



Departments of Neurology and Psychiatry

## BEHAVIORAL NEUROLOGY & NEUROPSYCHIATRY FELLOWSHIP TRAINING PROGRAM

### Program description for fellowship candidates

Program Director: David B. Arciniegas, MD

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#### **OVERVIEW**

Behavioral Neurology & Neuropsychiatry (BNNP) is the medical subspecialty committed to better understanding links between neuroscience and behavior and to the care of individuals with neurologically based behavioral disturbances. Training in BNNP entails the acquisition of knowledge regarding the clinical and pathological aspects of neural processes associated with cognition, emotion, behavior, and elementary neurological functioning; the mastery of the clinical skills required to evaluate and treat persons with such problems; and the development of an appropriate level of professionalism, interpersonal and communication skills, and practice- and systems-based competencies required for the practice of this medical subspecialty [1]. Empowered by the knowledge and skills borne of fellowship training, subspecialists in BNNP are better prepared to undertake the challenge of evaluating patients with neuropsychiatric disorders and to improve the neuropsychiatric health and quality of life of these individuals and their families.

Subspecialists in BNNP serve persons with focal neurobehavioral syndromes (e.g., aphasias, apraxias, agnosias, aprosodias, apathy, executive dysfunction, orbitofrontal syndrome); major neuropsychiatric syndromes (e.g., delirium, the dementias, and the major primary psychiatric disorders, including those with atypical refractory presentations); cognitive, emotional, and behavioral manifestations of neurological disorders (e.g., dementias, movement disorders, stroke, epilepsy, multiple sclerosis, traumatic brain injury); and comorbid neuropsychiatric and neurological conditions (e.g., Downs syndrome and Alzheimer's disease, obsessive-compulsive disorder and Tourette's syndrome, Huntington's disease and alcohol abuse) [2].

The number of patients in the United States with these types of neuropsychiatric conditions is great. There are approximately 3.2 million civilians [3] and nearly 30,000 Veterans [4, 5] living with disability from traumatic brain injury (TBI) and more than 6.2 million persons living with the consequences of stroke [6]. Among the most common contributors to disability after TBI and stroke are acute focal neurobehavioral syndromes and chronic disturbances of cognition, emotion, and behavior [7, 8]. These functionally limiting problems are sources of substantial disability and treatment need for affected persons and their families. Alzheimer's disease, Parkinson's disease, and diffuse Lewy body disease currently affect 5 million [9], 1 million [10], and 800,000 [11] individuals in the United States, respectively. These conditions produce relentlessly progressive cognitive, emotional, and behavioral disturbances that typically require clinical intervention [12, 13, 14, 15]. Multiple sclerosis (MS) affects an additional 400,000 persons in the United States [16], and is associated with cognitive impairments, depression, anxiety, affective lability, behavioral dyscontrol, and apathy, among other neuropsychiatric problems [17, 18]. The neuropsychiatric consequences of MS, like its sensory and motor effects, relapse and remit for some persons and become chronic progressive ones for others. Collectively, this subsample of neuropsychiatric symptom-producing neurological conditions affects more than 16 million individuals and their families in the United States. Aging of the population – which will expand the number of persons in the United States age 65 years and over to more than 50,000,000 by the year 2030 [19] – will further increase the need for BNNP subspecialists given the commensurate increase in age-related neuropsychiatric disorders (especially neurodegenerative dementias and other disorders of late-life) [20].

The United Council for Neurologic Subspecialties (UCNS) [1] established the subspecialty of BNNP in 2004 for the purpose of growing the cadre of physicians qualified to meet the neuropsychiatric treatment needs of persons and families like these [2, 21, 22]. As it did with its other member subspecialties, the UCNS – which is supported principally by the American Academy of Neurology and on the board of which representatives from the American Board of

Psychiatry and Neurology as well as the Accreditation Council for Graduate Medical Education sit ex officio – established training and practice standards, accredited fellowship training programs, and implemented a rigorous practitioner certification examination [22]. Since the first administration of the UCNS BNNP certification examination in 2006, 321 physicians have been certified as subspecialists in BNNP in North America.

Houston has benefitted from the processes established by the UCNS. The Houston metropolitan area is home to 9 UCNS-certified BNNP subspecialists [23], who serve patients receiving care in tertiary care settings (e.g., Baylor Clinic, Methodist Hospital, Memorial Hermann Hospital), Veterans hospitals (MEDVAMC), public care settings (Ben Taub Hospital), and private practice. The creation of the Beth K. and Stuart C. Yudofsky Division of Neuropsychiatry at BCM creates the infrastructure that, over time, will enable the Texas Medical Center to become a nationally recognized center of excellence for training and practice in neuropsychiatry. At present, however, Houston – like the United States in general – remains underserved by BNNP subspecialists: there are only 1.46 BNNP subspecialists per million persons in our community (based on comparison of UCNS BNNP Diplomates' locations with United States Census Bureau 2012 population estimates [24]). By comparison, there are 5.82 per million BNNP subspecialists in the Boston metropolitan area. While it is likely that this ratio is insufficient to meet the demand for BNNP subspecialty care services, a nearly four-fold increase in the number of BNNP subspecialist in the Houston metropolitan area is needed simply to achieve parity with access to such services in and around Boston.

Training additional physicians in BNNP therefore is an educational priority for the Baylor College of Medicine and the State of Texas. The fellowship training program described in this application will address the current and future BNNP workforce needs in the Houston metropolitan area, and begin to improve access to BNNP subspecialty care for persons with neurologically-based neuropsychiatric conditions living in our community.

The strategic mission of the Baylor College of Medicine's key affiliates participating in the training of BNNP fellows – Baylor Clinic, Michael E. DeBakey Veterans Affairs Medical Center, TIRR Memorial Hermann, The Menninger Clinic, and Ben Taub Hospital – focuses on advancing human health through the integration of patient care, research, education, and community service; advancing psychiatric treatment, research and education; and improving health among the members of our community, including its Veterans, by delivering high-quality healthcare and by training the next generation of health professionals. BNNP is the medical subspecialty committed to better understanding links between neuroscience and behavior, and to the care of individuals with neurologically based behavioral disturbances. Training in BNNP contributes to the advancement of human health by integrating advancements in the clinical neurosciences with the delivery of patient care, patient-oriented research, clinical education, and community service. Applying knowledge of brain-behavior relationships in this manner in settings where psychiatric services are delivered also advances psychiatric care by integrating into it neuropsychiatric perspectives and clinical approaches. Training subspecialists in BNNP creates a cadre of clinicians that will advance the strategic missions of the Baylor College of Medicine's affiliates both now and – through their post-training clinical, educational, and research endeavors – in the future.

In the past three years there have been several major changes in the complement of Baylor College of Medicine faculty engaged in the practice and teaching of BNNP. The Menninger Department of Psychiatry and Behavioral Sciences recruited Dr. David B. Arciniegas to serve as the Executive Director for the Beth K. and Stuart C. Yudofsky Division of Neuropsychiatry. He began his work developing the Division at Baylor College of Medicine in early September 2012. This endeavor included organizing BNNP faculty located across multiple institutions into the Division and facilitated reorganization of the BNNP Fellowship Training Program as a joint endeavor between the Baylor College of Medicine Department of Neurology and Menninger Department of Psychiatry and Behavioral Sciences.

As a result of these efforts, the BNNP-focused faculty available to support the training of fellows includes:

- David B. Arciniegas, MD (BCM, TIRR Memorial Hermann)\*
- Stuart C. Yudofsky, MD (BCM, Methodist)
- Laura Marsh, MD (MEDVAMC, BCM)\*
- Joseph S. Kass, MD, JD (BCM, Ben Taub, MEDVAMC)\*
- Ricardo E. Jorge, MD (MEDVAMC, BCM)^
- Thomas A. Kent, MD (MEDVAMC, BCM)^

- Janet Hickey, MD (MEDVAMC, BCM)\*
- Rayan Al Jurdi, MD (MEDVAMC, BCM)\*
- Aruna Gottumukkala, MD (MEDVAMC, BCM)\*
- Benjamin Weinstein, MD (BCM, Menninger)^
- Angelle M. Sander, PhD (BCM, TIRR Memorial Hermann, Ben Taub)

\*UCNS BNNP Diplomates

^Dual trained in Neurology and Psychiatry

The educational mission of the Baylor College of Medicine is to set standards for excellence in training healthcare providers and scientists, innovative scientific achievement, and provision of patient-centered care in service to the community and the world. The mission of the Beth K. and Stuart C. Yudofsky Division of Neuropsychiatry is to improve the lives of persons and families affected by neuropsychiatric conditions through clinical service, research, education, and community outreach. The BNNP Fellowship Training Program is a key component of the Division's educational activities. Its work aligns fully with the Baylor College of Medicine's mission to provide the highest quality training opportunities to healthcare providers and scientists by providing fellows with the skills needed to deliver excellent and innovative patient-centered care to persons with neuropsychiatric conditions.

Works Cited

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## **OVERALL GOALS AND OBJECTIVES**

The overall program goals and objectives are:

- Development of patient care skills in BNNP including, but not limited to, clinical expertise in the evaluation and treatment of individuals with focal neurobehavioral syndromes, major neuropsychiatric conditions, and neurological conditions in which cognitive, emotional, and behavioral problems arise commonly.
- Acquisition of an expert level of medical knowledge in BNNP through extensive exposure to the core literature in neuropsychiatry, neuropsychology, and behavioral neurology, with an emphasis on the neuroanatomy and neurochemistry of cognition, emotion, and behavior.
- Development of practice-based learning and improvement through participating in a structured educational curriculum consisting of rounds, case conferences, individual supervision, didactic lectures, and other courses or seminars relevant to training in BNNP, and also through guided self-directed learning that complements clinical and didactic experiences.
- Understanding of research methodology in BNNP by involvement in faculty-guided activities including, but not limited to, clinical or basic research endeavors, the scholarship of synthesis, and/or the scholarship of educational programming.
- Development of interpersonal and communication skills, professional ethics and behaviors, and systems-based practices required to perform competently as a subspecialist in BNNP.

## **CLINICAL CURRICULUM**

Each rotation, in addition to meeting the program's overall goals and objectives, will provide the fellow with specific goals and objectives as detailed below.

### **Inpatient BNNP Consultation – TIRR Memorial Hermann**

#### **Supervising faculty: David B. Arciniegas, MD**

- Neuropsychiatric history-taking, including interview of patients, families, and other healthcare professionals, and also medical record review.
- Administration of and interpretation of findings from neurological, mental status, and cognitive examinations. Use of standardized neurological rating scales, neuropsychiatric rating scales, and screening measures of cognition is emphasized in this setting.
- Understanding indications for and integration of findings from laboratory assessments, including neuroimaging, electroencephalography, cerebrospinal fluid, serum, and urine studies.
- Understanding indications for and integration of findings from medical, neuropsychological, and rehabilitative assessments
- Formulation, documentation, and communication of a neuropsychiatric differential diagnosis, diagnostic formulation, and treatment plan.
- Prescription and monitoring of neuropsychiatric treatments, including somatic (i.e., pharmacological), psychosocial, crisis, and neurorehabilitative interventions.

### **Cognitive Disorders Clinic – Michael E. DeBakey VA Medical Center**

#### **Supervising faculty: Joseph S. Kass, MD, JD**

- Neuropsychiatric history taking, including interview of patients, families, and other healthcare professionals, and also medical record review.
- Administration of and interpretation of findings from neurological, mental status, and cognitive examinations. Use of standardized neurological rating scales, neuropsychiatric assessment scales, and screening measures of cognition is emphasized in this setting.
- Indications for and integration of findings from laboratory assessments, including neuroimaging, electroencephalography, cerebrospinal fluid, serum, and urine studies.
- Indications for and integration of findings from medical, neurological, psychiatric, neuropsychological, and rehabilitative (i.e., psychiatry, physical therapy, occupational therapy, speech-language pathology) assessments.
- Formulation, documentation, and communication of a differential diagnosis, diagnostic formulation, and

treatment plan.

- Prescription and monitoring of treatments, including somatic (i.e., pharmacological), psychosocial, crisis, and neurorehabilitative interventions.

**Neuropsychiatric Clinic – Michael E. DeBakey VA Medical Center, TIRR Memorial Hermann, and BCM**

**Supervising faculty: Ricardo E. Jorge, MD**

- Neuropsychiatric history-taking, including interview of patients, families, and other healthcare professionals, and also medical record review. Given the emphasis of the VISN 19 MIRECC on the evaluation and management of suicidal behaviors, including those associated with traumatic brain injury and posttraumatic stress disorder, this is an additional specific objective of this rotation.
- Administration of and interpretation of findings from neurological, mental status, and cognitive examinations. Use of standardized neurological rating scales, neuropsychiatric assessment scales, and screening measures of cognition is emphasized in this setting.
- Indications for and integration of findings from laboratory assessments, including neuroimaging, electroencephalography, cerebrospinal fluid, serum, and urine studies.
- Indications for and integration of findings from medical, neurological, psychiatric, neuropsychological, and rehabilitative (i.e., psychiatry, physical therapy, occupational therapy, speech-language pathology) assessments.
- Formulation, documentation, and communication of a neuropsychiatric differential diagnosis, diagnostic formulation, and treatment plan.
- Prescription and monitoring of neuropsychiatric treatments, including somatic (i.e., pharmacological), psychosocial, crisis, and neurorehabilitative interventions.

**Multiple Sclerosis Clinic – Maxine Mesinger Multiple Sclerosis Clinic and Neurosensory Center of Houston**

**Supervising faculty: George J. Hutton, MD**

- Neuropsychiatric history-taking with an emphasis on the cognitive, emotional, and behavioral sequelae of multiple sclerosis. Interview of patients, families, and other healthcare professionals, and also medical record review are emphasized in this setting.
- Administration of and interpretation of findings from neurological, mental status, and cognitive examinations. Use of standardized neurological rating scales, neuropsychiatric rating scales, and screening measures of cognition is emphasized in this setting.
- Indications for and integration of findings from laboratory assessments, including neuroimaging, electroencephalography, cerebrospinal fluid, serum, and urine studies.
- Indications for and integration of findings from medical, neurological, psychiatric, neuropsychological, and rehabilitative assessments.
- Formulation, documentation, and communication of a neuropsychiatric differential diagnosis, diagnostic formulation, and treatment plan.
- Prescription and monitoring of treatments for both multiple sclerosis and its neuropsychiatric sequelae, including somatic (i.e., pharmacological), psychosocial, crisis, and neurorehabilitative interventions.

**Epilepsy Clinic – BCM and Michael E. DeBakey VA Medical Center**

**Supervising faculty: Richard Hrachovy, MD**

- Neuropsychiatric history-taking with an emphasis on the cognitive, emotional, and behavioral sequelae of epilepsy. Interview of patients, families, and other healthcare professionals, and also medical record review are emphasized in this setting.
- Administration of and interpretation of findings from neurological, mental status, and cognitive examinations. Use of standardized neurological rating scales, neuropsychiatric rating scales, and screening measures of cognition is emphasized in this setting.
- Indications for and integration of findings from laboratory assessments, including neuroimaging, electroencephalography, cerebrospinal fluid, serum, and urine studies.
- Indications for and integration of findings from medical, neurological, psychiatric, neuropsychological, and rehabilitative assessments.
- Formulation, documentation, and communication of a neuropsychiatric differential diagnosis, diagnostic

formulation, and treatment plan.

- Prescription and monitoring of treatments for both epilepsy and its neuropsychiatric sequelae, including somatic (i.e., pharmacological, neurosurgical), psychosocial, crisis, and neurorehabilitative interventions. Experience with vagal nerve stimulators and neurosurgical interventions for refractory epilepsy may also be provided to the BNNP Fellow in this context.

**Movement Disorders Clinic – BCM and Michael E. DeBakey VA Medical Center**

**Supervising faculty: Joseph Jankovic, MD**

- Neuropsychiatric history-taking with an emphasis on the cognitive, emotional, and behavioral sequelae of movement disorders, including medication-induced movement disorders. Interview of patients, families, and other healthcare professionals, and also medical record review are emphasized in this setting.
- Administration of and interpretation of findings from neurological, mental status, and cognitive examinations. Use of standardized neurological rating scales, neuropsychiatric rating scales, and screening measures of cognition is emphasized in this setting.
- Indications for and integration of findings from laboratory assessments, including neuroimaging, electroencephalography, cerebrospinal fluid, serum, and urine studies.
- Indications for and integration of findings from medical, neurological, psychiatric, neuropsychological, and rehabilitative assessments.
- Formulation, documentation, and communication of a neuropsychiatric differential diagnosis, diagnostic formulation, and treatment plan.
- Prescription and monitoring of treatments for both movement disorders and their neuropsychiatric sequelae, including somatic (i.e., pharmacological, neurosurgical), psychosocial, crisis, and neurorehabilitative interventions. Experience with deep brain stimulation for Parkinson’s disease and other movement disorders may be provided to the BNNP Fellow in this context.

**Stroke – BCM and Michael E. DeBakey VA Medical Center**

**Supervising faculty: Thomas Kent, MD**

- Neuropsychiatric history-taking with an emphasis on the cognitive, emotional, and behavioral sequelae of stroke. Interview of patients, families, and other healthcare professionals, and also medical record review are emphasized in this setting.
- Administration of and interpretation of findings from neurological, mental status, and cognitive examinations. Use of standardized neurological rating scales, neuropsychiatric rating scales, and screening measures of cognition is emphasized in this setting.
- Indications for and integration of findings from laboratory assessments, including neuroimaging, electroencephalography, cerebrospinal fluid, serum, and urine studies.
- Indications for and integration of findings from medical, neurological, psychiatric, neuropsychological, and rehabilitative assessments.
- Formulation, documentation, and communication of a neuropsychiatric differential diagnosis, diagnostic formulation, and treatment plan.
- Prescription and monitoring of treatments for stroke and its neuropsychiatric sequelae, including somatic (i.e., pharmacological, neurosurgical), psychosocial, crisis, and neurorehabilitative interventions.

**Comprehensive Psychiatric Assessment and Stabilization Unit – Menninger Clinic**

**Supervising faculty: Benjamin L. Weinstein, MD**

- Neuropsychiatric history-taking with an emphasis on the cognitive, emotional, and behavioral features of psychiatric disorders, as well as the intrinsic neurologic features of psychiatric disorders. Interview of patients, families, and other healthcare professionals, and also medical record review are emphasized in this setting.
- Administration of and interpretation of findings from neurological, mental status, and cognitive examinations. Use of standardized neurological rating scales, neuropsychiatric rating scales, and screening measures of cognition is emphasized in this setting.
- Indications for and integration of findings from laboratory assessments, including neuroimaging, electroencephalography, cerebrospinal fluid, serum, and urine studies.

- Indications for and integration of findings from medical, neurological, psychiatric, neuropsychological, and rehabilitative assessments.
- Formulation, documentation, and communication of a neuropsychiatric differential diagnosis, diagnostic formulation, and treatment plan.
- Prescription and monitoring of treatments for psychiatric disorders, including somatic (i.e., pharmacological, neurosurgical), psychosocial, crisis, and neurorehabilitative interventions. Experiences in interventional neuropsychiatry (e.g., transcranial magnetic stimulation, transcranial direct current stimulation, deep brain stimulation) may be provided to the BNNP Fellow in this context.

**Neuropsychological Assessment Clinic - TIRR Memorial Hermann and Ben Taub Hospital**

**Supervising faculty: Angelle M. Sander, PhD**

- Neuropsychological history-taking with an emphasis on the differential diagnosis of cognitive, emotional, and behavioral disorders in adults. Interview of patients, families, and other healthcare professionals, and also medical record review are emphasized in this setting.
- Administration of and interpretation of findings from neuropsychological tests, including computerized neuropsychological measures.
- Integration of neuropsychological test findings with data from medical, neurological, psychiatric, neuropsychological, and rehabilitative assessments.
- Formulation, documentation, and communication of a neuropsychological differential diagnosis, diagnostic formulation, and treatment plan.
- Indications for psychosocial and cognitive neurorehabilitative interventions.

**Neurodiagnostics – TIRR Memorial Hermann, BCM, and Michael E. DeBaakey VA Medical Center**

**Supervising faculty: David B. Arciniegas, MD**

*Neuroimaging:*

- Medical knowledge, particularly as regards the structural and functional organization of the cerebral cortex and its major divisions, white matter tracts, limbic and paralimbic structures, anatomic and functional basal ganglia, diencephalon, brainstem, cerebrovasculature, and ventricular systems.
- Patient care skills and particularly the fellow's understanding of the principles and applications of structural and functional imaging of the brain, including the generally accepted clinical indications for such studies, and also the correlation between neuroimaging findings and clinical examination (neurological and/or mental status) findings in persons with neurobehavioral or neuropsychiatric syndromes.

*Clinical Neurophysiology:*

- Medical knowledge, particularly as regards the neurophysiological basis for electrophysiologic recordings (i.e., electroencephalographic, evoked potential, evoked response studies) of the brain.
- Patient care skills and particularly the fellow's understanding of the principles and applications of electrophysiologic recordings of the brain, including the generally accepted clinical indications for such studies, and also the correlation between electrophysiologic findings and clinical examination (neurological and/or mental status) findings in persons with neurobehavioral or neuropsychiatric syndromes.

## **DIDACTIC CURRICULUM**

### **Behavioral Neurology & Neuropsychiatry Seminar**

The Fellow will participate in a weekly didactic seminar focused on the elements of the BNNP Core Curriculum. The seminar takes place on Wednesday afternoons. The BNNP Seminar is attended by the Fellow(s) and Core Faculty of the BNNP Fellowship Training Program, and is intended to help the Fellow develop an expert-level of medical knowledge in BNNP through extensive exposure to the core literature in neuropsychiatry, neuropsychology, and behavioral neurology. In contrast to didactic lecture-based teaching, this course uses a true seminar-style format: a small group of advanced students in a higher education program engaged in intensive study under the guidance of a professor who meets regularly with them to discuss their reports and findings. Using the textbook *Behavioral Neurology & Neuropsychiatry* (Cambridge University Press, 2013), the curriculum for this seminar is divided into four sections:

- Structural and Functional Neuroanatomy (weeks 1-18): essential behavioral neuroanatomy; cerebellum; white matter; frontal-subcortical circuits; and the neuroanatomic and neurochemical aspects of arousal, sleep, attention, motivation, perception and recognition, memory, language, affective prosody, praxis, visuospatial function, executive function, comorbidity, emotion, and personality.
- Neurobehavioral and Neuropsychiatric Assessment (weeks 19-30): neuropsychiatric evaluation (history-taking, structured interviews and scales), neurological examination, assessment for subtle neurological signs, mental status examination, neuropsychological assessment, forensic assessment, structural neuroimaging, advanced neuroimaging, electroencephalography, advanced electrophysiology, neurotoxicology, and neuropathological assessment.
- Treatments in BNNP (weeks 31-40): principles of pharmacotherapy, rehabilitation and pharmacotherapy of cognitive impairments, pharmacotherapy of emotional disturbances, pharmacotherapy of behavioral disturbances, psychotherapy, emotional and behavioral interventions, and procedural interventions in BNNP.
- Neurobehavioral and Neuropsychiatric Syndromes (weeks 41-52): the primary textbook for this section of the BNNP Seminar is the *Textbook of Neuropsychiatry and Behavioral Neurosciences*, Fifth Edition (American Psychiatric Publishing, 2008). This volume includes 21 chapters on a broad range of neurobehavioral and neuropsychiatric syndromes, the selection of which for discussion in the BNNP Seminar will be tailored to complement the clinical experiences and other didactic experiences of each BNNP fellow. These chapters, along with articles from the peer-reviewed literature focusing on neurobehavioral and neuropsychiatric syndromes, will be options for presentation and discussion after all chapters from the *Behavioral Neurology & Neuropsychiatry* textbook have been reviewed and discussed.

### **Behavioral Neurology & Neuropsychiatry Conference**

The BNNP Conference is an interdisciplinary, interdepartmental, and inter-institutional for BNNP faculty and fellows that occurs throughout the entire fellowship year (i.e., 12 sessions annually). This conference is a joint endeavor of the Beth K. and Stuart C. Yudofsky Division of Neuropsychiatry and TIRR Memorial Hermann, and is accredited by the Memorial Hermann Health System/Texas Medical Association for 12 AMA PRA Category I credits annually. This conference provides a journal club-like forum for the clinicians, clinician-scientist, educators, and other patient-oriented researchers engaged in the work of the Division and its affiliates to review and discuss cases, articles, and emerging work that informs on the neurological bases of psychiatric disorders, the psychiatric manifestations of neurological disorders, and/or the evaluation and care of persons with neurologically-based behavioral disturbances. BNNP Fellows attend this conference at will serve as the primary presenter/discussant during at least one session during the course of their fellowship. The experience of presenting in this content will provide fellows with an opportunity to present on a topic in BNNP to a multidisciplinary audience as well as an experience developing the goals and objective, presentation materials, and evaluation processes required by CME accreditation.

### **BCM Menninger Department of Psychiatry and Behavioral Sciences Grand Rounds**

The Fellow will attend these weekly Grand Rounds in order to improve his or her medical knowledge regarding general psychiatry and behavioral neuroscience. These lectures occur from September through May and are accredited by the

BCM Office of Continuing Medical Education for AMA PRA Category I credits; fellows may earn up to 36 credits for attendance and, scheduling permitting, will present a Grand Rounds lecture at least once during the fellowship year.

### **BCM Department of Neurology Clinical Neuroscience Grand Rounds**

The Fellow will attend these Grand Rounds in order to improve his or her medical knowledge regarding general neurology. These lectures occur from September through May and are accredited by the BCM Office of Continuing Medical Education for AMA PRA Category I credits; fellows may earn up to 36 credits for attendance and, scheduling permitting, will present a Grand Rounds lecture at least once during the fellowship year.

### **BCM Department of Psychiatry Residency Training Program Neuropsychiatry Curriculum**

The Beth K. and Stuart C. Yudofsky Division of Neuropsychiatry provides the BCM Department of Psychiatry and Behavioral Sciences Residency Training Program with a multi-year, comprehensive didactic neuropsychiatry curriculum. Modeled after the Core Curriculum for Training in BNNP document published by Dr. Arciniegas and colleagues (2006), the curriculum for psychiatry residents provides a series of courses emphasizing structural and functional neuroanatomy, neuropsychiatric assessment, treatments in neuropsychiatry, and neurobehavioral and neuropsychiatric syndromes. The PGY-I and PGY-II courses focus on the principles of neuropsychiatry, whereas the PGY-III and PGY-IV courses focus on application of those principles to the care of persons with psychiatric and neurological conditions.

Fellows may elect to participate as a lecturer on structural and functional neuroanatomy in any of the didactic courses in the BCM Menninger Department of Psychiatry and Behavioral Sciences, including the PGY-I Neuropsychiatry Course, and the PGY-I, PGY-II, and/or PGY-III Brain and Behavior courses, and the PGY-IV Neurology for Psychiatry Residents Course. Fellows will be excused from clinical duties during the times at which they elect to present in this course. The involvement of fellows in these courses is predicated on the philosophy that teaching serves to advance and solidify the medical knowledge of the teacher. Any fellow contributing to these courses will receive direct supervision and feedback from the course directors on preparation of teaching materials and the fellow's teaching effectiveness.

### **BCM Department of Neurology Residency Training Program Lecture Series**

Fellows may also elect to participate as a lecturer on BNNP topics presented to the BCM neurology residents in their regular lecture series. Fellows will be excused from clinical duties during the times at which they elect to present in these courses. The involvement of fellows in these courses is predicated on the philosophy that teaching serves to advance and solidify the medical knowledge of the teacher. Any fellow contributing to these courses will receive direct supervision and feedback from the course directors on preparation of teaching materials and the fellow's teaching effectiveness.

### **Individual Supervision**

Each Fellow will be assigned an individual supervisor from among the physician members of the Core Faculty of the BNNP Fellowship Training Program. The Fellow and faculty member will meet weekly to review the Fellow's progress toward achieving mastery of the six core competencies described in the BNNP Fellow Evaluation Form as well as to assist the Fellow in his or her career development. This supervision will be used to review clinical cases, to discuss assigned readings by rotation faculty, to facilitate the Fellow's completion of learning objectives assigned by rotation faculty, and to assist the Fellow in the identification and development of his or her scholarly activities.

### **Clinically-Based Instruction**

During each clinical rotation, BNNP Fellowship Program faculty will provide the Fellow(s) with assigned readings through which the fellow will acquire an expert level of medical knowledge related to the general content and specific clinical experiences of those rotations. These assignments will include textbook chapters, articles from the peer-reviewed literature, and/or guided literature searches using Medline. These assignments, typically developed as identified as learning objectives based on clinical experiences, will serve to facilitate the Fellow's development of practice-based learning and improvement and will complement education provided through rounds on other rotations, in rotation-specific case conferences, and the formal didactic experiences in which the fellow participates.

## **RESEARCH OPPORTUNITIES AVAILABLE TO BNNP FELLOWS**

### **Ongoing Research Projects in which Fellows May Participate**

The faculty of the Beth K. and Stuart C. Yudofsky Division of Neuropsychiatry are actively involved in research at BCM and its affiliates in the Texas Medical Center. BNNP Fellows are welcome to work with these and other faculty members in the Texas Medical Center to pursue projects of mutual interest. This includes participating in currently-funded projects, including (but not limited to):

#### **"Texas TBI Model System of TIRR"**

Funding Agency: National Institute on Disability and Rehabilitation Research (NIDRR)

Project Identifier: H133A120020

Description: This project will contribute to the TBI Model Systems (TBIMS) National Database, implement an extensive program of TBI information and consumer education activities, and conduct a local, randomized controlled trial of a novel psychotherapy for emotional distress in persons with TBI.

Principal Investigator/Project Director: Mark Sherer, PhD/Angelle Sander, PhD

Participating Division Member: David B. Arciniegas, MD (Co-Investigator/Medical Director)

Project Dates: 10/01/12 - 09/30/17

#### **"Sensorimotor Abnormalities in Childhood Onset Psychiatric Disorders"**

Funding Agency: National Institutes of Health (NIH)/National Institute of Mental Health (NIMH)

Project Identifier: R01 MH081920

Description: The major goal of this project is to measure, using MEG and MRI, neurobiological deficits underlying motor coordination deficits in childhood onset schizophrenia and bipolar disorder.

Principal Investigator: Donald C. Rojas, PhD

Participating Division Member: David B. Arciniegas, MD (Co-Investigator)

Project Dates: 06/01/09 - 05/31/14

#### **"Treatment Strategy to Prevent Mood Disorders Following Traumatic Brain Injury"**

Funding Agency: National Institutes of Mental Health

Project Identifier: R01 NS055827

Description: The major goals of this project are: 1) to perform a double-blind, placebo-controlled evaluation of sertraline as a treatment to prevent the onset of mood and anxiety disorders during the first six months after TBI and 2) to evaluate MRI based volumetry and diffusion tensor imaging to examine the structural correlates of mood and anxiety disorders as well biological predictors of treatment response and community reintegration.

Principal Investigator: Ricardo Jorge, MD

Participating Division Member: Ricardo Jorge, MD

Project Dates: 2/01/08-4/01/13 (in NCE currently)

#### **"Treatment Strategy for Alcohol Use Disorders in Veterans with TBI"**

Funding Agency: Department of Veterans Affairs

Project Identifier: I01 RX000324

Description: The major goals of this project is to evaluate treatment outcomes and identify specific factors that influence alcohol use disorders treatment response in a VA Intensive Outpatient Program offering rehabilitation treatment to Veterans with traumatic brain injuries.

Principal Investigator: Ricardo Jorge, MD

Participating Division Member: Ricardo Jorge, MD

Project Dates: 5/01/11-5/01/14 (in NCE currently)

#### **"Million Veteran Program (MVP): A Partnership with Veterans"**

Funding Agency: Department of Veterans Affairs

Project Identifier: CSP-G002

Description: The goal of MVP is to partner with Veterans receiving their care in the VA Healthcare System to study how

genes affect health.

Principal Investigator: Rayan K. Al Jurdi, MD (Houston Site)

Participating Division member: Rayan K. Al Jurdi, MD (Houston Site)

Project Dates: 06/03/11 - 06/03/18

**"Optimization of IV Ketamine for Treatment of Resistant Major Depression"**

Funding Agency: National Institutes of Health (NIH)/National Institute of Mental Health (NIMH)

Project Identifier: R01 MH081870 Description: The major goal of this project is to measure the acute efficacy and safety of IV ketamine in treatment-resistant unipolar depression.

Principal Investigator: Sanjay Mathew, MD

Participating Division member: Rayan K. Al Jurdi, MD (Co-Investigator)

Project Dates: 07/23/09 – 04/30/14

**"2/3 - Efficacy and Tolerability of Riluzole in Treatment-Resistant Depression"**

Funding Agency: National Institutes of Health (NIH)/National Institute of Mental Health (NIMH)

Project Identifier: R01 MH085054

Description: The major goal of this collaborative project is to evaluate the efficacy and safety of riluzole augmentation of the selective serotonin reuptake inhibitor citalopram in outpatients ages 18-65 with moderate treatment-resistant depression.

Principal Investigator: Sanjay Mathew, MD

Participating Division member: Rayan K. Al Jurdi, MD (Co-Investigator)

Project Dates: 08/01/10 – 04/30/14

**"Genetics of Functional Disability in Schizophrenia and Bipolar Illness"**

Funding Agency: Department of Veterans Affairs

Project Identifier: CSP #572

Description: The purpose of this study is to detect genetic associations for the development of schizophrenia (SZ) and bipolar illness (BP) by comparing Veterans with these diseases to "psychiatrically healthy" Veterans from Veterans Health Administration medical centers.

Principal Investigator: Rayan K. Al Jurdi, MD

Participating Division member: Rayan K. Al Jurdi, MD (Principal Investigator)

Project Dates: 06/01/10 – 06/01/14

**SAMPLE ROTATION SCHEDULE**

July – September

	Monday	Tuesday	Wednesday	Thursday	Friday
<b>AM</b>	Inpatient BNNP Consultation Service (TIRR)	Inpatient BNNP Consultation Service (TIRR)	BNNP Fellow Seminar (TIRR) Psychiatry Grand Rounds (BCM)	Inpatient BNNP Consultation Service (TIRR)	Inpatient BNNP Consultation Service (TIRR)
<b>Noon</b>	Neurology Grand Rounds (BCM)			BNNP Conference (TIRR, 3 <sup>rd</sup> Thursday)	
<b>PM</b>	Cognitive Disorders Clinic (MEDVAMC or Menninger)	Neuropsychiatry Clinic (MEDVAMC)	Neurodiagnostics (TIRR)	Cognitive Disorders Clinic (MEDVAMC or Menninger)	Comprehensive Psychiatric Assessment Service (Menninger)

October – December

	Monday	Tuesday	Wednesday	Thursday	Friday
<b>AM</b>	Inpatient BNNP Consultation Service (TIRR)	Inpatient BNNP Consultation Service (TIRR)	BNNP Fellow Seminar (TIRR) Psychiatry Grand Rounds (BCM)	Inpatient BNNP Consultation Service (TIRR)	Inpatient BNNP Consultation Service (TIRR)
<b>Noon</b>	Neurology Grand Rounds (BCM)			BNNP Conference (TIRR, 3 <sup>rd</sup> Thursday)	
<b>PM</b>	Cognitive Disorders Clinic (MEDVAMC or Menninger)	Neuropsychiatry Clinic (MEDVAMC)	Neuropsychological Assessment Service (TIRR, Ben Taub)	Cognitive Disorders Clinic (MEDVAMC or Menninger)	Comprehensive Psychiatric Assessment Service (Menninger)

January – March

	Monday	Tuesday	Wednesday	Thursday	Friday
<b>AM</b>	Inpatient BNNP Consultation Service (TIRR)	Inpatient BNNP Consultation Service (TIRR)	BNNP Fellow Seminar (TIRR) Psychiatry Grand Rounds (BCM)	Inpatient BNNP Consultation Service (TIRR)	Inpatient BNNP Consultation Service (TIRR)
<b>Noon</b>	Neurology Grand Rounds (BCM)			BNNP Conference (TIRR, 3 <sup>rd</sup> Thursday)	
<b>PM</b>	Cognitive Disorders Clinic (MEDVAMC or Menninger)	Neuropsychiatry Clinic (MEDVAMC)	Epilepsy Clinic (BCM, MEDVAMC)	Cognitive Disorders Clinic (MEDVAMC or Menninger)	Multiple Sclerosis Clinic (BCM, MEDVAMC)

April – June

	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
<b>AM</b>	Inpatient BNNP Consultation Service (TIRR)	Inpatient BNNP Consultation Service (TIRR)	BNNP Fellow Seminar (TIRR) Psychiatry Grand Rounds (BCM)	Inpatient BNNP Consultation Service (TIRR)	Inpatient BNNP Consultation Service (TIRR)
<b>Noon</b>	Neurology Grand Rounds (BCM)			BNNP Conference (TIRR, 3 <sup>rd</sup> Thursday)	
<b>PM</b>	Cognitive Disorders Clinic (MEDVAMC or Menninger)	Neuropsychiatry Clinic (MEDVAMC)	Movement Disorders Clinic (BCM, MEDVAMC)	Cognitive Disorders Clinic (MEDVAMC or Menninger)	Stroke Clinic (BCM, MEDVAMC)