Yale Neurosurgery Subinternship Handbook 2017

Subinternship Handbook Table of Contents

Directors and Coordinators:

Chair, Department of Neurosurgery and Director, Residency Program:

Dr. Murat Gunel

Subinternship Director and Associate Director, Residency Program:

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For more information:

https://medicine.yale.edu/neurosurgery/

I. Introduction

Welcome to the Yale Department of Neurosurgery! We are thrilled to have you on our service and encourage you to take an integral role in all aspects of our patient care during your rotation.

Subinterns spend a **total of 4 weeks** on service and become immersed in our day-to-day service, functioning essentially as a supervised intern, working closely with our cohesive group of mid level providers, residents and attendings in the inpatient, outpatient and operating room settings. **Our faculty provide neurosurgical coverage at 10 major hospitals throughout CT** and New England, most of which are part of the Yale New Haven Health System (YNHHS): Yale New Haven Hospital (YNHH)- York Street Campus, St. Raphael's Campus, Smilow Cancer Hospital at YNHH, Yale New Haven Children's Hospital; VA Connecticut Healthcare System- West Haven Campus; Greenwich Hospital; Bridgeport Hospital; Lawrence + Memorial Hospital- New London Campus; Westerly (Rhode Island) Hospital and St. Francis Hospital. **Subinterns rotate where our residents primarily work, YNHH- York Street and St. Raphael's Campuses.**

Subinterns are expected to participate in the evaluation and management of assigned patients, pre-round with writing of ICU notes, make rounds with our teams, attend clinics, assist in ICU procedures and surgeries, as well as attend academic conferences. Subinterns are expected to present their scholarly work at one of our academic conferences (i.e for approximately 15-20 minutes). Subinternship hours *never* exceed 80 hours/week with a maximum of 16 hour-shifts, as required by the Yale School of Medicine.

Our service is a busy one and subinterns will have a wide range of surgical and clinical experiences upon their completion. Examples of surgeries frequently encountered on our service include: aneurysm surgery with craniotomy or endovascular coiling or stenting, carotid endarterectomy, pediatric skull and spine reconstruction and repairs, brain tumor surgery, including awake craniotomy, epilepsy surgery, transnasal surgery, deep brain stimulation and spine surgery, including minimally invasive and deformity correction surgery. We strongly encourage students to read and prepare prior to clinics and surgery, to help gain the most of the experience. Likewise, we support students taking on as much involvement with our patients as both feel comfortable with and our faculty and staff welcome questions and are dedicated to teaching.

Though highly unlikely, should you ever feel uncomfortable, unfairly treated or harassed while on our service by anyone you encounter, please report any such events to Drs. DiLuna, Gunel, and/or the Yale Office of Student Affairs immediately. Again unlikely, but should you ever feel threatened, please contact Hospital Police, University Police or New Haven Police immediately. Your welfare and safety are top priority to us.

Dr. DiLuna meets with all subinterns at the start of the Subinternship and Dr. Gunel, towards the end. Please let our coordinators know if you would like to set up any meetings with other faculty members.

Below, please find a description of our team and general roles, the day-to-day schedule, weekly conferences, and general expectations of subinterns.

II. Service Structure

There are many members of the Department who work to provide excellence in neurosurgical patient care at Yale. Below, please find brief descriptions:

Attending Neurosurgeons:

The attendings are board certified (or eligible) neurosurgeons who are ultimately responsible for the care and decision-making for our patients. They have clinics, round daily on their patients and are present for all key portions of surgical procedures. They rely on the resident staff to gather and synthesize data, construct plans and ultimately implement their care decisions. With the continued rapid growth of our Department, we continue to expand our number of clinical faculty of attending neurosurgeons and each is sub-specialized with an area of expertise. Please see Appendix I for their listing.

Residents:

Similar to all neurosurgery departments, the Yale Neurosurgery Residency Program is a 7-year training program and we take 2 residents per year. As a general rule, the residents are grouped as follows:

PGY 1: Interns

PGY2, 3: Junior Residents

PGY 4, 5: Mid-Level Residents

PGY 6: Senior Residents

PGY 7: Chief Residents

The residents are the heart and soul of our neurosurgery service. Given the demands of our specialty, they can be among the busiest in the hospital and are responsible for knowing the details of the healthcare of all the patients for whom they are responsible. They are heavily supported by mid level provider (MLP) staff (i.e. PAs, APRNs, see below) who help with orders, paperwork and other routine aspects of patient care, allowing them to focus on more educational aspects of workload. The junior residents are primarily responsible for managing patients on the neurosurgery floors and in the Neuroscience Intensive Care Unit (NICU), as well as for seeing new patient consults throughout the hospital and in the Emergency Department. The rotate on “day float” and “night float” systems to allow for better work flow and rest. Junior residents will typically communicate with their supervising senior or chief resident, refine plans of care, and present this information to the attendings. The senior and chief residents run morning and afternoon rounds and are primarily in the operating room during the day, as is the junior-level operating resident.

The neurosurgery service pager is **203-412-1030**. This is the main number for other services to call to request new consults and the number for which the nurses call with questions not able to be answered by MLPs. Please see Appendix 2 for a list of Residents and their contact information. Cell phone communication is preferred (please avoid using the service pager).

As discussed, our service is large and thus divided into four teams at the main YNHH-York Street Campus: Neurovascular, Brain Tumor/Spine, Pediatrics and Functional/Epilepsy. A

chief or senior resident runs each team. The chief residents running the Neurovascular and Brain Tumor/Spine teams round separately in the NICU each morning with a junior resident and MLP. The senior residents running the Pediatrics and Functional/Epilepsy services round on their own, as does the senior resident covering the YNHH- St. Raphael's Campus. We arrange it so subinterns spend time with each team during their rotation, when possible. **Subinterns spend 3 weeks at the YNHH-York Street Campus and 1 week at YNHH-St. Raphael's Campus.**

Midlevel Providers: MLPs are physician assistants and nurse practitioners who work closely with the residents and comprise the rest of the Neurosurgery inpatient and outpatient teams. MLPs are dedicated to either the floor or NICU and rotate on shifts providing full coverage of days, nights and weekends. They work most closely with the junior residents and help with an enormous amount of work. We are fortunate to have experienced MLPs on the service, some of whom have 10+ years of neurosurgery experience and who have helped train several generations of residents. They are an invaluable resource for both the residents and students on service. Other MLPs are dedicated to subspecialty sections of the Department (i.e. Vascular, Pediatrics, Brain Tumors, etc) and primarily function in the outpatient setting.

III. General Schedule

We have subinterns rotate on all teams and at both the YNHH-York and SRC to optimize exposure to our faculty and clinical experience. In general, subinterns rotate 3 weeks at YNHH-York Street Campus, including Smilow Cancer Hospital (both cranial and spine) and Children's Hospital and one week at the St. Raphael's Campus (primarily spine surgery). In general, the academic chief resident will assign you to a team weekly and surgical cases and/or clinics daily the evening before to allow time for preparation.

General weekday schedule at YNHH- York Street Campus (specific times may vary):

5:30a – 6:00a	Pre rounds
6:00a – 6:30a	Morning rounds, NICU (6-2)
6:30a	Sign out in 6-3 ("run the list)"
7:30a	OR (3rd floor, NPOR or SPOR York)

The subinterns must be on time and preferably early, when possible.

Conferences:

There are several academic conferences and we encourage our subinterns to take part. Friday morning is our academic day and includes "Subspecialty Morbidity and Mortality Conference" at 7am, followed by Neuroscience Grand Rounds and Neurovascular Conference. Subinterns (and residents) must attend these conferences and are excused from clinical responsibilities during those times. Likewise, Tuesday we have "Resident Didactic Series" from 6-7pm and subintern and resident attendance is also mandatory. Other favorite conferences, include Pediatric Tumor Board (Th 4-5pm), Brain Tumor Board (F 1-2pm) and Spine Conference (Th 7-8am).

IV. Expectations

Our Department is bonded by the privilege of being a neurosurgeon and dedication to caring for the sickest patients and their families. It is undeniably hard work, but incredibly rewarding and unique. The purpose of the Subinternship is to provide students insight into having a career as a neurosurgeon. As such, this rotation can be a demanding one, but one we trust will be incredibly valuable and rewarding. You will find neurosurgery to be a very serious discipline, but we sincerely hope you also have fun during this month.

Rounds

It is expected all students, and especially subinterns, are on time to rounds every day. Attire is professional (i.e. shirt and tie for gentlemen with slacks and a white coat, similar dress for women with closed toe shoes, no jeans). Moreover it is expected and appreciated for subinterns to help facilitate rounds by helping to collect and communicate data and assisting with patient care in an effort to make rounds run smoothly; this also helps to familiarize students with the patients on service. EPIC access is necessary and will be provided.

Morning rounds can be quite busy for the residents as large amounts of data must be collected, synthesized and plans formulated in a relatively short amount of time. Subinterns will be assigned a small number of patients and responsible for collecting their data (i.e. history, vital signs, lab values, etc) each morning. As you become more comfortable with the pace of the service, you may be asked to present your patient on rounds, but do not be insulted if the residents do so. This is merely a reflection of the time constraints under which we operate and not your abilities.

Afternoon rounds are more variable. The day float junior resident signs out to the night float resident at approximately 5:30 PM each day, usually in the resident conference room on 6-3 or in the NICU. Chiefs round separately on their own patients and at their discretion. The afternoon is a good time to ask the chiefs more in depth questions about patient care that there may not have been time for in the morning.

OR

Chief residents assign cases to subinterns the evening before the cases. Students must be on time to the OR (7:30am for first start cases every day, except Friday which is 8:30am). **It is highly suggested subinterns read and prepare for their case the evening before, including the patient's chart and subject material.**

After arriving to the OR, subinterns are expected to please introduce themselves to the attendings, anesthesiologists, circulating nurses and scrub techs. As the subinterns become more known and comfortable, it is expected they assist with pulling up scans, getting equipment ready, etc.

Clinics and Conferences:

When not in the OR, students are expected to take part in clinics, conferences and assist the interns and junior residents on the floor and in the NICU with seeing consults and procedures. **On Tuesday evenings and Friday mornings, academic conferences take precedence over any OR cases and subintern attendance is mandatory.**

Medical Student Conference Presentation:

Subinterns are expected to present their scholarly activity during a research talk once during the Subinternship. This typically takes place on Friday morning during conference hours and is usually limited to 15-20 minutes. Individual date and times will be assigned as early as possible in the rotation. Occasionally, subinterns are also asked to present an interesting case from the past week at Friday's M&M conference. **The resident staff will help you!** These are opportunities for subinterns to share their accumulated knowledge with the Department faculty and staff. Expect an interactive and collegial discussion with questions from the residents and attendings.

Call and Duty Hours

Students are expected to take call one time per week and follow ACGME duty guidelines for interns. Specifically, not to exceed 80 hours per week or work longer than 16-hour shifts. Call will be arranged as to maximize your exposure to faculty in the OR and minimize any disruptions. When on call, subinterns are expected to work closely with the junior resident carrying the service pager, seeing consults and helping to take care of urgent patient-related issues, as well as assisting with routine patient care. Please note taking call is not meant to burden subinterns. Rather it is useful as to prepare students for away subinternships with more demanding call schedules than Yale allows and a lifetime of call as a neurosurgeon!

V. Rotation Goals

The goal of the Subinternship is to familiarize students with common neurological diseases and ways to surgically manage them. Our rotation will form the foundation for further knowledge and training. Subinterns are not expected to master this in the few weeks of rotation, but rather achieve a basic familiarity. The following is a brief guide for subinterns to be familiar with at the completion of the Subinternship:

General
- Glasgow Coma Scale
- The neurological exam
- Detailed examination of a comatose patient
- Ventriculostomy and ICP monitors
- CSF dynamics and content
- Basic interpretation of brain and spine CT scans and MRIs
- Traumatic brain injury and elevated ICP
- Management of subdural and epidural hematomas

Spine
- Dermatomes and myotomes
- Myelopathy
- Radiculopathy
- Spinal cord syndromes
- Cauda equina syndrome
- Low back pain work-up and management
- Spinal stenosis
- Discogenic pain
- Spinal decompression
- Spinal fusion
- Traumatic injuries to the spine
- ASIA scale

Tumors
- Epidemiology & presentation
- Cerebral Edema
- Primary brain tumor management (i.e. GBM, meningioma)
- Brain metastases management
- Radiosurgery
- Skull base surgery
- Endoscopic surgery
- Pituitary and sellar tumors; endocrinologic considerations
- Spine tumors

Epilepsy
- Types of seizures
- Seizure monitoring
- Etiology
- Anti-epileptic drug management

Functional
- Trigeminal neuralgia and pain disorders management
- Deep Brain Stimulation (DBS) for movement disorders

Vascular
- Aneurysmal Subarachnoid Hemorrhage (SAH) management
  - Seizures, hydrocephalus, vasospasm
  - Aneurysm treatment options: Clipping vs coiling
- Vascular Malformations
- Intracerebral Hemorrhage
- Stroke, ischemic and hemorrhagic

Pediatrics
- Hydrocephalus-presentation and treatment
- Ventriculoperitoneal shunts
- Endoscopic third ventriculostomy
- Pediatric Brain and Spine Trauma
- Pediatric Brain and Spine Tumors
- Neonatal intraventricular hemorrhage

Peripheral Nerve
- Basics

VI. Educational Resources

The residents have a substantial library of relevant books for their neurosurgical training in the resident conference room on 6-3. Students are welcome to use them, ***but are not allowed to take them home***. Other books are available at the Yale Medical Library. **We highly suggest each subintern purchase his/her own copy of "Greenberg" (Handbook of Neurosurgery, Mark S. Greenberg, Nicolas Arredondo, Edward A. M. Duckworth, and Tann A. Nichols).**

Other useful books:

Surgical Recall, Lourne H. Blackbourne, 3rd or 4th Ed. (An excellent introduction to general surgery and has instruction on knot tying. The section on neurosurgery is a reasonable introduction).

Goldberg, Clinical Neuroanatomy Made Ridiculously Simple

Plum and Posner, Diagnosis of Stupor and Coma

Winn et al. (eds.), Youman's Textbook of Neurological Surgery

Helpful websites include:

CNS University http://univ.cns.org/

American Association of Neurological Surgeons http://www.aans.org/

Congress of Neurological Surgeons http://www.cns.org/

VII: Closing Remarks

While on the Yale Neurosurgery Subinternship, please remain cognizant that we see and care for some of the sickest patients in the hospital. People who are sick often have difficulty coping with their illness; those who have neurological impairments often have trouble even understanding their situations and it can be that much more challenging. Same can be true for their loved ones and even for the neurosurgeons caring for them. Please understand that people can handle difficult situations differently, but that every resident and attending in our Department respects our patients and knows his or her responsibility towards them. We expect the same from our students. No one is immune to the demands of the Neurosurgery service and please know we are here to support subinterns as much as we are here to support each other through difficult times. Please contact Drs. DiLuna or Gunel if you experience any issues with coping or need support or feel someone else might benefit.

We sincerely look forward to working with you and to your productive and successful career in our discipline. Once again, welcome and have fun!

Best Regards,

The Yale Department of Neurosurgery

Appendix I: Faculty and Subspecialty Listing

Murat Gunel, MD, FACS, FAHA

Nixdorff-German Professor of Neurosurgery and Professor of Genetics and of Neuroscience

Chair, Department of Neurosurgery

Chief, Neurosurgery, Yale New Haven Health System

Chair, Perioperative Executive Leadership Committee

Director, Residency Program

Member, National Academy of Medicine

Co-Director, Yale Program on Neurogenetics

Joseph Cheng, MD, MS, FAANS, FACS

Professor of Neurosurgery

Vice Chair of Clinical Affairs, Department of Neurosurgery

Director, Neurosurgery Spine Fellowship

Joseph Massa Piepmeier, MD

Nixdorff-German Professor of Neurosurgery

Vice Chair of Academic Affairs, Neurosurgery

Chief, Brain Tumor Surgery

Khalid M Abbed, MD

Associate Professor of Neurosurgery

Chief, Neurosurgery Spine

Director, Minimally Invasive Spine Surgery

Director, Spine Tumor Surgery

Co-Director, YNHH Spine Center

Michael Apuzzo, MD

Distinguished Adjunct Professor of Neurosurgery

Juan Bartolomei, MD

Assistant Professor of Neurosurgery

Veronica L.S. Chiang, MD

Associate Professor of Neurosurgery and of Therapeutic Radiology

Director, Stereotactic Radiosurgery

Director, Gamma Knife Center, YNHH

Director, Stereotactic Radiosurgery Fellowship

Michael Louis DiLuna, MD

Assistant Professor of Neurosurgery

Chief, Pediatric Neurosurgery

Associate Residency Program Director

Patrick Doherty, MD

Clinician

Director, Neurosurgery, Lawrence + Memorial Hosptial

Charles Cecil Duncan, MD

Professor of Neurosurgery and of Pediatrics

Jason Lee Gerrard, MD, PhD

Assistant Professor of Neurosurgery and of Neuroscience

Chief, Functional Neurosurgery

Chief, Trauma Neurosurgery, YNHH

Ryan M Hebert, MD

Assistant Professor of Neurosurgery

Kristopher Thomas Kahle, MD, PhD

Assistant Professor of Neurosurgery

Pediatrics, and Cellular and Molecular Physiology

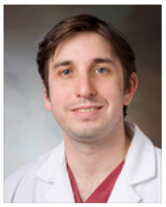
Director, Neonatal and Congenital Anomaly Neurosurgery

Joseph T King, Jr, MD, MSCE

Associate Professor of Neurosurgery

Chief, Neurosurgery, VA Connecticut Healthcare System

Director, Neurosurgical Outcomes Research



Luis Enrique Kolb

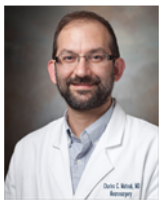
Instructor

Neurosurgery Spine

Maxwell Scott Hauser Laurans, MD, MBA

Assistant Professor of Neurosurgery

Chief and Director, Perioperative Services



Charles Christian Matouk, MD

Assistant Professor of Neurosurgery and of Radiology and Biomedical Imaging

Chief, Neurovascular Surgery

Director, Neurovascular/Endovascular Fellowship

Jennifer Moliterno, MD

Assistant Professor of Neurosurgery

Brain Tumor Surgery

Sacit Bulent Omay, MD

Assistant Professor of Neurosurgery

Debra Ann Petrucci, MD

Assistant Professor of Neurosurgery

Dennis Dee Spencer, MD

Harvey and Kate Cushing Professor of Neurosurgery

Chief, Epilepsy Surgery

Director, Epilepsy Fellowship

Director, Pituitary Surgery

Patrick Robert Tomak, MD

Assistant Professor of Neurosurgery

Justin Virojanapa, DO

Instructor

Neurosurgery Spine

Kun Wu, MD, PhD

Assistant Professor of Neurosurgery

Appendix II: Resident List 2016 – 2017:

David Gimbel, MD

Chief Resident – PGY7

Cell: 203-507-1016

Ryan Grant, MD

Chief Resident – PGY7

Cell: 248-761-4683

Eyiyemisi Damisah, MD

Senior Resident – PGY6

Cell: 562-322-0248

Branden Cord, MD

Infolded Vascular Fellow – PGY5

Cell: 650-353-6067

Joaquin Camara-Quintana, MD

Infolded Spine Fellow - PGY5

Cell: 650-213-6587

Jacky Yeung, MD

Research Resident – PGY4

Cell: 517-775-7780

Gregory Kuzmik, MD

Infolded Spine Fellow - PGY4

Cell: 703-819-1790

Elena Fomchenko, MD

Junior Resident – PGY3

Cell: 646-243-0767

Ramana Gorrepati, MD

Junior Resident - PGY3

Cell: 563-505-7332

Abhijeet Gummadavelli, MD

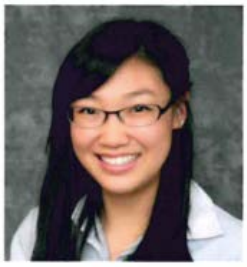
Junior Resident – PGY2

Cell: 513-377-7473

Adam Kundishora, MD

Intern – PGY1

Cell: 207-653-2617



Stephanie Cheok, MD

Junior Resident – PGY2

Cell: 415-272-7621

Chris Hong, MD

Intern – PGY1

Cell: 203-804-2970