Epilepsy Division
Laura Lubbers, PhD, Chief Scientific Officer (CURE)
Richard Mattson, MD, Yale Epilepsy Program
Steve Owens, MD, Epilepsy Foundation
Jack Pellock, MD, Virginia Commonwealth University
Karen Parko, MD, Inaugural ECoE National Director
Robert Ruff, MD, Former VA Director of Neurology (Retired)
Paul Rutecki, MD, Former VA National ECoE Director—Retired
Brien Smith, MD, Spectrum Health Medical Group, Michigan State University
William Theodore, MD, Chief of the Clinical Epilepsy Section, NINDS
Tim Tilt, ECoE Veteran Patient
Laura E. Weidner, Esq. Vice President, Government Relations & Advocacy, Epilepsy Foundation
Francis White III, Veteran Patient

National Peer Review Committee Report

Department of Neurology | Marc A. Dichter, MD, PhD, Professor of Neurology

March 25, 2020

Honorable Robert Wilkie Secretary of Veteran Affairs Veterans Health Administration
VA Central Office (10P11), Rm 664 810 810 Vermont Avenue NW
Washington, DC 20420

Re: Annual External Evaluation of the VA Epilepsy Centers of Excellence (ECoEs) National Peer Review Committee Report—Friday, December 6, 2019

Dear Secretary Wilkie,

Executive Summary: As Chairman of the ECoE Peer Review Committee, I'm submitting this year's progress report and evaluation of the activities, accomplishments, challenges, and future goals of the VA Epilepsy Centers of Excellence (ECoEs). The Committee met at the December 2019 Annual Meeting of the American Epilepsy Society to review each of these issues. As you know, the Committee is composed of non-VA personnel – experts in epilepsy and representatives of individuals with epilepsy, both in the VA and in civilian life. Currently, ~1.3% of all VA patients have a diagnosis of epilepsy and approximately ~1% of Veterans returning from OEF/OIF/OND have epilepsy. That number is likely to increase over the next few years as some active duty personnel with significant traumatic brain injuries are likely still being cared for by the DOD, and, in addition, because, in my personal professional opinion, a fraction of Veterans with PTSD after TBI are likely have undiagnosed partial seizures. Of note, the mortality of OEF/OIF/OND veterans with epilepsy is nearly 5 times greater than the mortality of those veterans without epilepsy (MMWR 2016 Nov 11;65(44):1224-1227).

Over the duration of the ECoEs' 10-year existence, the Peer Review Committee has been very impressed with the progress made in multiple areas. These specifically include (1) the improvements to access to specialized care for Veterans with epilepsy, especially with regard for the relatively seamless transfer of Veterans from their home facilities to the centralized areas of excellence, (2) the clinical and educational programs developed for Veterans, their families, physicians, and physician extenders, (3) the connection with mental health programs required by these Veterans, especially with regard to the overlap of PTSD and occult epilepsy, (4) the increased emphasis on mental health problems and treatments for veterans with epilepsy and non-epileptic seizures, (5) the innovative use of telemedicine to enhance the opportunities for veterans living distances from their closest ECoE to obtain optimal consultation and treatment, and (6) the likely significant cost savings to the VHA by the new centralized facilities.

These accomplishments were fostered by a close collaboration among the centers on national scale, the skills and caring exhibited by all the personnel within the multiple ECoEs, the leadership provided by Drs. Karen Parko, Dr. Paul Rutecki, and, currently, Aatif Husain, as well as all of the individual ECoE Directors, and the senior staff with whom our Committee has interacted, and who developed and implemented

many of the educational and outreach programs established by the ECoEs.

At last year's meeting, Dr. Aatif Husain, MD replaced Dr. Rutecki as National Coordinator of the ECoEs. Our committee has been working with Dr. Husain since the beginning of the ECoE program and he has impressed us continuously with his dedication to the program and the VA patients and his innovative initiatives for the epilepsy community. His efforts in writing a widely distributed and very popular handbook for epilepsy care were very successful. His work on creating a new computerized medical record section specifically for VA patients with epilepsy will hopefully be implemented nationwide in the near future.

I also wanted to call your attention to the fact that two of the VA pioneers in the formation of the ECoE program, Drs. Karen Parko and Robert Ruff, were recently awarded the very prestigious Epilepsy Service Award by the American Epilepsy Society for their leadership in developing this outstanding national program and for overseeing its initial activities. The AES Service Award is the highest award bestowed by our society for service to individuals with epilepsy. Drs. Rutecki and Aatif are clearly following in the same leadership pathways of these individuals.

Despite all these very impressive accomplishments, however, our committee identified some major problems facing the ECoEs that represent **potentially existential challenges** to the activities of these centers in continuing to provide outstanding services our Veterans with epilepsy, PTSD and TBI, and for the planned enhancement of these medical and educational services. These challenges fall into two categories:

(1) The continued limited funding of the ECoEs, which has been functionally decreasing from the original $6 million per year allocated by Congress for the entire program 10 years ago. This amount of funding has not been sufficient to fill vacant positions, resulting in significant gaps, specifically replacing critical personnel who have left the program (e.g., a National Administrator who was responsible for implementing many of the remarkable educational programs focused on teaching veterans, their families and other care providers, physicians and physician extenders about diagnosing and treating epilepsy). It was remarkable to our Committee that the ECoEs could continue to accomplish as much as they had with the dwindling support.

(2) The second major challenge also involves funding. It is our understanding that a committee was tasked in 2019 to review the specialty funding distribution process. It seemed that the separate specialty funding for programs, like the ECoE, may be in jeopardy. It seemed clear that this would almost certainly lead to further reductions of support and perhaps even the elimination of the services able to be supplied to our Veterans with epilepsy and related disorders. (At the current time, it appears that this issue is dormant, but it was not clear to the committee that it is not planned for the near future.)

Our committee members do not have extensive knowledge of all the VAH's programs and activities. However, we do have extensive experience delivering medical care to individuals with epilepsy and other neurological disorders in all parts of our country. It has been clear, from the onset, that the services provided by the ECoEs to our Veterans with epilepsy is equivalent in many ways, and even superior in others, to what is available in epilepsy centers at most universities. This is especially true with regard to telemedicine outreach to patients and the educational activities provided to Veterans, families, other care providers, etc. As such, this program should stand as an example of the kind of excellent care that Veterans can receive within the VAH and should not be hampered by continued budget cuts and reductions in staff, as well as other bureaucratic roadblocks!

Detailed Report: In the sections below, I will briefly outline this year's accomplishments of the ECoEs and their goals for the upcoming year.

The National VHA consortium established by the ECoEs now includes approximately, 110 VHA healthcare providers in 78 VA facilities all over the country. The program is divided into four regions, roughly based on geography and number of Veterans served. Each region is considered as a Center and has several sites, at least one of which is at the same location as a polytrauma center. Each of the Regional Centers is staffed by epilepsy specialists and trained staff and includes inpatient monitoring programs and surgical expertise.

The initial activities of the ECoEs focused on enhancing high quality care for Veterans with epilepsy, especially the approximately one third of the service members returning from OEF/OIF/OND who experienced TBI, a major risk factor for developing epilepsy. This was very effectively accomplished in the context of setting up the national program of distributed centers of excellence and facilitating transfers of affected Veterans from their home facilities to the ECoEs. Early data from the first few years of their existence indicated that the ECoEs saved the VAH approximately six million dollars per year in the costs of caring for these Veterans with epilepsy compared to the costs of reimbursing private academic facilities that provided comparable care. In last few years, analyses highlighted the data on the psychological problems commonly associated with individuals with epilepsy, as well as with traumatic brain injury, and the strong relationship between PTSD, epilepsy, and psychogenic non-epileptic seizures (PNES). This has been an increasingly recognized issue in the civilian population as well as in our Veterans. Continuing research at the Portland VA, one of the ECoE centers, demonstrated that a significant portion of Veterans who had events that were thought to be epileptic seizures and were sent to the epilepsy monitoring unit, were determined to have psychogenic non-epileptic seizures. These can be as disabling as true epileptic seizures and are particularly resistant to pharmacological therapies.

In response to this increasingly recognized problem, as well as the issues of the significant frequency and potentially devastating impact of PTSD in the veteran population, several new initiatives were developed to provide enhanced psychological support and a program of cognitive behavioral therapy (CBT) was instituted. CBT is currently recognized as a major therapeutic modality for PNES and epilepsy. ECoE Specialty funding are used to support training by Dr. Curt LaFrance (Providence, RI). All four regional centers now provide CBT for PNES, an issue that was emphasized as a critical addition to the therapeutic armamentarium for Veterans with epilepsy.

A white paper that assesses existing mental health epilepsy services and describes existing models of care across ECoE sites was completed and gaps in care were identified and recommendations for a potential health service intervention were made and implemented. Currently, a "mental health" champion has been identified at each ECoE site to help implement this added level of care. In addition, studies were initiated to evaluate interactions of anti-seizure drugs with psychogenic drugs, to minimize potential deleterious interactions. In addition, ECoE members obtained a VA grant to examine the epidemiology of epilepsy and traumatic brain injury in the veteran population.

A second area of continuing growth within the ECoEs relates to providing specialty care to Veterans with epilepsy who are unable to attend clinics either at the ECoEs or, at local VHA facilities. The ECoEs have continued to utilize a variety of telehealth initiatives to serve these Veterans, which is a win-win situation, as the Veterans are able to receive excellent consultative interactions with highly skilled specialists either at participating facilities near where they live, or even, at times, at home. This has been expanded over the current year. Currently, the ECoEs can perform chart reviews with local physicians, perform remote patient consults, analyze remote EEGs, and have direct patient contacts, all without the Veterans having to travel to a distant site. Leveraging technology in this fashion improves access and also has a potential cost saving measure for the VHA system. This is the kind of system that the "private sector" has been very slow to develop, at least in part because of reimbursement issues for these services. Overall, the VA ECoEs appear to be at the forefront of using telehealth and related technologies for delivering cost efficient and patient satisfying health care to

Veterans with epilepsy living significant distances from specialized VA facilities. This is one of the programs with the ECoEs that our committee thought could be instructional to traditional private health systems nationwide.

Another continuing activity among the ECoEs in optimizing Epilepsy Monitoring Unit (EMU) services and enhancing interactions with the VHA health care network is an ongoing process and will be continued this fiscal year. This component of the program grew rapidly over the first several years and has reached somewhat of a steady state more recently. This is likely due to funding freezes which has limited replacing vital personnel and in some cases equipment, and also a leveling out of the Veterans being referred to the ECoE monitoring centers. Issues included the number of beds and staffing for epilepsy monitoring units. None the less, access improvements continue to be goals to address in the current fiscal year. Of note, many of the inpatient episodes of video-EEG monitoring performed at ECoE sites are being substituted for referrals to outside institutions. In the past, it was estimated that this could translate to a saving of possibly as much as 6 million dollars (or more) which is approximately the size of the total ECoE annual budget.

Physicians within the ECoEs have developed a specialized patient intake system within the ECoE electronic medical record that will facilitate patient encounters, insure that all relevant data is obtained, even by non-specialists, and also enable the capture of all the data for subsequent clinical research including outcomes research. This was tested in Phase I by the ECoEs and reworked in Phase II. However, this program is now on hold, as there seems to be a change in the VAH electronic health data system. Hopefully, it will be integrated with the new system and approved for full distribution to the "spokes" in the "hub and spoke" system for widespread use. It is hoped that this will be distributed throughout all VHA facilities within one or two years. Nothing this comprehensive exists within the civilian epilepsy community.

Research is another core mission of the ECoE. In 2019, VA research supported by grants from the Department of Defense and other agencies for the study of traumatic brain injury and epilepsy, psychogenic nonepileptic seizures (PNES), and basic science aspects of epilepsy were continued. Clinician scientists met this year to discuss collaborative ways to enhance the basic science research within the ECoE. ECoE investigators published many scientific papers, book chapters, and monographs on the evaluation and treatment of epilepsy. One of the most exciting research accomplishments of this year has been the progress on the PNES VA Collaborative study. This study has received encouraging reviews, and work is under way to evaluate sites where such research could be conducted.

A third core mission is education – both for professionals and veterans and their families and other support. ECoE Directors, staff, and collaborators have all been involved in the education mission. ECoE physicians, advanced practice providers, nurses, technologists, and others have all been involved in educating the next generation of providers, patients, and families. This year has seen another series of educational webinars for providers and patients. A YouTube video about women Veterans with epilepsy was produced and has been extremely popular. This popular outreach program will be continued in the upcoming year, although HR approval processes for recruiting have delayed efforts for replacement of talented support staff who worked on these projects continues to be a challenge for all the ECoEs.

Recognizing that a lot of epilepsy care happens beyond the walls of the ECoE, collaborating with ECoE consortium sites has been a key priority. Quarterly calls with leaders from these sites have helped coordinate epilepsy care throughout the VA. At the American Epilepsy Society annual meeting in December, the ECoEs will host a consortium meeting to discuss topics of mutual interest. Additionally, the ECoEs will continue to collaborate with nonprofit and industry partners to help raise awareness about epilepsy and seizure disorders within the community.

Administratively, the ECoEs is operating with a skeleton crew, which is delaying and limiting some program activities. The next year will hopefully bring more opportunities to improve and fill existing vacancies so that the ECoEs can function even more efficiently. A reorganization of the administrative structure has been proposed, and hopefully HR recruiting efforts will be realized in the upcoming year. In addition, regional advisory committees are being reconstituted according to guidelines from VACO and will provide additional oversight. The ECoEs are excited about the start of a formal review process for all Centers of Excellence, and leadership looks forward to showcasing the work of the ECoE to the reviewers.

The ECoEs have a series of exciting goals for the upcoming year, as outlined in their annual report (pages 7 and 8). While ambitious, they are achievable, when staffing concerns are addressed The extraordinary staff of the ECoEs are up to the challenge of continuous improvement in the quality of care, research, and education related to epilepsy and seizure disorders.

Many of the other key concerns were carried over from the prior years. These included the re-organization of VA Central Office. The need to re-evaluate organizational charts to meet program needs was discussed. There was concern about meeting the budget because of grade and pay increases but no budget increases. Currently, the on-board salaries amount to ~$5.9M of the total $6.1M FY allotment. There are currently more than 10 unfillable FTEs just to recruit replacement personnel, including the National Administrator, a role influential in implementing the coordination of all the ECoEs, the overall administration of the funds, and all of the educational programs. There is no funding available for equipment and supplies in the EMUs as well as the necessary staffing.

Summary: Overall the Peer Review Committee members, who widely represent the neurology and epilepsy professional groups in the United States, were very impressed by the continuing progress made by the ECoEs with regard to improving the medical care provided to Veterans with epilepsy. Specifically, the Committee was enthusiastic about the VHA's ability to provide telehealth services, something that is difficult to do in the private sector and the ability to carry out important clinical research in the absence of funding from the ECoE program. Also, the Committee commended the ECoEs attention to mental health and treatment for PNES. Finally, the continued efforts to educate Veterans, their families and care providers, and the medical profession were highly praised. The committee was very concerned about the limited funding for the ECoEs and that changing the funds flow by folding the special funds are tabled permanently. Even at their minimal level, into the general budget items, the funding is crucial to sustaining the program. The absence of appropriate level of funding could lead to a severe reduction in epilepsy and seizure specific services to our Veterans and possibly the dissolution of the entire national program.

I hope this year's annual review is helpful to you. Please do not hesitate to contact me if you have any questions about this program.

It is a continuing honor for me to have served in this capacity and hopefully, helped improve the medical care for our Veterans with this very difficult neurological illness which is often a direct result of the TBI experienced in combat.

Respectively submitted by email:
Marc A. Dichter, MD, PhD
Chairman, VA Epilepsy Centers of Excellence Peer Review
Committee Professor of Neurology
Former Director of the Penn Mahoney Institute of Neuroscience
Former Director, Penn Epilepsy Center at the University of Pennsylvania Perelman School of Medicine

Peer Review Committee Members Present: Marc Dichter, MD, PhD. University of Pennsylvania, (Chair) Brien Smith, MD, Spectrum Health Medical Group, Michigan State University, Derek Brandt, Esq. American Academy of Neurology, Tim Tilt, ECoE Veteran Patient Karen Parko, MD, Former ECoE National Director, Joseph Brown, MD, Walter Reed, William Theodore, MD, Chief of the Clinical Epilepsy Section, NINDS, Laura Lubbers. CURE, Steve Owens, Epilepsy Foundation. Debbie Joseph, Executive Director of Anita Kaufmann Foundation, Ben Kapler, Anita Kaufmann Foundation, Horan, Patrick Veteran and Debbie Horan, Veteran caregiver, Frances White, Attorney and Veteran and Veterans Advocate

VA Staff Present: Aatif Husain, MD, National ECoE Coordinator (Chairperson), Donald Higgins MD, Director, Neurology Program, Glen Graham MD, PhD, Deputy Director, Neurology Program, Pamela Kelly, DHA, MBA/HCM, Acting ECoE National Administrative Director, Nina Garga, MD, Regional Director, SW ECoE, Martin Salinsky, MD, Regional Director, NW, ECoE, Alan M Towne, MD, Regional Director, NE ECoE, Maria Lopez, MD, Regional Director, SE ECoE, Rizwana Rehman, PhD, SE ECoE Statistician, Finley, Winona, Administrative Support, SE ECoE (via phone)

CC:

Pamela Powers, Deputy Secretary
Dr. Richard Stone, Executive in Charge, Veterans Health Administration
Donald Higgins MD, VA National Program Director of Neurology
Glenn Graham, MD, PhD Deputy National Director of Neurology
Honorable Jerry Moran, Chairman Senate Committee on Veterans Affairs
Honorable Jon Tester, Ranking Member, Senate Committee on Veterans Affairs
Honorable Mark Takano, Chairman House Committee on Veterans Affairs
Honorable Dr. Phil Roe**,** Ranking Member**,** House Committee on Veterans Affairs
Honorable Ed Perlmutter
Honorable Patty Murray

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The Epilepsy Centers of Excellence were mandated by Public Law S. 2162. Here is the law in its entirety.

Public Law S. 2162

One Hundred Tenth Congress of the United States of America AT THE SECOND SESSION

Begun and held at the City of Washington on Thursday, the third day of January, two thousand and eight

An Act

To improve the treatment and services provided by the Department of Veterans Affairs to Veterans with post-traumatic stress disorder and substance use disorders, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE IV—HEALTH CARE MATTERS

Sec. 404. Epilepsy Centers of Excellence.

In General—Subchapter II of chapter73 is amended by adding at the end following new section: '§ 7330A. Epilepsy Centers of Excellence

(a) ESTABLISHMENT OF CENTERS—

(1) Not later than 120 days after the date of the enactment of the Veterans' Mental Health and Other Care Improvements Act of 2008, the Secretary shall designate at least four but not more than six Department health care facilities as locations for epilepsy centers of excellence for the Department.

(2) Of the facilities designated under paragraph (1), not less than two shall be centers designated under section 7327 of this title.

(3) Of the facilities designated under paragraph (1), not less than two shall be facilities that are not centers designated under section 7327 of this title.

(4) Subject to the availability of appropriations for such purpose, the Secretary shall establish and operate an epilepsy center of excellence at each location designated under paragraph (1).

(b) DESIGNATION OF FACILITIES—

(1) In designating locations for epilepsy centers of excellence under subsection (a), the Secretary shall solicit proposals from Department health care facilities seeking designation as a location for an epilepsy center of excellence.

(2) The Secretary may not designate a facility as a location for an epilepsy center of excellence under subsection (a) unless the peer review panel established under subsection (c) has determined under that subsection that the proposal submitted by such facility seeking designation as a location for an epilepsy center of excellence is

among those proposals that meet the highest competitive standards of scientific and clinical merit.

(3) In choosing from among the facilities meeting the requirements of paragraph (2), the Secretary shall also consider appropriate geographic distribution when designating the epilepsy centers of excellence under subsection (a).

(c) PEER REVIEW PANEL—

(1) The Under Secretary for Health shall establish a peer review panel to assess the scientific and clinical merit of proposals that are submitted to the Secretary S. 2162—18 for the designation of epilepsy centers of excellence under this section.

(A) The membership of the peer review panel shall consist of experts on epilepsy, including post-traumatic epilepsy.

(B) Members of the peer review panel shall serve for a period of no longer than two years, except as specified in subparagraph(C).

(C) Of the members first appointed to the panel, one half shall be appointed for a period of three years and one half shall be appointed for a period of two years, as designated by the Under Secretary at the time of appointment.

(3) The peer review panel shall review each proposal submitted to the panel by the Under Secretary for Health and shall submit its views on the relative scientific and clinical merit of each such proposal to the Under Secretary.

(4) The peer review panel shall, in conjunction with the national coordinator designated under subsection (e), conduct regular evaluations of each epilepsy center of excellence established and operated under subsection (a) to ensure compliance with the requirements of this section.

(5) The peer review panel shall not be subject to the Federal Advisory Committee Act.

(d) EPILEPSY CENTER OF EXCELLENCE DEFINED—

In this section, the term "epilepsy center of excellence" means a health care facility that has (or in the foreseeable future can develop) the necessary capacity to function as a center of excellence in research, education, and clinical care activities in the diagnosis and treatment of epilepsy and has (or may reasonably be anticipated to develop) each of the following:

(1) An affiliation with an accredited medical school that provides education and training in neurology, including an arrangement with such school under which medical residents receive education and training in the diagnosis and treatment of epilepsy (including neurosurgery).

(2) The ability to attract the participation of scientists who are capable of ingenuity and creativity in health care research efforts.

(3) An advisory committee composed of Veterans an appropriate health care and research representatives of the facility and of the affiliated school or schools to advise the directors of such facility and such center on policy matters pertaining to the activities of the center during the period of the operation of such center.

(4) The capability to conduct effectively evaluations of the activities of such center.

(5) The capability to assist in the expansion of the Department's use of information systems and databases to improve the quality and delivery of care for Veterans enrolled within the Department's health care system.

(6) The capability to assist in the expansion of the Department telehealth program to develop, transmit, monitor, and review neurological diagnostic tests.

(7) The ability to perform epilepsy research, education, and clinical care activities in collaboration with Department medical facilities that have centers for research, education, and clinical care activities on complex multi-trauma associated S. 2162—19 with combat injuries established under section 7327 of this title.

(e) NATIONAL COORDINATOR FOR EPILEPSY PROGRAMS—

(1) To assist the Secretary and the Under Secretary for Health in carrying out this section, the Secretary shall designate an individual in the Veterans Health Administration to act as a national coordinator for epilepsy programs of the Veterans Health Administration.

(2) The duties of the national coordinator for epilepsy programs shall include the following:

(A) To supervise the operation of the centers established pursuant to this section.

(B) To coordinate and support the national consortium of providers with interest in treating epilepsy at Department health care facilities lacking such centers in order to ensure better access to state-of-the-art diagnosis, research, clinical care, and education for traumatic brain injury and epilepsy throughout the health care system of the Department.

(C) To conduct, in conjunction with the peer review panel established under subsection (c), regular evaluations of the epilepsy centers of excellence to ensure compliance with the requirements of this section.

(D) To coordinate (as part of an integrated national system) education, clinical care, and research activities within all facilities with an epilepsy center of excellence.

(E) To develop jointly a national consortium of providers with interest in treating epilepsy at Department health care facilities lacking an epilepsy center of excellence in order to ensure better access to state-of- the-art diagnosis, research, clinical care, and education for traumatic brain injury and epilepsy throughout the health care system of the Department. Such consortium should include a designated epilepsy referral clinic in each Veterans Integrated Service Network.

(3) In carrying out duties under this subsection, the national coordinator for epilepsy programs shall report to the official of the Veterans Health Administration responsible for neurology.

(f) AUTHORIZATION OF APPROPRIATIONS—

(1) There are authorized to be appropriated $6,000,000 for each of fiscal years 2009 through 2013 for the support of the clinical care, research, and education activities of the epilepsy centers of excellence established and operated pursuant to subsection (a) (2).

(2) There are authorized to be appropriated for each fiscal year after fiscal year 2013 such sums as may be necessary for the support of the clinical care, research, and education activities of the epilepsy centers of excellence established and operated pursuant to subsection (a) (2).

(3) The Secretary shall ensure that funds for such centers are designated for the first three years of operation as a special purpose program for which funds are not allocated through the Veterans Equitable Resource Allocation system.

(4) In addition to amounts authorized to be appropriated under paragraphs (1) and (2) for a fiscal year, the Under Secretary for Health shall allocate to such centers from other funds appropriated generally for the Department medical services account and medical and prosthetics research account, as appropriate, such amounts as the Under Secretary for Health determines appropriate.

(5) In addition to amounts authorized to be appropriated under paragraphs (1) and (2) for a fiscal year, there are authorized to S. 2162—20 be appropriated such sums as may be necessary to fund the national coordinator established by subsection (e).''.

(b) CLERICAL AMENDMENT—The table of sections at the beginning of chapter 73 is amended by inserting after the item relating to section 7330 the following new item: ''7330A. Epilepsy centers of excellence.''

Acronyms

AAN	American Academy of Neurology
ABPN	American Board of Psychiatry and Neurology
ACGME	Accreditation Council for Graduate Medical Education
AED	Antiepileptic Drugs
AES	American Epilepsy Society
ASET	American Society of EEG Technicians
CAC	Clinical Application Coordinator
CBOC	Community-Based Outpatient Clinic
CBT	Cognitive Behavioral Therapy
CDC	Centers for Disease Control and Prevention
CICU	Coronary Intensive Care Unit
CoE	Center of Excellence
COVID-19	Coronavirus Disease 2019
CPRS	Computerized Patient Record System
CPT	Current Procedural Terminology
CURE	Citizens United for Research in Epilepsy
CVT	Clinical Video Telehealth
DoD	Department of Defense
DSS	Decision Support System
DVBIC	Defense and Veterans Brain Injury Center
ECMS	Executive Committee, Medical Staff
ECoE	Epilepsy Centers of Excellence
EEG	Electroencephalography
EES	Employee Education System
EF	Epilepsy Foundation
EFGLA	Epilepsy Foundation of Greater Los Angeles
EMG	Electromyography
EMU	Epilepsy Monitoring Unit
F DA	Food and Drug Administration
FTE	Full-Time Equivalent
FTEE	Full-Time Employee Equivalent
FY	Fiscal Year
GABA	Gamma-Aminobutyric Acid
GLA	Greater Los Angeles
GRECC	Geriatric Research, Education and Clinical Center
HCOE	Headache Centers of Excellence
HCS	Health Care System
HIMS	Health Information Management System
HSR&D	Health Services Research and Development
IC	Informatics Council
ICD	International Classification of Diseases
ICU	Intensive Care Unit
IFC	Inter-Facility Consult
IOM	Integrated Operating Model
IRM	Information Resources Management
IT	Information Technology
LTM	Long Term Monitoring

MIT	Means Indicator Test
MRI	Magnetic Resonance Imaging
MSECoE	Multiple Sclerosis Centers of Excellence
NIH	National Institutes of Health
NINDS	National Institute of Neurological Disorders and Stroke
NTRT	New Term Rapid Turnaround
OAA	Office of Academic Affiliation
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OND	Operation New Dawn
PADRECC	Parkinson's Disease Research, Education and Clinical Center
PET	Positron Emission Tomography
PGY	Post-Graduate Year
PIP	Improvement in Medical Practice
PL	Public Law
PNES	Psychogenic Nonepileptic Seizures
PTSD	Post-Traumatic Stress Disorder
QI	Quality improvement
TBI	Traumatic Brain Injury
VA	Veterans Administration
VACO	Veterans Affairs Central Office
VANF	VA National Formulary
VERA	Veterans Equitable Resource Allocation
VHA	Veterans Health Administration
VVC	VA Video Connect

In Memory of David Kuan-Hua Chen, MD, FAES

1975-2020

On Friday, March 20,2020, we were saddened to learn that our colleague and friend, Dr. David Kuan-Hua Chen, had passed away. It was shared that he once said, "I will work until the last day I die." Dave had lived a full life. He was a dedicated neurologist with a focus on the care of those with epilepsy; he was also a talented medical educator and a leader. He was a kind, gentle, and generous friend and colleague, and he was a devoted husband and father to twin daughters. He served as Associate Professor, Department of Neurology, Baylor College of Medicine (BCM) and Staff Neurologist and Director, Houston Epilepsy Center of Excellence, Michael E. DeBakey VA Medical Center (MEDVAMC). He was a nationally recognized expert and thought leader in neuropsychiatric aspects of epilepsy and non-epileptic seizures, and he introduced novel therapies to patients at the VA in Houston with this disorder.

The Epilepsy Centers of Excellence are specifically appreciative of his work at the Houston ECoE, from the initial charter of the program in 2008 through 2020. David was one of the few epileptologists certified as a provider of Cognitive Behavioral Therapy to care for those with psychogenic nonepileptic seizures. Throughout his career, in addition to providing care for veterans at MEDVAMC, David cared for those with epilepsy in the Baylor Medicine practice and as an attending epileptologist and clinical neurophysiologist at Baylor St. Luke's Medical Center. He was a diplomate of the American Board of Psychiatry and Neurology, in Neurology, and in the subspecialties of Clinical Neurophysiology and Epilepsy.

To see the full tribute, go to **https://www.bradshawcarter.com/tributes/David-ChenMD**.


VA
U.S. Department
of Veterans Affairs
Veterans Health
Administration