Movement Disorders/Neurodegeneration division

Leo Almeida - DBS
Melissa Armstrong – DLB/PDD, patient engagement, quality/guidelines
Wissam Deeb – Dystonia, Tourettes
Chris Hess – neurophysiology tremor, myoclonus, dystonia
Michael Jaffee – concussion, rehab
Irene Malaty – PD outcomes, trials; Tics/Tourettes
Demetri Maraganore – Brain Health
Karen McFarland – transcriptomics, bioinformatics, ataxias, AD
Nick McFarland – neurodegeneration, biomarkers, PD/atypical parkinsonism, Huntington disease
Michael Okun – DBS
Addie Patterson – education, PD and Huntington disease
Diego Rincon-Limas – Drosophila models of neurodegeneration
Adolfo Ramirez-Zamora – DBS, trials, collaborative projects
Aparna Shukla – Dystonia, tremor, rTMS
Yuquig Li – Dystonia, RLS models
Neil Weisbrod – palliative care in AD
McFarland lab

**Parkinson/neurodegenerative disease models**
- Rab GTPase proteins – mediate toxic protein buildup, “seeding”
- Synuclein/tau models in cells, brain slice culture
- Preclinical models with AAV

**PSP/Atypical Parkinsonism Clinical-Research Initiative**
- MRI biomarkers (Dr. Vaillancourt – U01)
- Gait/balance analysis – contribution of vascular disease in PD
- Mood disorders: apathy, brain circuitry
- Clinical trials (AbbVie, Biogen)

**PD/APD Biomarkers**
- PD cognitive subtypes, dementia (Dr. Price)
- Neuroimmune markers, LRRK2/GBA in PD (Dr. Malu Tansey - Emory)
- UTI/infection, Gut microbiome in PD

**Huntington disease**
- Motor phenotype and neuropsychiatric symptoms (Enroll-HD)
- RAN proteins in HD (Dr. Ranum)
- Clinical trials (SIGNAL-HD)
Christopher Hess, M.D. (CMDNR)

**Current Projects**

High Density EEG to study the cortical oscillations associated with head turning in cervical dystonia and healthy controls

NPF Apprise Clinical Trial (wearable sensors in PD)

Tremor and myoclonus physiologic analyses

**Possible Resident Projects**

Movement disorders case reports

CMDNR INFORM database retrospective studies
Wissam Deeb

Tic detector
- Collaboration with Dr. Gunduz (biomed engineering)
- Surface EMG sensors (Delsys Trigno)
- Algorithm to detect tics
- Algorithm to characterize tics by frequency, severity, and location

VR-augmented CBIT
- Collaboration with Dr. Santoso (digital worlds institute)
- Different VR settings to assess antecedent and consequent factors
Michael Okun, M.D.

Closed Loop DBS

Novel Stim Patterns

Mobile Computing Platforms

Diagrammatic representation of a possible closed-loop comprised of sensors (e.g., ECoG, neurochemical local field potential sensing through the implanted that influence the stimulator (actuator) signal. The sensed modified, and with use of an implementation algorithm, can influence output to induce therapeutic effects.
**Current Projects**

Clinical trials
- Neuroprotection in PD, PD-Dementia, DBS registry, Alzheimer disease DBS, etc
- Ketones esters in PD
- Cerebellar DBS in Mouse models of Ataxia
- Effects of Gpi DBS on non motor symptoms, gait and cognition
- PSA vs VIM DBS in head and limb tremor (local and international collaborators)

**Possible Resident Projects**

Parkinson outcomes projects (PF) database studies (Excellent opportunity)
CMDNR INFORM database retrospective studies
Irene Malaty, M.D. (CMDNR)

Current projects-
Parkinson Outcomes Project- International Longitudinal Registry
Nuvelution- Deutetrabenazine for Tourette Syndrome
Revance- Daxibotulinum toxin A for Cervical Dystonia
Tourette Impact Survey Outcomes
Upcoming project- Higher dose botulinum toxin in clinical practice

Possible resident projects-
Case reports
Parkinson outcomes projects (PF) database studies
CMDNR INFORM database retrospective studies
Persistence of comorbidities in adults with Tourette
Leo Almeida, M.D. (CMDNR)

Current projects
- DTI/tractography in DBS outcomes for movement disorders
- Augmented and Virtual reality for Freezing of Gait in Parkinson’s disease
- Novel stimulation patterns in DBS for movement disorders
- Use of exoskeleton as adjunctive therapy for movement disorders

Potential resident projects
- Retrospective database review
- Side projects from the main projects above
- Case reports and series
Dystonia

Physiology of essential tremor in comparison to PD tremor (potential Resident project)

Imaging networks for dystonic tremor

Physiological characterization

Effects of VIM DBS on dystonic tremor

Tremor

Physiology of essential tremor in comparison to PD tremor (potential Resident project)

Physiology and gait in orthostatic tremor

DBS for PD tremor: Resident

Exercise and dystonia

rTMS and dystonia

DBS and dystonia

Physiology of Blepharospasm, Cervical dystonia lingual dystonia (Resident)

Aparna Wagle Shukla, M. D.
1) FLACA is well known to our residents, but still needs to be standardized.

2) Limb-kinetic Apraxia in Parkinson’s disease (PD):
   a) Treatments - Limb-kinetic apraxia is a common disabling sign of PD, but does not respond to dopaminergic therapy. The goal of this project is to learn if A) exercise (coin rotation) can reduce this disability. B) Surgeons use magnifying glasses, which enhances feedback, to increase their skill. Thus, it is possible that magnification will improve limb-kinetic apraxia and can be used as a treatment for the limb-kinetic apraxia in PD. C) Can transcranial direct current stimulation (tDCS) can help treat this disorder?
   b) Laterality Right handed patients with a left hemisphere stroke often have bilateral limb-kinetic apraxia. Do people with right sided versus left onset of PD have more severe bilateral limb-kinetic apraxia.

3) Aphasia-Stroke: There has been little research about the effects of sensory input on comprehension. For example, will eye closure improve comprehension?

4) Spatial Neglect-Stroke: Influence of distractibility on allocation of spatial attention. For example, will place of line on page or looking a line for 20 sec. before bisection alter bias?
Melissa J. Armstrong, MD, MSc

Background in quantitative & qualitative research

Affiliate appointment in Health Outcomes & Biomedical Informatics

Research foci:

◦ Lewy body dementia (particularly lived experiences, e.g. path to diagnosis, end-of-life experiences, hospitalization)
◦ Values affecting medical decisions (especially in older adults)
◦ Shared decision making
◦ Patient engagement (in clinical care, research, guidelines)
◦ Guideline development methodology
LEWY BODY (LBD, PD) RESEARCH

Qualitative interviews of patients with DLB and caregivers about clinic, research priorities (interviews in process)

Mixed methods study regarding end-of-life experiences for families of patients who died from DLB (manuscripts in process)

Improving end-of-life experiences in dementia with Lewy bodies (R01 under review)

Patterns of care for DLB in Florida (mentor for Patel AAN CTRS)

Improving end-of-life experiences in dementia with Lewy bodies (R01 under review)

Differences in presenting features of DLB in individuals with different racial/ethnic backgrounds (mentor to A.M.)

Off period experiences & communication (MJFF-funded, manuscripts in process)

Frequency of DLB diagnoses s/p surgery & response to AChEI use (protocols in development)

PATIENT ENGAGEMENT, QUALITY CARE

Studying impact of patient, caregiver, advocate involvement on AAN guidelines (AHRQ K08, finishing analysis)

Collaborator on studies also investigating patient engagement in guidelines, studies investigating guideline dissemination

Understanding values impacting Latino and white non-Hispanic decision-making in persons with and without MCI (1Florida ADRC pilot)

Evaluating current practices for AVS use and patient instructions in the neurology clinic (protocol in development)
POSSIBLE RESIDENT PROJECTS

• Movement disorders or other case reports
• INFORM database retrospective studies (Huntington's Disease, Quality Improvement in PD care)
• Neurology Education projects
Aim 1: Create a Neurology Practice Based Research Network
  ◦ We are sharing structured clinical documentation support and clinical decision support tools for 11 neurological indications (brain tumors, concussion, headache, epilepsy, multiple sclerosis, neuropathy, Parkinson's disease, sleep disorders, stroke; and brain health) with 12 other Department of Neurology that also use the Epic EMR platform. We are sharing back electronically captured de-identified data to a registry.

Aim 2: Conduct pragmatic trials using the EMR for common neurological disorders
  ◦ We are demonstrating the feasibility of using the EMR to screen and recruit, consent, and adaptively assign compared treatments at the point of care; and to electronically capture outcomes. We will identify the most effective treatments for migraine, mild cognitive impairment, and partial epilepsy, and other common neurological indications; and seek replication by the NPBRN.
Dr. Maraganore: 2) Utilizing Data from the EMR to Predict Alzheimer’s and Dementia Risk

Aim 1: Model Building
- We will utilize historical data captured by the EMR at the University of Florida, to develop a cognitive impairment/dementia/Alzheimer’s disease prediction model (“UF AD Prediction Model”)

Aim 2: Replication
- We will replicate the model using historical data captured by the EMRs at OneFlorida Clinical Research Consortium sites (http://onefloridaconsortium.org)

Aim 3: Implementation
- We will integrate the replicated model into the UF EMR and build clinical decision support (CDS) tools that identify patients at highest risk for cognitive disorders and guide referral by PCPs to brain health specialists

Aim 4: Dissemination
- We will share the replicated model and CDS tools with other OneFlorida sites
Hypothesis: A standardized, step-wise approach to advance care planning in all patients presenting to memory care clinic will improve rates of advance directive completion. Additionally, it will not worsen rates of anxiety, depression, and hopelessness.

New patients presenting to memory care clinic will be enrolled, and then will follow up in 2 months for routine medical care and then 1 month later for a dedicated ACP visit.

Measures will include advance directive completion rate, hospital anxiety and depression scale (HADS), and Beck Hopelessness index.
Yuqing Li, Ph.D.

Current projects
- Animal models and pathophysiology of DYT1 dystonia (NIH R01 with Dr. Vaillancourt), using conditional knockin and knockout mice, brain imaging to map the pathological brain circuits.
- Animal models and pathophysiology of restless legs syndrome (NIH R01), using conditional knockout mice, brain imaging, and patch clamp recording in vitro to map the pathological brain circuits.
- Chemogenetic or DREADD manipulation of striatal cholinergic interneurons in DYT1 dystonia as a potential treatment for DYT1 dystonia (DOD, CDMRP), directed by Dr. Fumiaki Yokoi
- Opioid receptor knockout mouse models to study restless legs syndrome (Mundipharma, Inc)
- C9ORF72 and its interaction with other proteins, implications in dystonia, ALS, and FTD

Potential resident projects
- Dystonia benchwork research, analyzing DNA/RNA/proteins samples, brain anatomy or behavior
- Restless legs syndrome bench work research, similar as above.
- C9ORF72 research, similar as above.
Current Projects

Effects of Tau or alpha-Synuclein (separate projects, same approach) overexpression on translation and ribosome function
  ◦ AAV based expression in slice cultures from mouse brains
  ◦ Cell-type specific expression (can compare effects in neurons vs astrocytes vs glia)

Effects of Abeta seeding *in vivo* (mouse APP brains) and *in vitro* (cell culture)
  ◦ Strain effects from diffuse vs core plaques?
  ◦ Transcriptomics read-out & bioinformatics

1Florida ADRC and Neuromedicine/CTRND brain bank
  ◦ Coordinate sample procurement and distribution
  ◦ >130 brains: AD, PD, PSP, MSA and more...
  ◦ Remember! This is a great resource available to the neuro community
Diego Rincon-Limas, PhD

Two Major Projects (with multiple subprojects):

1) Identification of genes that mediate TDP-43 pathology in fly models of ALS.
2) Discovery of therapeutic targets that block Abeta42 and Tau pathology in fly models of Alzheimer’s disease.

Opportunities to learn: genetics, molecular and cellular biology, transcriptomics, histology and optogenetic approaches.
• Biomarker predictors of symptom severity and outcome in TBI
• TBI subtype analysis (cognitive, headache, vestibular, oculomotor, psychiatric)
• Dual-task gait variability as a marker of TBI
• TBI-related sleep disturbance as a factor in prolonged recovery or the appearance of chronic disability
• Eye movement disturbances as concussion biomarkers
• Gut microbiome disturbances in mTBI: proof of principle and risk factor for prolonged symptoms

2019 Possible Resident Research Opportunities
Mike Jaffee, MD

The biomarker project on moderate-severe long term outcomes follows on the set of 3 green journal articles on biomarkers in *sports concussion*.

The initiative with **Shands Rehab** is the first and only research project done at the rehab hospital.

Trajectories data initiative is expected to yield multiple papers.
Neurocritical Care
Neurocritical Care

• Saving the Survivors of Cardiac Arrest
  • Improving neuroprognostication:
  • MOCHA and SPARE trials: prospective international multicenter observational trial (clinicaltrials.gov NCT03261089) aiming at developing a multimodal prognostic algorithm. SPARE is a substudy in Brazil where there is minimal WLST
  • Cost-effectiveness of delayed final neuroprognostic assessments: collaboration with the Economics department. 3 undergrads working on this study
  • Enhancing knowledge re cardiac arrest survivors: retrospective database UF, BU, Penn & Yale – lots of clinically impactful scientific questions to be answered. Army of undergrads collecting data.
  • Novel therapies in post-anoxic status epilepticus: VIGAB-STAT, pilot trial of single load of Vigabatrin in the management of post-anoxic status as adjunct therapy

• Improving Neuroprognostication in Acute Brain Injury
  • SPIN: Self-fulfilling Prophecy In Neuroprognostic studies. Several subprojects: cardiac arrest, ICH, SAH, status, TBI. Systematic review of neuroprognostic studies specifically investigating the quality of reporting of WLST, modes of death, timing of death and WLST, blinding of treatment team on tool being investigated
Stroke targeted therapies in cerebral septic embolism
- Multicenter collaboration gathering data on patients with infectious endocarditis and stroke that underwent systemic thrombolysis and/or endovascular treatment.

Acute pain management in SAH
- Database of SAH describing status quo: rates of narcotic use during index hospitalization and prescription of narcotics upon discharge
  - Substudy: effect of cortical spreading depolarization modulators in overall outcome of SAH
- BLOCK-SAHT: pilot project of anesthetic block to PPF evaluating safety and efficacy of local treatment in HA control and opioid requirements
Self fulfilling prophecy within the ICH Score:

Single center study evaluating prognostication and mortality of ICH patients using the ICH score.

Use on cognitive aids in brain death declaration

Simulation based study evaluating need for cognitive tool to eliminate confounders in brain death declaration
• Evaluation of the Applicability of Alert Scores in the Neurocritical Care Unit
  • MEWS Score: How predictive of sepsis in the neurocritically ill population?
  • Alternatives: Rothman index. Can they perform better?

• Emergency Neurologic Life Support Education
  • Instrument tool: What is the educational impact in knowledge during training?
  • Simulation: Can the learning experience be enhanced by educational tools?

• Neuro-Urology
  • Urinary retention: who develops retention, and why?
• Quality improvement projects in the neuroICU
  • Early and staged goals of care discussions (with standardized approach and documentation) in all patients in the neuroICU (including neurosurgical patients)
  • Improving access to hospice and hospice-in-place
Epilepsy and Sleep
Kalamangalam/Epilepsy

**Short term projects (3-6 months, resident driven)**

- Medication withdrawal in EMU – questionnaire survey
- Seizures in the EMU – questionnaire/telephone survey + chart review
- Medication responsiveness in the epilepsies – retrospective chart review

**Longer term projects (under supervision/as part of team)**

- New MR-based imaging methods for epilepsy: Several subprojects, technically demanding but may be appropriate for the right person
- Electrocorticography, data visualization: Many avenues, also technically demanding, short project possible
Maria Bruzzone

• Short term projects:
  – Ethics and epilepsy
  – Efficacy of drug combinations in status epilepticus

• Long term projects
  – Epilepsy and metabolomics
    • Lipid metabolomics in catamenial epilepsy
    • Global metabolomics after first onset seizure
Cibula research

• Anesthesia and EEG educational project
• BRAIN (Briviact) study
• Pending study for Seizures/ status in sepsis (Christine Smith project)

• Options for quality studies in EEG involving neurodiagnostics
Eisenschenk
Epilepsy - Sleep Medicine - Performance - Driving

1. **Epilepsy Surgery Database**
   1. Database includes seizure type, localization, imaging, neuropsychological data, pathology and outcome

2. **VA Epilepsy Centers of Excellence (Surabhi)**
   1. Driving Questionnaire in VA Cooperative and/or UF Neurology Clinic
   2. Epidemiology of Epilepsy in Veteran Population
   3. Recurrent TBI in Stroke and Epilepsy
   4. Brain Sentinel
   5. Differentiation of Syncope vs Seizure

3. **Sleep Neurophysiology in the NeuroICU (Dore/Maceil/Youn)**
   1. Role of OSA in Stroke, SDH, SAH

4. **Motor Control Deficits during Driving Following Transient Ischemic Attack - NIH R21**

5. **Driving in Obesity (pre- and post-bariatric surgery)**

6. **Assessment of Driving and Performance Following Sleep Deprivation Associated with Consecutive Night Float**

7. **Role of Acute EEG and Imaging following stroke as predictors for post-stroke seizures (Kaye/Smith/Hella/Eisenschenk)**

8. **Hippocampal Cell Density**
   1. Comparison of cell densities within CA1, CA2, CA3, CA4, and subiculum to seizure type, frequency, duration, imaging, neuropsychological testing, outcome
Projects - Hella

- Patients developing seizures post-stroke: EEG and radiologic findings
  - Ongoing project with Dr. Eisenschenk/Khanna
  - AAN abstract on EEG in stroke last year - Dr. Kaye

- Quality project: looking at aspects of EEG services at UF Health with aim to improve seizure and status diagnosis and prompt treatment
  - Data set obtained
  - Need to match up with EEG information and additional details
    - Time of EEG order, time EEG completed, time of AED order, time of administration etc.
Projects-Hella

• EEG/Epilepsy education-

  • Survey of residents regarding various aspects of their education in EEG with the aim of improving
    – Format, timing during residency, content of lectures, organization of the EEG rotation etc.
    – Resident education committee
Active:
- Precision Ketogenic diet for adults (PI Dr. Borum)

EEG/Epilepsy Education:
- Application for new ACGME accredited Epilepsy Fellowship
- One year program
- Undergoing ICGME review
- Goal is to start recruitment in 2020
Stroke
Adam Kelly, MD

• Understanding practice variation in stroke
  • Life-sustaining interventions after stroke: some hospitals never place feeding tubes or write new DNR orders after stroke, others do it in 25-30% of patients. Why is there such a range?
  • Rates of hospital-to-hospital transfer have increased significantly over time, even before new studies showing the benefit of endovascular therapy. How do we get the right patients to the right hospitals since not all patients can come to comprehensive centers?

• Understanding decision-making in severe stroke
  • Rates of decisional conflict and adverse long-term outcomes are high among families of stroke patients. Can decision aids or other tools be utilized to improve decisions?

• Optimizing diagnostic testing in stroke
  • Use of costly diagnostic testing (particularly imaging) is increasing in stroke and in neurology in general. Finding ”incidentalomas” in stroke patients is common. How do we tailor testing for the individual patient in order to maximize value?
Anna Khanna MD

• Interests:
  • Cervical Carotid Artery occlusion with recanalization rates and asymptomatic status (CREST 2 databank)
  • DOACs (direct oral anticoagulants) in heart failure EF <35%
  • TCD (Transcranial Doppler) in PFO detection and post surgical closure for Platypnea Orthodeoxia (Case Series)
  • Effect of Barometric Pressure on Incidence of Intracranial Hemorrhage

• Collaborations:
  • Disparities in Transitions in Stroke Care-University of Miami

• Resident Projects:
  • David Stone “The Use of tPA for Treatment of Acute Ischemic Stroke in Patients with Various Vascular Malformations Appears To Be safe”
  • Vyas Viswanathan “Do Other Factors Influence the Span 100 Index”
Christina Wilson, MD PhD

• Stroke projects
  • Factors influencing patient delay in presentation
    • In-hospital stroke education
  • Low NIHSS on presentation – predictors of worsening
  • Database available for additional projects

• QI projects
  • Use of CTP in non-stroke alert patients (neuroradiology)
  • MRI utilization in the ED for neurology consults
  • Factors predicting cancelled stroke alerts

• Medical education projects
1. National Inpatient Sample Database projects
2. UF Stroke Retrospective review projects
   a) Role of Microbleeds on Hemorrhagic Transformation with and without t-PA.
   b) Outcomes of lacunar stroke in patients with and with perfusion deficits on CTP.
3. Review Article
   a) FLAIR changes in acute stroke.
4. Prospective Study
   a) Florida Cognitive Assessment Scale (FLACA) in patients with stroke and normal volunteers
Alexis Simpkins, MD.PhD.
Assistant Professor of Neurology
Neurovascular Division

- Ischemic Stroke Blood Biomarkers and Genetics
- Imaging Biomarkers MRI and CT: Blood brain barrier Disruption and Predictors of Neurologic Outcome


2. Simpkins AN, Johnson K, et. al. Early changes in Ischemic volume Change Expression of miRNA and mRNA and Affect Activation of Pathways that Control Vasculogenesis and Angiogenesis. In draft.


- Stroke and Vascular Dementia
  - White Matter Hyperintensities
  - Sepsis
  - Diet/Nutrition

Neuromuscular
Miguel Chuquillin

• Case reports:
• Case series myotonic dystrophy type 1 and 2
• Pain in channelopathies/periodic paralysis

• Education:
  • Student grades:
    • Pre and post-New innovations;
    • Attending vs Resident grading
    • Correlation between score, NeuroCaRE and NBME exam
James Wymer

- Case Reports
- Database reviews:
  - Epidemiology of ALS, CMT, or SMA in the state of Florida
  - Medication utilization in neuromuscular disease
  - Health care utilization in the state of Florida
- Clinical trials to assist in.
  - Local
  - Pharmaceutical
S. Subramony

• Analysis of PSG data in DM 1
• Epidemiology of peripheral neuropathy in retirement community and its impact
Scott Heller

• Prevalence of PMP22 gene deletions (indicative of HNPP) in patients less than 30 yo with multiple mononeuropathies discovered on NCS/EMG.

• Prevalence of incidentally discovered polyneuropathy on NCS/EMG in patients with Inclusion Body Myositis.

• An assessment of the utility and impact on management (or lack thereof) of electrodiagnostic studies in patients with various clinical presentations. When do they really make a difference?
POTENTIAL PROJECTS FOR RESIDENTS

• Clinical Correlation of EMG in CIDP
  • Evaluation of serial neurophysiological studies in CIDP
  • Do electrophysiological measures of demyelination parallel clinical course?

• Evaluation of EMG in radicular limb pain
  • Does EMG evidence of radiculopathy alter management?
Headache Unit (Drs. Nazario/Orlova)

• Case reports

• Epidemiology of headache in Florida
  • Health care utilization
  • Medications
Research Blitz!

MS research opportunities
Tirisham Gyang M.D
Contact: Tirisham.gyang@neurology.ufl.edu

Patient reported outcomes (PRO) database
• Multiple PROs collected with potential to explore multiple projects
• Fatigue in patients treated with Ocrevus
• Effects of exercise on fatigue

DMT safety database
• Safety monitoring in patients with MS on highly effective therapies
• Immunoglobulin levels in patients on ocrevus
• Multiple potential research projects

Dance in MS
• Pilot study
• Collaboration with Art in Medicine
• Outcome measures
  • Activity tolerance, balance and mood
Socio-economic status and disability in MS
   • Cross sectional study
   • Correlation between SE at the time of diagnosis and disability

Cognitive intervention in MS – HABITs program
   • Collaboration with neuropsychology
   • Implementing HABIT program in MS population

Clinical trials
   • TREAT-MS
   • ASCLEPIOS (Carlson)

Case reports/series, clinical research mentorship
   • Available above resoures
Dr. Aaron Carlson, MD
Contact: aaronmc@ufl.edu

Biorepository:
• Collaboration between multiple divisions
• Will collect multiple types of blood samples and CSF
• To be used for local and industry-sponsored research

OneFlorida Project:
• Prevalence of MS in a large population database
• Goal: Understand who and where MS patients are in Florida, and how they are treated.
• May need assistance with chart review in exchange for authorship

Review Articles / Case Reports:
• Available to mentor review articles / cases on neuroimmunological subjects
Neurocutaneous Syndrome Program (Multidisciplinary Program)

Neuro-cutaneous Program is clinical program to create a database for the Neurogenetic Syndromes of: Neurofibromatosis Type 1 and Type 2, Tuberous Sclerosis and Sturge Weber Syndrome. So far (few of each patients)

**NF-1:**
- Using UF RedCap to insert data
- Following patient diagnosed in Childhood
- Molecular genetic testing if not being diagnosed
- Following them with surveillance imaging for plexiform neurofibroma (B/C/T/L –spine)
- Risk for nerve sheath tumors (Collaboration with peripheral nerve program with Neurosurgery)
- EEG and Epilepsy evaluation and EMG/NCS studies (Looking at NCS changes in NF-1)
- Eye evaluation: Optic Glioma and Lisch nodules
- Moya Moya and increased risk for strokes. (MRA/MRI vascular imaging)
- Vitamin D status and secondary hyperPTH (sun exposure worsen Neurofibroma and expose to Vitamin D def)
- Bone scan DEXA scan
- Neuropsych evaluation: ? Lots of patients have cognitive imp/ intellectual issues
- Adult onset Hypertension (follow them for Refractory HTN)

Welcome Resident Physician participation.

Please visit us at: [http://neurology.ufl.edu/divisions-2/neurocutaneous-syndrome-and-tuberous-sclerosis-program/](http://neurology.ufl.edu/divisions-2/neurocutaneous-syndrome-and-tuberous-sclerosis-program/)  Hans Shuhaiber Tel 312 286 1059 hans.shuhaiber@neurology.ufl.edu
Ashley Ghiaseddin, MD

• One Florida: Statewide repository of health-care data
  – Partners provide 74% of care to the state

• Conduct observational studies that uses aggregate and de-identified patient level data

• Current studies
  – Real world survival data in Glioblastoma patients
  – Assessing Patient Safety Indicators and Health Acquired Conditions in patients undergoing tumor resection/biopsy

• Future studies
  – Real world use of palliative care/hospice in brain tumor patients
  – Real world co-morbidities in brain tumor patients

If interested, please contact ashley.ghiaseddin@neurosurgery.ufl.edu