GW Faculty Proposals for Medical Student Summer Research Projects

Please review this packet of faculty proposals for medical student 2019 summer research projects.

Email any faculty who list a program of interest. We encourage faculty to interview three students before selection.

Remember that you can also identify your own faculty research mentor and develop a project not in the packet.

Once a faculty member has selected you to work on the project, you can use that proposal, along with that research mentor, to apply for funding for the project.

You are encouraged to develop the proposal to apply to multiple funding sources. This increases the likelihood you will receive a competitive fellowship, since no single source is guaranteed.

Consider fellowship opportunities for medical students:

a. External national summer fellowships
b. External diversity-targeted national fellowships
c. Diversity Supplement to the mentor's NIH grant
d. External Medical student opportunities at other institutions
e. GW Gill fellowships- Apply here
f. GW Health Services Scholarship Program
g. External national year-out fellowships

Click here for steps for a student to apply for funding. Work with your faculty research mentor to develop their proposal into your joint fellowship application.
W.T. Gill Summer Fellowship Faculty Proposal by Claude Abdallah

* 1. Faculty Sponsor

* Name: Claude Abdallah
* Degrees: MD, MSc
* Title: Associate Professor
* Organization: Children's National Health System
* Address: 111 Michigan Ave NW
* Apt/Suite: 
* City: Washington
* State: DC
* Zipcode: 20010
* Office Phone: 2024762407
* Email Address: cabdalla@cnmc.org

* 2. Daily Supervisor

Name: 
Degrees: 
Title: 
Organization: 
Address: 
Apt/Suite: 
City: 
State: 
Zipcode: 
Office Phone: 
Email Address: 

* 3. Project Title (250 character limit)

Effect of premedication with midazolam on recovery times after tonsillectomy and adenoidectomy

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.

**5. Sponsor's Research Focus:**
Yes - Anesthesiology  
Yes - Pediatrics

**6. Sponsor's translational level**
* (Please select ONE)
T3: Translation to Practice

**7. Hypotheses (200 word limit)**
Benzodiazepines are effective, commonly used anxiolytics in same day surgery. The effect of oral premedication with midazolam in patients undergoing tonsillectomy and adenoidectomy is not clear. The overall objective of this retrospective study is to assess the effect of oral premedication with midazolam on recovery from general anesthesia after tonsillectomy and adenoidectomy in patients with documented obstructive sleep apnea. We hypothesize that preoperative midazolam may increase time to emergence and time to discharge in patients with moderate and severe obstructive sleep apnea.

**8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).**
Proposed data from review of 1500 patients' electronic records. Collection of data has been initiated.

**9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.**
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

The list of patients has been acquired. Data to be collected from electronic records: An Excel spreadsheet has been created and initiated with collection of demographics and other data such as: Severity of apnea, Length of surgery, Emergence time, Discharge time. Documented desaturations, apnea episodes in the perioperative period.

**10. Describe the student's role in the project (200 word limit)**
The student's role will be essentially gathering the data after initiation and understanding the concept of the project and also if interested, assisting in the analysis of the data and in presenting any abstract or poster related to the project.

**11. Describe the mentor's role in the project. (200 word limit)**
The mentor's role would be in explaining the project and the different steps in obtaining data, and then assisting with any question the student has, as well and depending on the progress of the data collection, the mentor would be initiating the student to the analysis of the data and helping with writing an abstract or a poster.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

I have assisted and mentored previous trainees, which has led to national poster presentations, and publications. I have not applied to a Gill Fellowship previously.

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: CR00006881

* IRB Date: 10/08/2018
W.T. Gill Summer Fellowship Faculty Proposal by Vahe Badalyan

* 1. Faculty Sponsor

* Name: Vahe Badalyan  
* Degrees: MD, MPH, MBA  
* Title: Attending  
* Organization: Children's National  
* Address: 111  
* Apt/Suite: Suite 600 2.5 West  
* City: W  
* State: DC  
* Zipcode: 20010  
* Office Phone: 2024763058  
* Email Address: vbadalya@cnmc.org

* 2. Daily Supervisor

Name: 
Degrees: 
Title: 
Organization: 
Address: 
Apt/Suite: 
City: 
State: 
Zipcode: 
Office Phone: 
Email Address:

* 3. Project Title (250 character limit)
PRELIMINARY EXPERIENCE WITH USTEKINUMAB IN CHILDREN AND YOUNG ADULTS WITH CROHN'S DISEASE

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.

* 5. Sponsor's Research Focus:
* 6. Sponsor's translational level
* (Please select ONE)
T2: Translation to Patients

* 7. Hypotheses (200 word limit)
Ustekinumab has an acceptable rate (50%) of sustained (12 months) clinical remission (defined by Crohn disease activity index) among patients with Crohn’s disease.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
Retrospective observational cohort study (review of charts of 25 Crohn's disease patients treated with Ustekinumab).

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

  - The project design makes it likely that the objectives will be achieved
  - The project is likely to result in a report of interest to other scholars
  - The project fulfills discovery/original research

Biologic agents used in treatment of pediatric Crohn's disease have largely included anti-TNF drugs (Infliximab or Adalimumab). Ustekinumab, which is an antibody against IL 12/23, has only recently emerged as a treatment option. Data on outcomes among pediatric Crohn's patients treated with Ustekinumab is lacking. Within next 3-6 months, we will conduct a chart review of 25 patients treated with Ustekinumab and compile data on their disease activity, quality of life, pre- and post- treatment, usage of previous and current disease-modifying drugs, surgeries, hospitalizations, and complications.

* 10. Describe the student's role in the project (200 word limit)
Student will create a database of patients, conduct chart review, and record pertinent information in the database for future analysis. Student may also be asked to administer structured questionnaires to patients by mail or phone.

* 11. Describe the mentor's role in the project. (200 word limit)
Mentor will provide the data collection protocol to student; will train the student on how to access and compile clinical data from the electronic medical records. Mentor will meet with the student regularly to evaluate progress and to provide advice and support.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
Mentor has experience supervising medical residents in their research projects, and supervising and training medical students doing clinical rotations in Pediatric Gastroenterology.
13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Pending)
1. Faculty Sponsor

Name: Nancy M. Bauman MD
Degrees: MD
Title: Professor, Otolaryngology Head and Neck Surgery
Organization: Children's National Health System, George Washington University
Address: 111 Michigan Ave NW, Washington DC
Apt/Suite: 
City: Bethesda
State: MD
Zipcode: 20817
Office Phone: 2024764270
Email Address: nbauman@cnmc.org

2. Daily Supervisor

Name: I do not have a daily supervisor. My departmental chairman is Dr. George Zalzal at same address.
Degrees: 
Title: 
Organization: 
Address: 
Apt/Suite: 
City: 
State: 
Zipcode: 
Office Phone: 
Email Address: gzalzal@cnmc.org

3. Project Title (250 character limit)
Outcomes of Paradoxical Vocal Cord Motion, A Multi-Institutional Study

4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Pediatrics
Yes - Surgery

* 6. Sponsor's translational level
* (Please select ONE)
T2: Translation to Patients

* 7. Hypotheses (200 word limit)
Paradoxical vocal cord motion (PVCM) is an intriguing condition where the vocal cords inappropriately and intermittently adduct during inspiration causing marked inspiratory stridor and air hunger sensation that appears life-threatening to patients and bystanders. PVCM mainly affects adolescent females who are often considered overachievers and appears to be stress-related. The condition is self-limited and treatment includes stress management and biofeedback where patients learn to abduct (open) their vocal cords to abort episodes. Most non-otolaryngologists are not aware of the condition and PVCM is often misdiagnosed, over-investigated with diagnostic studies and treated ineffectively. We recently completed a patient-reported-outcome (PRO) pilot study (former Gill Scholar project to be presented this spring) and found that nearly all patients were first misdiagnosed (typically with reactive airway disease), underwent a mean of 3.6 unnecessary diagnostic studies and were treated with multiple medications. Anti-reflux medications, allergy medications, anticholinergics, breathing treatments, and steroids were each used in over 50% of participants but were rarely effective. We hypothesize that improved awareness of PVCM among primary care and ER physicians is necessary to improve diagnosis and management and that better knowledge of the long term outcome of this condition will help to counsel patients on its natural history.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
To collect patient reported outcome data regarding PVCM from collaborative institution to validate our pilot study findings and to determine the following: 1. How often PVCM was first misdiagnosed as another condition? 2. What diagnostic studies were completed and which were helpful? 3. What treatments were used and how effective were these treatments? 4. How long did patients continue to have symptoms after begin correctly diagnosed with PVCM? 5. Do patients still have symptoms? 6. Impact of PVCM on patients’ quality of life? An estimate of 25 participants from each institution will provide the necessary data for assessment of outcome objectives. A meta analysis will be completed to determine outcome based on age, presenting features, treatments used and diagnostic studies completed.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
As a seasoned pediatric otolaryngologist who has authored over 100 manuscripts and chapters, it is unrealistic to expect to complete a quality study project in a 10-12 week summer period. 90% of this study can be completed during the summer however a bit of time investment before the summer period allows the awardee to be up and running at the initiation and time after allows for completion of the manuscript and presentation at a national meeting. The reward should be worth it and based on experience of former Gill scholars, the program is a great asset to residency attainment and development of research skills helpful throughout the entire career.

1. Prior to a. discuss project with participating institutions’ research coordinators and develop timeline for completion b. IRB approval for the pilot study was already obtained and we will prepare the amendment to submit to expand the study to a multi-institutional study. A project's success is dependent on IRB approval before the study time begins and we commit to having approval by March or April. Ideally a Gill Scholar will have the opportunity to participate in this aspect of the study too if his/her time permits before the summer session and if so inclined. c. the current redcap PVCM outcome survey will be revised to capture additional information and to delete some information now deemed irrelevant. The investigator will complete this however the Gill scholar will need to complete redcap training.

2. During: a. review Children’s National patient charts capture additional patients (estimate 250 charts for yield of 25 eligible participants) b. Invite eligible participants (email or mail) to participate and follow up with a phone call c. the multi-institutional nature of this study will involve 3-4 centers in addition to ours. The most likely centers are Boston Children’s, Vanderbilt, Children’s Hospital of Philadelphia, Denver Children’s and possibly Seattle Children’s. Otolaryngologists at these institutions have expressed interest in participating and the details of participation will be finalized at the upcoming research forum at the 6th annual Aerodigestive meeting December 5-8th 2018. The Gill Scholar will work directly with the research coordinator or investigator in charge of this study at each institution to assist in study completion. d. work with Children’s Surgical Department biostatistician in analyzing the assimilated redcap data e. Complete draft of manuscript while awaiting data accumulation f. Often I can propose a small separate chart review or similar project to complete during potential study downtime.

3. After: a. Submit abstract for presentation and manuscript for publication b. revise and resubmit manuscript

* 10. Describe the student's role in the project (200 word limit)

- To learn great clinical research skills that will serve as valuable tools for future research endeavors including IRB applications and Recap usage. - To enhance CV for residency application - To collaborate with each institution’s research investigator to complete the study. - To expand our study participants at Children’s National. - To assimilate redcap data from each institution to address the study questions. - To work with our Children’s Surgical Department biostatistician in analyzing the assimilated redcap data. - To submit an abstract to a national otolaryngology meeting for podium or poster presentation. - To prepare, submit and revise a manuscript addressing study goals.

* 11. Describe the mentor's role in the project. (200 word limit)

1. To provide a great topic of research investigation 2. To provide mentorship at every step of the way in terms of how to complete IRB applications, how to utilize Redcap to capture patient reported outcome data, how to collaborate with institutions, how to reach out to potential study participants, how to consent study participants, how to analyze data with a biostatistician, how to write a manuscript, how to prepare an abstract, how to manage time. I will schedule regular meetings at Children’s for study progress updates along with interval telephone meetings. 3. The opportunity to shadow me during my clinic or OR is also available.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

I have worked with the following medical students and each interaction has culminated in (or will) an abstract submission and/or poster submission at national meeting, and/or podium presentation and/or manuscript submission. Alex Straughan – George Washington University, 2017 - 2018 (GILL) Betel Yibrehu – George Washington University, 2017- 2018 (GILL) Bianca Georgakopoulos - George Washington University, 2017- 2018 Kyra Folkert - George Washington University, 2017 Victoria Costa, George Washington University, 2016 Kathryn Markland, George Washington University, 2016 Janine Rotsides, George Washington University, 2015 (GILL) Alex Gu, George Washington University, 2015-2018 Heather Pace, George Washington University, 2014 Rachel Haimowitz, Medical Student, George Washington University, 2012-13 (GILL) Pedrom Sioshansi, Medical Student,
13. Do you have or will you obtain IRB approval for this project?

*Please note: Students cannot begin a human subjects project without IRB approval.*

* (Please select ONE)

Selected No (Pending)
* 1. Faculty Sponsor

**Name:** Randall S. Butd  
**Degrees:** MD, PhD  
**Title:** Chief, Division of Trauma and Burn Surgery  
**Organization:** Children's National Medical Center  
**Address:** 111 Michigan Ave NW  
**City:** Washington  
**State:** DC  
**Zipcode:** 20010  
**Office Phone:** 202-476-2151  
**Email Address:** rburd@cnmc.org

* 2. Daily Supervisor

**Name:** Randall S. Burd  
**Degrees:** MD, PhD  
**Title:** Chief, Division of Trauma and Burn Surgery  
**Organization:** Children's National Medical Center  
**Address:** 111 Michigan Ave NW  
**City:** Washington  
**State:** DC  
**Zipcode:** 20010  
**Office Phone:** 2024762151  
**Email Address:** rburd@cnmc.org

* 3. Project Title (250 character limit)

Evaluation of Errors and Response to Errors during Trauma Resuscitation

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Surgery

* 6. Sponsor's translational level
* (Please select ONE)
T3: Translation to Practice

* 7. Hypotheses (200 word limit)
The causation of medical errors that lead to harm is similar to that of errors that do not reach the patient because of mitigation, patient status, or chance. By identifying errors and associated patterns, regardless of actual patient harm, strategies may be developed to reduce errors or mitigate their effects.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
1. Identify medical errors during trauma resuscitation and the responses to these errors
2. Define the factors associated with trauma resuscitation errors and the type and timeliness of response to these errors

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.

Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

The research project will be performed within our research group that is funded by an NIH R01 and NSF grant awarded to the PI (Burd). Unintentional injury is the leading cause of death among children from age 1 to 40 years. The initial evaluation and management of patients with suspected major injuries in the emergency department is standardized through the Advanced Trauma Life Support (ATLS) framework. This framework provides a common assessment and treatment approach. Prior studies have shown an association between adherence to ATLS and the outcomes of trauma patients. Identifying and managing deviations from the ATLS protocol is an important step in improving the outcome of injured patients. Although several approaches can be used to identify deviations, video review has been established as a more effective approach for evaluating trauma resuscitations than medical record review. Prior research with video review has been used to determine where providers most commonly deviate from the ATLS protocol. Work by our group and others has shown that deviations from the ATLS protocol are related to patient and event features, including the occurrence more often at night and during the evaluation of specific injury types such as burns. Further study is needed to identify factors leading to these deviations and the type and timeliness of response to them. Identification of these factors will facilitate the development of interventions to improve the outcomes in these patients. In the first phase of the project, we will use video review to identify deviations occurring during pediatric trauma resuscitation. These deviations will be classified based on their type and potential for patient impact. We will next identify whether the team recognized each deviation or took action to mitigate its impact. We will use a video review process for identifying deviations during trauma resuscitation that we have developed at our institution. We will correlate errors and error response with patient and resuscitation features to identify factors increasing the vulnerability to deviations, focusing on those deviations most contributing to potential adverse outcomes. This project will differ from previous work by our group in this area in several ways. First, we will develop a reproducible and scalable approach for identifying deviations and the response to
deviations. Our previous work was labor-intensive and required domain expertise. Second, we will identify provider level features associated with the occurrence of deviations and response to these deviations. Our previous work did not consider how the composition and expertise of the team influenced these factors. Finally, we will focus these analyses on a population selected to be at highest risk for error. Our previous work used consecutive resuscitations without consideration for the likelihood or impact of deviations during these events. We anticipate assessing >100 trauma resuscitations during this project. The deliverables from this work will be a categorization of deviations and deviation response and their association with potentially modifiable provider and environmental features.

* 10. Describe the student's role in the project (200 word limit)
The student will perform video review to identify medical errors and the team's response to errors during trauma resuscitation. This work will use an established data dictionary for identifying these errors and response to errors and will use video annotation software that our group has used for several years. The student will participate in weekly research meetings and will participate in data accrual and manuscript preparation. Space is available for the student on-site at Children's National Medical Center.

* 11. Describe the mentor's role in the project. (200 word limit)
The mentor will meet with the student at least weekly during the fellowship to evaluate progress toward achieving this project's goals.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
We have had three Gill Fellows work with our team in the past. Our most recent Gill fellow co-authored a recently published manuscript that was in part based on her summer work.

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)
Selected Yes

Please provide IRB number and date
* IRB Number: 00000343
* IRB Date: 4/18/18
W.T. Gill Summer Fellowship Faculty Proposal by James Chamberlain

* 1. Faculty Sponsor

  * Name: James Chamberlain
  * Degrees: MD
  * Title: Chief of Data Analytics, Emergency Medicine
  * Organization: Children's National Health System
  * Address: 111 Michigan Avenue, NW
  * Apt/Suite: 
  * City: Washington
  * State: DC
  * Zipcode: 20010
  * Office Phone: 2024764177
  * Email Address: jchamber@cnmc.org

* 2. Daily Supervisor

  Name: Kenneth McKinley
  Degrees: MD
  Title: Attending Physician, Emergency Medicine
  Organization: Children's National Health System
  Address: 111 Michigan Avenue, NW
  Apt/Suite: 
  City: Washington
  State: District of Columbia
  Zipcode: 20010
  Office Phone: 2024764177
  Email Address: kmckinley@childrensnational.org

* 3. Project Title (250 character limit)
Discrete event simulation modeling to predict the impact of a mass casualty incident on patient flow in a pediatric emergency department.

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.

* 5. Sponsor's Research Focus:
Yes - Pediatrics
Yes - Emergency Medicine

* 6. Sponsor's translational level
* (Please select ONE)
T3: Translation to Practice

* 7. Hypotheses (200 word limit)
Our hypothesis is that a discrete event simulation model, representing a mass casualty incident with at least 10 patients arriving in one hour [that require decontamination] will predict a significant adverse impact on patient flow through the pediatric emergency department, as defined by an increased average length of stay for other patients by at least one hour.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
The final objective will be a completed discrete event simulation model, validated for use in the Children’s National Medical Center Pediatric Emergency Department. The model will be constructed with SimPy, a discrete event simulation framework using Python. This model will be used for theoretical experimentation to answer questions pertaining to the impact of mass casualty incidents on patient flow and resource utilization, most specifically our hypothesis, above. In order to build and validate the discrete event simulation model, we will need to perform direct observations of emergency department processes that are most relevant to the resources used during mass casualty incident response. We expect to perform 200 direct observations of each of the following: pivot nurse screening times, triage assessments, bedside nurse assessments, and initial physician evaluation at various times of the day.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.

Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

System Description and Conceptual Modeling: We will create a discrete event simulation model of the pediatric emergency department, beginning with a simple conceptual model, representing the basic patient flows from presentation to discharge. We will include all proposed patient flows for mass casualty incident responses. Data Collection: The layout, general allocation of rooms, and staff schedules will be built based upon administrative data from FY 2018. We will perform prospective observations of emergency department processes involved in the initial screening and evaluation of patients to collect timed durations for each of these processes. A research assistant will be stationed in the PED waiting area and use a stopwatch to record the duration for the pivot nurse process and triage assessment with vital signs for consecutive presentations on scheduled observation shifts during the summer of 2019. These patients will be followed clinically, with observations that continue through bedside nursing evaluation and initial physician evaluation until processes for a total of 200 patients have been observed. A research assistant will also observe the processes for 10 simulated patients during a simulated mass casualty incident educational experience during the summer of 2019. Specifically, the research assistant will observe 10 process
durations for each of the following: application of personal protective equipment, decontamination, nursing assessment, physician evaluation, and resuscitation. For treatment and disposition processes we will use deidentified administrative data from FY 2018. We will use previously published probability distributions or local expert opinion to estimate process durations for any other processes required to build the model. DES Model Building and Validation SimPy will serve as the framework to construct the complete computer model. We will use triangular probability distributions with the minimum, mode, and maximum to mathematically represent the duration of all observed processes. We will verify the model by observing the flow of simulated patients of each emergency severity index from process to process to confirm they are treated as would be expected in the real system. We will stress test the model by drastically increasing the rate of patient presentations. Once verified, we will simulate one thousand iterations of one week of patients flowing through the model in order to generate the average model output metrics of wait time, length of stay, and patient arrival numbers by emergency severity index. We will compare these metrics to administrative data from FY 2018 to validate our model’s output prediction. Model Experiments and Outcome Measures We will experiment with our model by introducing a sudden arrival of a large group of patients form a mass casualty incident and run another one thousand iterations of one week. All simulated patients who are present in the model at the time of the mass casualty incident will be labeled so their wait time and length of stay can be specifically tracked. We will then use descriptive statistics to compare these model outputs to those from the model without a mass casualty incident.

* 10. Describe the student's role in the project (200 word limit)

The student will be expected to prospectively observe all processes from patient arrival through physician evaluation (usually 30-60 minutes each) for 200 patients, as well as 10 simulated patients during a mass casualty incident drill. The student will record the duration for predetermined processes, but also alert the study team if there are additional, important processes that are regularly a part of patient care that have not been described prospectively in the operational planning of the PED. This qualitative assessment of processes is an essential piece to verifying that the eventual model approximates the real-world flow of patients. The ideal candidate would be proficient in python to help program the computer model on which we plan to perform our hypothesis testing. Students who are not familiar with python but are interested in operational research or quality improvement are also encouraged to apply to help plan different alternative scenarios to test, including staffing and resource adjustments at the time of a mass casualty incident that could help mitigate adverse system effects. The student will also be expected to perform a literature review of modeling approaches to answer operational questions around mass casualty incidents and assist in manuscript preparation.

* 11. Describe the mentor's role in the project. (200 word limit)

The mentor will orient the student to the Emergency Department and provide information and teaching about the design and function of discrete event simulation models. Weekly meetings with the research team will be designed to get feedback from the student on emergency department processes but also answer questions about how patients move through the system and how emergency department resources are prioritized. The mentor will also provide the administrative data required for any processes that are not directly observed and build the computer model using SimPy.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

The senior mentor (Chamberlain) has a long track record of mentorship for medical students, MPH students, and postdoctoral (medical) trainees, and junior faculty. This has resulted in the Clinical Research Mentor Award at Children's National in 2010 (the inaugural year of the now annual award), and, in 2018, the Nathan Kuppermann Award for Research Mentorship. Society for Academic Emergency Medicine. The three articles above are examples of successful mentorship. Kipping's paper was her capstone project for her MPH. Patel's paper was one of her first papers as a junior faculty member. The Atabaki paper represents mentorship at the level of faculty (Atabaki), resident (Grell), medical student (Heard-Garris NJ), and premedical students (Shahzeidi S, Chamberlain MB) Several mentees have also received national awards for work performed under Dr. Chamberlain, including Burns SD (postdoc fellow), Willis Wingert Award for best Trainee Abstract (1993); Vardis R (postdoc fellow),
Educational Scholarship Award (1999), Freishtat RJ (faculty), Chambliss Award for Best Paper (2002); Strohm-Farber JS (Nurse Doctoral candidate), Chambliss Award for Best Paper (2005); and Shrestha C (medical student), Best Research Poster (2007).

* 13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Not Required)

Please specify why it is not required.

This project is operational research on the function of the pediatric emergency department as a system. Direct observation of processes is only required to record the duration of certain processes, with neither patient information nor any identifiable information about any of the clinical staff involved in those processes. There will be no alteration in the care of any patient in any way related to this project.
1. Faculty Sponsor

Name: Yi-Wen Chen
Degrees: DVM, PhD
Title: Associate Professor
Organization: CNHS
Address: 111 Michigan Ave, NW
Apt/Suite:
City: Washington
State: DC
Zipcode: 20010
Office Phone: 202-476-4923
Email Address: y chen@childrensnational.org

2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

3. Project Title (250 character limit)
Investigating protein biomarkers for facioscapulohumeral muscular dystrophy (FSHD)

4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.

* 5. Sponsor's Research Focus:
Yes - Genomics
Yes - Neurology

* 6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

* 7. Hypotheses (200 word limit)
Level of serum biomarkers will return to baseline in a mouse model of FSHD that received antisense oligonucleotide treatment.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
Facioscapulohumeral muscular dystrophy (FSHD) is an autosomal dominant muscle disorder caused by aberrant expression of double homeobox protein 4 (DUX4). Currently there is no effective treatment for FSHD. We developed an antisense oligonucleotide therapy recently. We showed both in vitro and in vivo knockdown of DUX4 by the LNA gapmers which were designed to target DUX4. In addition, we showed muscle function recovery after 12 weeks of treatment. In parallel, using plasma samples from the patients, we identified circulating protein biomarker candidates which can potentially be used as surrogate marker for therapeutic efficacy. The goal of the this study is to measure the protein biomarker levels in the blood samples from treated mice and identify the most sensitive biomarkers as potential outcome measures for future clinical trial. We may also receive human samples from a clinical trial, in which a different treatment was given to the patients. In case we receive the samples by the time the project starts, we can use the human samples to validate the findings.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Blood samples from patients and mice that received treatment have been collected. Task 1. Complete within 1-2 months. The study involve examining protein levels in mouse serum samples using ELISA or protein activities using functional assays. Protein levels or activities in mice will be correlated with DUX4 knockdown in muscles and muscle functional measurements (functional testing data has already been collected). Task 2. Complete within 1 month but can be extended. Protein levels in human samples collected from patients with early onset FSHD will be analyzed to determine whether the levels correlate to disease severity (based on FSH disease severity score). A set of samples from a clinical trial testing efficacy of creatinine treatment can be examined to determine whether the protein biomarker levels correlated with clinical measurements collected

* 10. Describe the student's role in the project (200 word limit)
The student will learn knowledge (genetics and molecular biology) and lab skills (molecular assays) needed to conduct the study. The student will be trained then conducts the studies under the supervision of the mentor. The individual will also collaborate with other lab members and participates in lab meetings.

* 11. Describe the mentor's role in the project. (200 word limit)

The mentor will train the student including lab skills that are required for completing the study. She will perform data analyses with the student and work closely during the period.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

Our research laboratory has hosted two physician scientists in in the past. We have not hosted a Gill fellow.

* 13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

*(Please select ONE)*

Selected No (Not Required)

Please specify why it is not required.

No human subjects will be involved in the study. All human samples have been collected under approved IRBs and banked in the lab.
* 1. Faculty Sponsor

* Name: Ellen Costello
* Degrees: PT, PhD
* Title: Associate Professor; Program Director
* Organization: GW SMHS, Program in Physical Therapy
* Address: 2000 Pennsylvania Ave. NW
* Apt/Suite: Physical Therapy Program
* City: Washington
* State: District of Columbia
* Zipcode: 20006
* Office Phone: 2029940056
* Email Address: ecostell@gwu.edu

* 2. Daily Supervisor

Name: Ellen Costello
Degrees: as above
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)
Exploration of the Doctor of Physical Therapy student experience using non-cognitive factors and student performance measures

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


Doctor of Physical Therapy (DPT) programs are rigorous and require a certain degree of what many have called a willingness to persevere. Those who do well appear to have an ability to persist, manage stress and stay focused. DPT students are often overwhelmed and report higher levels of anxiety as compared to published norms for college students and working adults (Frank & Cassady, 2005; Macauley & Plummer, 2017). Physical therapists educators have begun to explore the relationship between non-cognitive factors and student performance and the student experience. Factors such as anxiety, grit, mindset and self-reflection have been associated with performance or success in other populations. Given the increase in reported DPT student anxiety levels and dearth of literature on the relationship between non-cognitive factors and DPT student performance, it is important for educators to investigate this relationship further. We hypothesize that students with higher levels of grit, growth mindset and ability to self-reflect will demonstrate better performance outcomes and an improved student experience. We will explore the role anxiety may play in student performance due to conflicting results in the current literature.

Aim 1: Identify non-cognitive factors (anxiety, grit, mindset, self-reflection and insight) across three years of DPT education in three different institutions (Husson University, Northwestern University, George Washington University) using student self-report scales and inventories (n= 535 subjects). Aim 2: Explore similarities and differences in non-cognitive factors of DPT students in three selected U.S. programs (n=535 subjects) Aim 3: Examine the relationship between non-cognitive factors and student performance {GPA (academic standing), remediation needs, practical exam performance, professional behaviors} in first-year DPT students in three different institutions (n ~ 179 subjects). Aim 4: Explore the student experience including self-identified challenges (first year students; n ~27) and critical incidents across all three years of the professional phase of the curricula (n~535).
RESEARCH DESIGN: A mixed method exploratory design will be used to examine DPT student factors and experiences in 3 different DPT programs. Quantitative data will be used to inform the qualitative data collection. Quantitative data collection and analysis: All students will complete the following scales or inventories in the Spring semester of 2019 from all three educational program. 1. Grit Scale (Duckworth and Quinn, 2009) 2. Mindset Scale (Dweck, 2006) 3. State-Trait Anxiety Inventory (STAI) (Spielberger,1989) 4. Self-Reflection and Insight Scale (Grant et al, 2002 ) (March 2019) Descriptive statistics will be used to summarize student responses on each of the above scales and inventory. Associations between scores on each of the scales and inventory will be explored. (May 2019) Associations between scales and inventory and other program outcomes (GPA, remediation needs, practical exam performance, and professional behaviors) will be investigated. Scores will be compared within and between participating programs. Nonparametric statistics will be used for descriptive summaries, associations and comparisons. (June, 2019) Qualitative data collection and analysis: Outcomes from the quantitative component of this study will be used to inform the qualitative component of this study (one on one interview, critical incident). Qualitative methods will be used to better understand the student experience and their perceptions of the various factors noted above. Participants will be categorized based on the quantitative outcomes (e.g. low scorers on all 4 inventories; high scorers on all 4 inventories; mixed performers on all 4 inventories). A representative sample will be drawn from each category and across all 3 schools. (July, 2019) One on One Semi-structured Interviews: To obtain diverse perspectives, first year DPT students in each category from each of the schools involved will be invited to participate in a 1-hour one-on-one semi-structured interview to explore their perceptions in greater depth. Interviews will continue until saturation is achieved. We anticipate 18-27 interviews will be needed to reach saturation. All interviews will be digitally recorded, transcribed verbatim, and de-identified using an alphanumeric code prior to analysis. (July, 2019) Critical Incidents: To obtain diverse perspectives on the DPT student experience, students across all three years of the professional phase of all 3 programs will be invited to complete a demographic survey and one critical incident questionnaire describing a challenge each faced during their time in PT school, the impact it had on them, and what they did to address that challenge. Comparisons across all three years will be used to identify similarities and differences in the student experience across the 3 years of PT school and across institutions. (August, 2019) All qualitative data will be analyzed using thematic analysis and a constant comparative technique. Trustworthiness of the analysis and result will be ensured through the use of triangulation of researchers and data sources, peer review, devil’s advocate, audit trail, and member checks.

* 10. Describe the student's role in the project (200 word limit)
The Gill fellow will be responsible for the following activities: 1. Link quantitative and qualitative data sources using de-identified alpha numeric codes. 2. Conduct analyses between non-cognitive factors and student performance measures across all three educational institutions. 3. Organize one on one interview schedule for identified participants. 4. Organize a data management system for one on one interviews. 5. Initiate thematic analyses of critical incident forms. 6. Conduct updated literature review related to content area.

* 11. Describe the mentor's role in the project. (200 word limit)
1. Orient the Gill fellow to the pre-existing data sources and alpha numeric code system. 2. Instruct Gill fellow in the use of SPSS statistical package, if not already familiar. 3. Oversee analyses of the quantitative data and student performance outcomes. 4. Assist Gill fellow in setting up the data management system for qualitative data. 5. Instruct fellow in the use of thematic analyses in order to reduce the qualitative data (one on one interviews).

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
Dr. Costello will act as the primary mentor to the Gill fellow. Drs. Maring and Plack will assist based on content expertise. All three mentors are long time educators, who have had multiple formal and informal opportunities over the past twenty years to instruct medical students in clinical and educational settings. Dr. Costello has instructed medical students and residents in gross anatomy laboratory, formal interprofessional educational activities and as a content expert on rehabilitation teams.
* 13. Do you have or will you obtain IRB approval for this project? 
Please note: Students cannot begin a human subjects project without IRB approval. 
* (Please select ONE) 
Selected No (Pending)
W.T. Gill Summer Fellowship Faculty Proposal by Katie Donnelly

* 1. Faculty Sponsor

* Name: Katie Donnelly
* Degrees: MD MPH candidate
* Title: Dr
* Organization: Children's National Health System
* Address: 111 Michigan Ave NW
* Apt/Suite: EMTC
* City: Washington
* State: DC
* Zipcode: 20011
* Office Phone: 2024764177
* Email Address: kdonnell@cnmc.org

* 2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)

Validity of ICD Codes for Identifying Injured Pediatric Patients

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Pediatrics
Yes - Emergency Medicine

6. Sponsor's translational level
* (Please select ONE)
T4: Translation to Population Health

7. Hypotheses (200 word limit)
Our objective is to compare the documented ICD-10 codes for patients presenting to the Children's National Health System (CNHS) Emergency Departments for the five of the top causes of pediatric injury mortality against chart review. We suspect that ICD-10 codes will not be as robust as chart review in identifying injured patients. Our secondary objective is to document the number of children presenting to the emergency department with injuries from the leading causes of pediatric injury. This data will help to inform future interventions around injury prevention in DC.

8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
Goals: 1. Identify the number and severity of patients presenting to CNHS ED with injuries from the top five causes of pediatric injury deaths. 2. Assess the validity and accuracy of ICD codes documented for identifying children presenting with injury. Measurable Objectives: 1000 patient records reviewed

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

All patients aged 1-18 who presented to the CNHS Emergency Department with a chief complaint of injury from January 1, 2018 through December 31, 2018 will be included. Type of injury will be limited to the top five causes of pediatric injury death in the US, motor vehicle accidents, drownings, firearm injuries, pedestrian struck and fire/burns. Children will be excluded if a cause of the injury cannot be ascertained based on chart review. Children will be identified through a query of the medical record searching for key injury words in the chief complaint, such as “pedestrian” or “burn”. Agreement between the medical record (chief compliant, triage note, licensed individual provider note) and the documented ICD 10 code will be assessed. Data collected will include patient MRN, date of birth, home address, type of injury, documented ICD 10 code, need for trauma activation or consult, admission status, mortality, length of admission and need for surgery. All data will be stored in RedCap, CNHS secure online data management system. Timeline: January 2019: Submission of IRB March 2019: Approval of IRB, query of medical record for identification of injured patients. May-August 2019: Chart Review September 2019: Data Abstraction and Statistical Analysis October 2019: Abstract creation and submission to Pediatric Academic Society Meeting

10. Describe the student's role in the project (200 word limit)
1. Chart Review: determining the cause of injury through review of the medical record and deciding agreement with documented ICD 10 code 2. Data entry: Entering information found in RedCap, CNHS data management system. 3. Statistical Analysis: Time permitting, with the assistance of the PI and research staff 4. Abstract Writing/Poster Creation: Time permitting, with the assistance of the PI and research staff
* 11. Describe the mentor's role in the project. (200 word limit)
1. Supervision of the medical student: Through at least weekly meetings, will check progress of data entry.
2. Feedback: provided weekly to the medical student on their progress through the project.
3. Statistical analysis: will be performed by PI with assistance by medical student if desired.
4. Abstract creation: will be performed by PI with assistance by medical student if desired.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
Principle Investigator is the Co-director of Medical Student and Resident Education for the CNHS Emergency Department. She sits on the Clinical Subcommittee for GWU and the Medical Education Committee for CNHS. Last year she worked with a Gill Fellow, Dariush Kafashzadeh, on the project "Barriers to Gun Injury Research".

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)
Selected No (Pending)
* 1. Faculty Sponsor

* Name: Tatiana Efimova
* Degrees: PhD
* Title: Assistant Professor
* Organization: Department of Anatomy and Cell Biology, Department of Dermatology; GW Cancer Center
* Address: SEH Rm 8160, 800 22nd Street NW
* City: Washington
* State: DC
* Zipcode: 20052
* Office Phone: 202-994-2753
* Email Address: tefimova@gwu.edu

* 2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)

Targeting p38 isoforms to inhibit growth and invasion, and to overcome therapy resistance in human malignant Squamous Cell Carcinoma (SCC)

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Cancer
Yes - Dermatology

* 6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

* 7. Hypotheses (200 word limit)
SCCs are among the most frequent cancers in humans and represent a leading cause of death worldwide. Surgical excision is often adequate for treatment of early stage SCC, but recurrence of aggressive and therapy-resistant disease is a major problem. Combination therapies involving surgery, radiation, chemotherapy, and targeted therapy are needed for treatment of advanced stage cancers. Two therapies often used are cisplatin, a DNA alkylating agent, and epidermal growth factor receptor (EGFR) inhibitors. However, limited efficacy, toxicity, and development of resistance to these treatments restrict their clinical success. Therefore, identifying targets for new therapies and designing strategies to overcome therapy resistance are sorely needed for improving SCC outcomes. Stress-activated protein kinases of the p38 family are known to promote adaptive cellular responses to stress. p38alpha and p38delta are the predominant p38 isoforms expressed in human SCC, and function redundantly. Our preliminary data support the hypothesis that p38alpha and p38delta are the potential targets for treatment of human skin and head and neck SCC, and that p38alpha/p38delta inhibition modulates the effects of cisplatin or EGFR inhibitor in human malignant SCC.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
Our recent studies, supported by the 2017 and 2018 Gill fellowships, have begun investigating the effects of p38alpha/p38delta co-targeting on growth and invasion of human malignant SCC. Our novel and important preliminary results show that a simultaneous pharmacologic or genetic targeting of p38alpha and p38delta significantly blocks proliferation, survival, and invasion in human SCC cell lines SCC9 (oral SCC) and SCC12 (skin SCC). Our current goals are to investigate the mechanisms underlying these effects in the SCC cells, and to determine whether the inhibition of p38alpha/p38delta modulates the responses of SCC cells to therapies such as cisplatin and EGFR inhibition, and to elucidate the mechanisms involved. Together, these studies could lead to combination therapies that might offer a promising therapeutic strategy against aggressive recurrent or metastatic SCCs, with lower toxicity than and increased efficacy compared to current therapies. Measurable objectives: to successfully carry out planned experiments, as outlined below; to perform data analyses; to participate in the weekly lab meeting; to prepare a poster presentation for the GWU Research Day forum; to contribute to the abstract submission for the annual meeting of the Society for Investigative Dermatology; to contribute to a published report.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
The project fulfills discovery/original research

Our experiments will employ both pharmacologic and genetic (small inhibitory RNA, siRNA-based) loss-of-function approaches to delineate functional roles of p38alpha and p38delta in human SCC cells proliferation, survival, motility and invasion, and in modifying the viability of human SCC cell lines SCC9 and SCC12 treated with the chemotherapeutic agent cisplatin, or EGFR-inhibitor AG-1478 (AG), as well as to elucidate the underlying mechanisms. To co-inhibit p38alpha/p38delta, the predominant p38 isoforms in SCC cells, we will use a high potency p38alpha/p38delta inhibitor, Compound 62. We will utilize SB203580 to inhibit p38alpha (p38beta is undetectable in SCC cells). To overcome many known limitations of siRNA therapeutics, such as instability and poor cell uptake, we will employ an established biocompatible silane-based nanoparticle platform, to ensure effective cell uptake of p38 siRNAs by carcinoma cells (in collaboration with Dr. Adam Friedman). Functional characterization of the effect of p38 isoforms inactivation or knockdown on cisplatin- or AG-treated SCC9 and SCC12 cells is carried out by quantitative assessment of SCC cell proliferation, viability, and signaling, both in a monolayer 2D cell culture system, and a tissue engineered 3D organotypic model system. Data analysis is conducted using GraphPad Prizm software. Student’s t-tests are used to evaluate differences between groups with P<0.05 considered statistically significant. We do not anticipate any technical difficulties carrying out the proposed research, as we have an extensive experience with the proposed methodologies, and we have all the necessary research tools and reagents to performed these studies. Therefore, we are confident that the research objectives will be successfully achieved, and that our project (that fulfills discovery/original research) is likely to result in a report of interest to other scholars.

* 10. Describe the student's role in the project (200 word limit)

The student will perform the experiments outlined in this project, under the guidance provided by Drs. Efimova and Friedman (a secondary faculty sponsor). The student will be trained in the relevant techniques, such as SCC cell culture, pharmacologic and siRNA-mediated inhibition of the p38 isoforms, as well as the assessment of the functional outcomes of targeting the p38 family members on cell proliferation, survival, migration, and the relevant signaling pathways. In addition to the monolayer two-dimensional (2D) cell culture model system, the student will learn to establish the 3D organotypic invasion model system that closely mimics the in vivo situation and involves co-culture of carcinoma cells and stromal fibroblasts. The student will participate in data analysis and preparation of the figures for presentation(s) and future manuscript. To further enhance the translational appreciation of the proposed work and further his/her medical training, the selected student will have the opportunity to attend relevant basic science and clinical didactics offered by the Dermatology Residency Training Program as well as rotate one half day every other week in the MFA dermatology practice with Dr. Friedman.

* 11. Describe the mentor's role in the project. (200 word limit)

Dr. Efimova will provide guidance in designing and implementing the experiments outlined in the proposal. Dr. Efimova and Dr. Alexi Kiss, a Research Scientist in Dr. Efimova’s lab will train and closely supervise the student. The research progress and plans will be discussed during weekly lab meetings. The experiments involving the usage of the nanotechnology to selectively target the p38 isoforms will be carried out in close consultations with Dr. Adam Friedman, an expert in this methodology. Dr. Efimova will provide guidance in carrying out data analyses and the preparation of presentations and publications. Dr. Friedman will participate in data discussions and the preparation of the presentations and publications. Dr. Friedman will additionally supervise the student's rotation one half day every other week in the MFA dermatology practice.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)


* 13. Do you have or will you obtain IRB approval for this project? 
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)
Selected No (Not Required)

Please specify why it is not required.
Our project does not require IRB, IBC, or IACUC approval, as it does not involve any human or animal subjects, nor does it involve recombinant DNA.
W.T. Gill Summer Fellowship Faculty Proposal by Dr. Alison Ehrlich

* 1. Faculty Sponsor

* Name: Dr. Alison Ehrlich
* Degrees: M.D., M.H.S.
* Title: Department Chair and Professor of Dermatology
* Organization: George Washington University, Medical Faculty Associates
* Address: 2150 Pennsylvania Ave, NW
* Apt/Suite: 2B-430
* City: Washington
* State: DC
* Zipcode: 20037
* Office Phone: 202-741-2600
* Email Address: aehrlich@mfa.gwu.edu

* 2. Daily Supervisor

Name: Dr. Kamaria Nelson
Degrees: M.D.
Title: Dermatology Research Fellow
Organization: George Washington University, Medical Faculty Associates
Address: 2150 Pennsylvania Ave, NW
Apt/Suite: 2B-430
City: Washington
State: DC
Zipcode: 20037
Office Phone: 202-741-2632
Email Address: knelson@mfa.gwu.edu

* 3. Project Title (250 character limit)

DEVELOPMENT OF AN ASSESSMENT TOOL FOR DIVERSE PATIENT PERCEPTIONS IN PSORIASIS

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. **Sponsor's Research Focus:**
Yes - Dermatology

6. **Sponsor's translational level**
   *(Please select ONE)*
   T3: Translation to Practice

7. **Hypotheses (200 word limit)**
Several studies have indicated a greater impact on quality of life (QoL) in minority patients with psoriasis in comparison to their Caucasian counterparts, with up to 72% of minorities reporting impaired capacity to enjoy life compared to 54% of Caucasians. These differences in QoL may be due to variations in cultural backgrounds affecting patient perceptions of skin, associated dyspigmentation in darker skin types, and health disparities encountered by minorities. Given the paucity of data on psoriasis in minority populations, further detailed studies are warranted to delineate racial/ethnic differences in cultural factors, religious influences, clinical presentation, and desired treatment outcomes in skin of color patients with psoriasis. Currently, providers do not have a tool for measuring the influence of diverse backgrounds on perceptions in psoriasis. We posit that it is possible to measure these concepts in a valid and reliable construct. Hence, we have designed a measure development study involving psoriasis patients who attend the dermatology clinic at the George Washington University (GWU) in order to create a tool to assess diversity in perceptions of psoriasis.

8. **Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).**
Main objective: Develop and validate a clinical survey instrument that can be used in psoriasis research to assess racial and ethnic differences in patient perceptions of psoriasis. Secondary objectives: Identify racial and ethnic differences in patient perceptions of psoriasis care, treatment, and disease course. Identify cultural factors and religious influences affecting racial and ethnic differences in patient perceptions of psoriasis.

9. **Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.**
   **Selection criteria include:**
   - The project design makes it likely that the objectives will be achieved
   - The project is likely to result in a report of interest to other scholars
   - The project fulfills discovery/original research

This study will be composed of three phases: a foundational research phase, a developmental phase, and a validity testing phase. We have already completed the foundational research phase and developmental phase. In the validity testing phase, the survey instrument will first be pre-tested in a small group of patients with psoriasis for comprehension and determination of time allotment. The final questionnaire will then be administered on two separate occasions, in order to assess test-retest reliability. The first survey completion will occur in conjunction with current QoL and/or stigma measurement tools. This administration will demonstrate whether the new survey compares favorably to validated measures. Then, the second administration will occur two weeks later, with the final questionnaire alone.

10. **Describe the student's role in the project (200 word limit)**
The student will assist in the validation phase of this study. The student will attend dermatology clinic on days where there are patients with psoriasis scheduled. The student will assist with obtaining informed consent from patients who meet the inclusion/exclusion criteria, passing out a psoriasis questionnaire, passing out a quality of life questionnaire and helping with participant follow-up surveys 2-3 weeks later. The student will work closely with the dermatology research fellow in recording data from the questionnaires into RedCap. They will work together with the statisticians to analyze the data. The student will meet with the mentor at least once a week to go over findings and to give an update about the progress of the project.

* 11. Describe the mentor's role in the project. (200 word limit)

The mentor will oversee all research activities and ensure that the project is performed per protocol. The mentor will be available in clinic while participants are completing questionnaires and surveys. The mentor will meet with the student on a weekly basis to go over findings and to give feedback. The mentor will provide guidance with any required duties needed of the Gill Fellow.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

There are several medical students who have ongoing projects in the department ranging from independent review articles to assisting with investigator initiated projects. We had 2 Gill Fellows for Summer 2018. One fellow has an ongoing project dealing with sleep quality in patients who undergo patch testing in the dermatology clinic for allergic contact dermatitis. The other fellow has an ongoing project on the topic dermatology education for hairstylists and barbers in the DC area. Our prior Gill Fellows worked closely with the mentor and gained valuable research experience in the field.

* 13. Do you have or will you obtain IRB approval for this project?  
Please note: Students cannot obtain IRB approval for this project.

*(Please select ONE)*

Selected Yes

Please provide IRB number and date

* IRB Number: 051703

* IRB Date: 12/08/2017
W.T. Gill Summer Fellowship Faculty Proposal by Olanrewaju Falusi

* 1. Faculty Sponsor

* Name: Olanrewaju Falusi
* Degrees: MD
* Title: Associate Medical Director for Municipal and Regional Affairs, Child Health Advocacy Institute; Assistant Program Director, Pediatric Residency Program
* Organization: Children's National Health System
* Address: 2233 Wisconsin Ave NW
* Apt/Suite: Suite 317
* City: Washington
* State: DC
* Zipcode: 20007
* Office Phone: 703-600-9432
* Email Address: oofalusi@childrensnational.org

* 2. Daily Supervisor

Name: Daniel Newman, Danielle Dooley
Degrees: DN- MD DD- MD, MPhil
Title: DN - Associate Medical Director, Children's Health Center Adams Morgan; DD- Medical Director of Community Affairs and Population Health, Child Health Advocacy Institute
Organization: Children's National Health System
Address: 1630 Euclid Street NW
Apt/Suite:
City: Washington
State: DC
Zipcode: 20009
Office Phone: 202-476-5580
Email Address: dnewman@childrensnational.org; dgdooley@childrensnational.org

* 3. Project Title (250 character limit)

Screening for Immigration Relief Options and Connecting to Legal Resources in a Primary Care Office Setting

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Pediatrics

* 6. Sponsor's translational level
* (Please select ONE)
T4: Translation to Population Health

* 7. Hypotheses (200 word limit)
Hypothesis: We hypothesize that incorporating an anonymous online screening tool and referrals for immigration legal relief in the clinic setting will increase family awareness of legal immigration protections, decrease stress and anxiety in families, and prioritize access for families with the highest legal needs to available services. Reasoning: Lack of stable legal immigration status can negatively affect physical and mental health. Many undocumented individuals delay seeking medical care due to fear of immigration status exposure and this delay can exacerbate their existing medical conditions. Uncertainty surrounding deportation, family separation, and financial hardship can induce anxiety, panic attacks, depression, and psychosomatic complaints and worsen health outcomes. The Children's Health Center at Adams Morgan cares for a large population of immigrant families. Their stories suggest that they may qualify for a form of protected legal immigration status, such as asylum, T-visa, U-visa, legal permanent residency for Violence Against Women Act (VAWA), or Special Juvenile Immigration Status. Many do not seek legal counsel due to a lack of knowledge of eligibility or because of difficulty in finding affordable services. The goal of this project is to assist families in determining their eligibility for legal immigration protection and connect them to legal services.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
This project incorporates an anonymous online screening tool into a pediatric primary care clinic to assess eligibility for legal immigration protection and connect families to legal resources. The online screening tool, www.immi.org, “helps immigrants in the U.S. understand their legal options. Immi was created by the Immigration Advocates Network and Pro Bono Net, two nonprofit organizations dedicated to increasing access to justice for low-income immigrants.” The aim is to recruit at least 50 families to take the online screening tool and a pre/post survey to assess level of stress over immigration status and the utility of the tool. The screening will be administered by a GW SMHS medical student to pilot the incorporation of the tool into clinic workflows. The medical student will provide the families with a list of up to date immigration legal resources and will follow up with the families via phone 2-3 weeks after their clinic visit, in order to assess whether they have been able to connect with legal services. Currently, our health center does not have capacity to provide immigration legal services, and an additional goal is to demonstrate the need for more a medical-legal partnership specific to immigration law at our health center.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
The ultimate goal of this pilot project is to ensure legal protected status for qualifying individuals to enable families to thrive in a more stable environment, without the constant fear of deportation or separation. A 2015 report by the UN High Commission for Refugees looked at unaccompanied children fleeing Central America and found that more than half of them had international protection needs such as fleeing from violence, abuse, deprivation, and abandonment. Despite this potential opportunity for protected immigration status, a comprehensive report by Syracuse University in 2014 looking at all childhood immigration court cases in the previous 10 years showed that minors had legal representation in only 43% of immigration cases, with children as young as 4 years old defending themselves in court. The same report showed that children with lawyers were 4 times more likely to be awarded a protected status such as asylum than children without legal representation. These studies reinforce the importance of connecting children and families to immigration legal resources. We have received IRB approval to pilot the incorporation of an anonymous online immigration legal services screening tool into clinic visits and administer a pre/post survey to assess the level of stress surrounding immigration and the utility of the screening tool. The timeframe will be a minimum of 8 weeks (depending on the medical student schedule) during summer of 2019. The first week will include orientation to the clinic setting and the community as well as shadowing the clinicians at the Adams Morgan Health Center. Subsequently, the student activities will fall into two categories: administration of the legal screening tool and maintenance of the REDCap database for the pilot study. The student will conduct the informed consent and enrollment process using the IRB-approved scripts and study information sheets, administer a validated survey tool that assesses the level of stress the parent is experiencing regarding immigration and their confidence in connecting to legal resources, and administer the www.immi.org anonymous legal screening tool. If the immi.org algorithm states that the subject may qualify for legal protection and/or legal immigration status, the student will provide the family member with a printed list of local immigration legal resources; if the algorithm states that the subject does not qualify for legal protection and/or legal immigration status, the student will convey that this particular screening tool is only a brief screening, and may not be 100% accurate for all circumstances and offer the list of local immigration legal resources. The student will follow-up with patient/family member 2-3 weeks after the initial screening and ask if they connected to legal services. If they have, they will administer a survey via telephone to assess whether they found the screening tool helpful and re-assess their level of stress regarding immigration status using the same validated questions as in the pre-survey. If they have not connected to services the student will offer to assist with connecting to legal services. The pre and post survey data will be entered into REDCap by the student.

10. Describe the student's role in the project (200 word limit)

The medical student sponsored by the W.T. Gill Fellowship would serve as the coordinator, administer the screening tool to families, and enter pilot data into REDCap. Currently, an MS-2 student at GW SMHS has done the initial work to get this pilot ready for student participation, including developing an orientation and the scripts for approaching and assisting families. We will begin the pilot in Fall 2018 but with limited medical student help due to their class schedules. The Fellowship would allow us to have a full-time GW SMHS student onsite during Summer 2019 so that they could administer screenings, provide immigration legal resource lists to families, and follow up with families 2-3 weeks after the clinic visits to determine if the connection to legal resources was made. The availability of a full-time student in summer 2019 dedicated to this project will be enriching for the student as they can experience our diverse clinic environment, interact with patients and families, and gain experience in clinic-based research. A full-time student will enable us to screen a larger number of families and build the case for a medico-legal partnership at the health center to address immigration legal needs for patients.

11. Describe the mentor's role in the project. (200 word limit)

Dr. Falusi, along with Drs. Dooley and Newman, will provide daily supervision of the medical student since one of them is onsite each day in the health center. The student will have a designated workspace and attend all clinic staff meetings and be a member of the clinic team. In addition, they will have a weekly check in with the medical student to assess processes and procedures and address any barriers to pilot implementation that arise. The student will also have the opportunity to shadow clinical encounters in the health center, and learn about providing health care to children and families who have immigrated. The mentors will also identify opportunities for poster, abstract and manuscript submission based on this project, which will include the medical student as a study author, and identify presentation opportunities for the medical student.
12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

Dr. Lanre Falusi, a graduate of the GW/CNHS Master Teacher Leadership Development Program, regularly lectures to the 3rd year medical students from GW SMHS during their third year pediatric clerkship. The lecture addresses child health advocacy and includes specific examples of pediatricians combining advocacy with clinical practice. Drs. Danielle Dooley and Lanre Falusi host 4th year medical students from GW SMHS for electives in the Child Health Advocacy Institute and are Clinical Public Health Mentors for the GW SMHS Patients, Populations, and Systems course. Dr. Daniel Newman precepts 3rd year medical students from GW SMHS during their pediatric clerkship at the Children’s Health Center at Adams Morgan, which hosts 12 medical students per year.

13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: 10598

* IRB Date: 09/28/18
1. Faculty Sponsor

* Name: Julia C. Finkel
* Degrees: MD
* Title: Initiative Lead and Director of R&D, Pain Medicine
* Organization: Sheikh Zayed Institute for Pediatric Surgical Innovation, Children’s National Health System
* Address: 111 Michigan Ave, NW
* City: Washington
* State: DC
* Zipcode: 20010
* Office Phone: 202-476-4867
* Email Address: jfinkel@childrensnational.org

2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

3. Project Title (250 character limit)

Developing a Method to Objectively Measure Analgesic Interventions: A Pilot Study

4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Anesthesiology

6. Sponsor's translational level
(Please select ONE)
T2: Translation to Patients

7. Hypotheses (200 word limit)
1. To determine the effect of different analgesics on the pupillary light reflex (PLR) using IR video pupillometry. i. Hypothesis 1a: After an analgesic intervention, the initial latency to constrict will increase. ii. Hypothesis 1b: After an analgesic intervention, the amplitude will decrease. iii. Hypothesis 1c: After an analgesic intervention, the time to reach 75% of recovery will decrease. 2. To assess the fiber-specific dose-dependent impact of analgesic interventions on the neurostimulus evoked pupillary reflex dilation (nPRD). i. Hypothesis 2a: When analgesic interventions are administered in specific doses, as the stimulus intensity increases, the pain sensitivity (area under the nPRD curve) will decrease as compared to a baseline nPRD test. ii. Hypothesis 2b: There will be a positive correlation of the self-reported VAS scale with the amplitude of the C-fiber nPRD curve.

8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
This pilot study utilizes pupillary reflexes to characterize the pupillary response to a variety of analgesic interventions. This will allow us to determine whether there are different effects on the pupil for various analgesic interventions, given their differing mechanisms of action. Ultimately, we will synthesize the information about the pupillary effects of various interventions into algorithms that detect specific conditions and provide clinical decision support. The primary measurable endpoints for Aim 1 are the changes in PLR parameters (latency, time to 75% recovery, amplitude) that occur as a response to an analgesic intervention. The differences are calculated by comparing the parameters from before the intervention to after the intervention. The primary measurable endpoint for Aim 2 is the change in the AUCs of the three sensory nerve fiber types that occurs as a response to an analgesic drug or intervention. The change is calculated by the difference between measurements at baseline and at various time points after the drug is administered.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

This is a single center infrared pupillometry device study that monitors the pupil responses, indicating analgesia that is caused by analgesic interventions. There is no randomization or blindness in the present study. For Aim 1, the AlgometRx device will be used to assess the pupillary light reflex. The researcher will place the device over the patient’s eye; the device will flash a light and track the pupillary reaction using an infrared camera for 5 seconds. No more than 3 tries will be attempted until the successful reading is obtained. Successful readings are defined as the acquisition of 7 parameters (maximum pupil size, minimum pupil size, average constriction velocity, maximum constriction velocity, latency to constrict, average dilation velocity, and time to 75% recovery of initial pupil size).
A second light reflex reading of the pupil during a continuous light stimulus will occur after this is complete. For Aim 2, the AlgometRx device will be used to assess the neurostimulus induced pupillary reflex dilation. A threshold for the electrical stimulus level will be determined for each test subject. This will occur by measuring the pupillary response to a neurostimulus, starting at 50µA and increasing by 50µA until an nPRD appears that demonstrates a 20% increase in pupil size above the initial pupil size. Each sensory nerve fiber will be assessed for the stimulus intensity to be used at the frequency of stimulation that corresponds to their activation (5 Hz, 250 Hz, and 2000 Hz for C, Ad, and Aβ, respectively). This determination of intensity serves as the baseline nPRD measurement. After the baseline PLR and nPRD assessments, an analgesic intervention will be administered to the patient per their standard of care. After the intervention, PLR and nPRD measurements will occur at regular intervals. For low-dose infusions, once the infusion has been administered the study team will return every hour for the duration of the infusion, being approximately 5 hours. For intranasal analgesics, the testing will be completed before the analgesic administration and every 15 minutes for 90 minutes, or until the patient has been cleared to leave by the attending physician. For non-pharmacologic interventions such as acupuncture, measurements will occur twice at 15 minute intervals. The patient is free to consent to multiple days of testing for as long as they are continuing to receive the intervention during their hospital stay. Pain scores will be recorded at every visit with the patient.

* 10. Describe the student's role in the project (200 word limit)
The student would be directly involved in the recruitment, enrollment and data collection for this project. The student would be trained in the use of the devices associated with the protocol and be given the responsibility of recruiting participants from the patient population at CNMC. This would maximize the student’s contact with patients as well as their time spent working with other staff and physicians to identify potential participants. The student would work directly with study participants for the duration of the study and serve as their main point of contact with the research team. The student will also be involved in the processing and analyzing of data generated from this study and be a major contributor to this potentially revolutionary method.

* 11. Describe the mentor's role in the project. (200 word limit)
The mentor will facilitate and oversee the involvement of the student in the project. The mentor will ensure that the student is able to conduct research and interact with patients with some independence. This will not only serve to benefit the student but will also greatly benefit the development of this technology. In addition, the mentor will provide lectures on material pertinent to the technology which will serve as supplemental education for the student.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
In the past couple of years, this team has mentored medical students from GW and other schools. The students have participated in various capacities on numerous research projects. After conducting the research and analyzing the data, many have gone on to present their research. More specifically, this team has hosted two Gill Fellows (David Strum and Tess Whiteside) who have gone on to present their research at GW Research Days.

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)
Selected Yes

Please provide IRB number and date

* IRB Number: Pro00009586

* IRB Date: 9/14/2018
1. Faculty Sponsor

* Name: William Davis Gaillard
* Degrees: M.D.
* Title: Professor Pediatrics and Neurology; Vice Chair (for clinical research) Center for Neuroscience, Principal Investigator of Plasticity of Language and Epilepsy Project (POLER)
* Organization: Children’s National Medical Center/Children’s Research Institute/NIH, NINDS/GWU Medical Center
* Address: 111 Michigan Avenue NW
* Apt/Suite:
* City: Washington
* State: District of Columbia
* Zipcode: 20010
* Office Phone: 202-476-5224
* Email Address: wgaillar@childrensnational.org

2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

3. Project Title (250 character limit)

Neuroimaging of hippocampal function during different language processing tasks: Predicting post-operative memory outcomes in Temporal Lobe Epilepsy patients

4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Neurology

* 6. Sponsor's translational level
* (Please select ONE)
T2: Translation to Patients

* 7. Hypotheses (200 word limit)
The plan of the project is to perform fMRI and analyze data from patients who will be evaluated over the summer as well as identifying data (previously collected) on patients with localization-related epilepsy (15 left focus, 15 right focus; 30 normal volunteers). We hypothesize: 1) Activation (extent and laterality) will follow: single word semantic decision < word definition decision < listening comprehension (stories) < Reading comprehension (stories); 2) Epilepsy populations will demonstrate reduced hippocampal activation ipsilateral to the temporal lobe seizure focus for all tasks; and 3) Extent and pattern of hippocampal activation prior to surgery will be predictive of memory outcomes.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
The goal of this project is to examine hippocampal activation during language-based tasks and is based on observations that there is hippocampal activation, potentially secondary to verbal memory demands, during language processing tasks. Data on 30 control and 30 patients with temporal lobe epilepsy (15 right- and 15 left-sided seizure focus) will be examined. The data is already largely acquired.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.

Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

The proposed research is part of an ongoing investigation of the cerebral organization underlying cognitive processes in patients with epilepsy. Functional MRI can be used to map neural networks responsible for cognitive activity. With this technique, we have performed several fMRI language studies in children and adults. We have previously demonstrated that fMRI, using a word definition decision task, can identify hemispheric language dominance (non-invasively) in patients with drug-resistant epilepsy being considered for epilepsy surgery. This project extends our previous investigations by examining hippocampal activation during language-based tasks and is based on observations that there is hippocampal activation, potentially secondary to verbal memory demands, during language processing tasks. Imaging memory networks (hippocampus) and capacity is important for planning epilepsy surgery involving the temporal lobes, as well as for predicting neuropsychological memory decline for surgical patients. We hypothesize: 1) that increasing linguistic complexity will elicit greater hippocampal activation (single word semantic decision < word definition decision < listening comprehension (stories) < Reading
comprehension (stories)); 2) that epilepsy populations will demonstrate reduced hippocampal activation ipsilateral to the temporal lobe seizure focus; and 3) that the pre-surgical profile of hippocampal activation will predict post-operative memory outcomes, as measured by neuropsychological memory measures (BNT, CVLT, BVMT, WMS-III/IV). Data on 30 control and 30 patients with temporal lobe epilepsy (15 right- and 15 left-sided seizure focus) will be examined. The data is already largely acquired. All subjects will be greater than 8 years of age. All subjects will have fMRI language paradigms of increasing complexity and memory demands: single word semantic decision < word definition decision (6-7 word phrases) < listening comprehension (paragraph stories) < Reading comprehension (paragraph stories)). Data will be analyzed using SPM 12 after motion correction, and in normalized space using a region of interest approach (Wake Forrest Pick Atlas, hippocampal formation) and a bootstrap algorithm. Laterality indices will be calculated LI=(L-R)/(L+R), with AI < 0.40 considered atypical for each region. Extensive past experience demonstrates that projects of this scope can be readily achieved in 8-10 weeks.

**10. Describe the student's role in the project (200 word limit)**

Specific tasks for the student include: 1. Interview and screen patient volunteers for the fMRI study. 2. Perform fMRI studies (supervised by WDG and neuroradiology staff). 3. Analyze data on Linux work station (after extensive instruction on use of work station and MRI analysis programs, will involve 3D automated reconstruction and threshold determination, region of interest analysis on extent and magnitude of activation) 4. Compile and analyze data to examine group (patient vs. normal) and focus related differences in hippocampal regional activation patterns. 5. An abstract will be submitted to for GWU poster day with the further aim of submission to American Epilepsy Society meeting and draft of a manuscript.

**11. Describe the mentor's role in the project. (200 word limit)**

I will be present at the initiation and for the duration of the research, and will be present at any presentations. I will (and my lab will) provide instruction in computer analysis of neuroimaging data. I will also provide an educational packet, consisting of relevant articles from the imaging, epilepsy, and neuropsychological literature to provide a basic foundation for this neuroscience research examining the neural basis of language functioning. These papers will be reviewed on a weekly basis with the student fellow. There will also be opportunities to see clinical application of such work. Human subject protection will also be reviewed and discussed.

**12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)**


**13. Do you have or will you obtain IRB approval for this project?**

**Please note:** Students cannot begin a human subjects project without IRB approval.

**(Please select ONE)**

Selected Yes
Please provide IRB number and date

* IRB Number: Pro2008

* IRB Date: 8/22/2012
W.T. Gill Summer Fellowship Faculty Proposal by Monika Goyal

* 1. Faculty Sponsor

* Name: Monika Goyal
* Degrees: MD, MSCE
* Title: Assistant Professor of Pediatrics
* Organization: Children's National Medical Center
* Address: 111 Michigan Ave, NW
* Apt/Suite: 
* City: Washington
* State: District of Columbia
* Zipcode: 20010
* Office Phone: 2024762869
* Email Address: mgoyal@cnmc.org

* 2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)
Exploring Barriers to Sexually Transmitted Infection Treatment Adherence

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Pediatrics

6. Sponsor's translational level
(Please select ONE)
T4: Translation to Population Health

7. Hypotheses (200 word limit)
Adolescents diagnosed with sexually transmitted infections in the emergency department setting will cite the following barriers to treatment adherence: inconvenient to fill prescriptions, cost of prescriptions, perception that treatment is not necessary.

8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
Through a prior Gill project, we identified that only 50% of adolescents prescribed antibiotics for the treatment of sexually transmitted infections (STI) in the emergency department actually filled their prescriptions. The goal of this study is to extend these findings to understand why adolescents may not be filling their prescriptions. We will administer a telephone based survey to all adolescents prescribed STI treatment to assess: 1) prescription pick-up; 2) adherence to treatment regimen. We will also seek to understand barriers to prescription pick-up and treatment adherence among adolescents who did not fulfill these tasks. We anticipate that approximately 100 adolescents will be eligible for participation.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

This is a telephone survey of adolescents prescribed treatment for the management of STIs in the pediatric emergency department. The primary objective is to investigate barriers to treatment adherence.

10. Describe the student's role in the project (200 word limit)
The student will be involved in contacting adolescents to conduct a telephone-based survey. The student will become proficient in the use of REDCap, survey management software, and will have the opportunity to develop and build the survey in REDCap. The student will also have the opportunity to work with our team to learn basic data analytic skills and be introduced to statistical software like SAS and STATA, if interested. There will be opportunities for publication and presentation of findings at national meetings.

11. Describe the mentor's role in the project. (200 word limit)
The mentor will be involved in overseeing the project and meeting with the student regularly to assess progress. The mentor will also be available to answer any questions that arise and help guide the student through all aspects of the project. The student will also be invited to attend any research-related activities hosted by the mentor, her project management team, and within the division of emergency medicine.

*12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)*

I have been involved in annually mentoring Gill students for the last 5 years. Students that have worked with me have had the opportunity to publish manuscripts, present abstracts at national meetings, and have had their work covered by the media. Steven Langerman (Gill 2016) is currently the first author on 2 manuscripts (one under review and the second in preparation) and has presented the findings of the work at the American Academy of Pediatrics 2017 annual meeting. Sasha Lieberman (Gill 2017) is currently preparing a first author manuscript for publication and had the opportunity to present her work as an oral presentation at the American Academy of Pediatrics 2018 annual meeting (where she won best abstract by a trainee). Noushine Sadeghi (Gill 2018) is currently preparing a first author manuscript for publication and will be presenting her abstract at the Society of Adolescent Health and Medicine 2019 annual meeting.

*13. Do you have or will you obtain IRB approval for this project?*

**Please note:** Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Pending)
W.T. Gill Summer Fellowship Faculty Proposal by Mamta Gupta

* 1. Faculty Sponsor

* Name: Mamta Gupta
* Degrees: Ph.D
* Title: Tenure Track Assistant Professor of Biochemistry and Molecular Medicine
* Organization: George Washington University/GW Cancer Center
* Address: 800 Science and Engineering Hall, NW
* Apt/Suite: Suite 8150
* City: Washington
* State: DC
* Zipcode: 20052
* Office Phone: 202-994-6401
* Email Address: magupta@gwu.edu

* 2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)

Resistance mechanisms to HDAC inhibitors in T cell lymphoma

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Cancer

* 6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

* 7. Hypotheses (200 word limit)
Histone deacetylase inhibitors (HDACI) such as vorinostat, romidepsin and belinostat have been FDA approved for TCL therapy. Despite of great clinical activity of these drugs most of the patients become refractory. Further understanding of the mechanisms of action and resistance to HDACI may help design rational combination to the problem of rapid emergence of resistance

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
Goal of the project to identify the molecular mechanisms related to the HDAC inhibitor romidepsin. 1. Tissue culture: Grow and maintain the human TCL cell lines 2. Perform the growth assays after the treatment of the TCL lines with romidepsin. 3. perform pathway analysis by western blotting. 4. perform PCR analysis

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

The proposed project will yield novel insights into the mechanism of action of HDAC inhibitors and help understand mechanisms of resistance in TCL, providing new parameters for disease stratification and treatment. We do not anticipate technical hurdles as all methods used for this aim are straightforward and techniques are well standardized in the Gupta lab at GWCC.

* 10. Describe the student's role in the project (200 word limit)
Student will perform routinely the tissue culture, cellular and molecular assays using human TCL cell lines

* 11. Describe the mentor's role in the project. (200 word limit)
Mentor will oversees the project and help the student to achieve the goal.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
No current medical student in the lab now.
13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Not Required)

Please specify why it is not required.

Human samples will not be used.
* 1. Faculty Sponsor

Name: Andrea Hahn
Degrees: MD, MS
Title: Assistant Professor of Pediatrics
Organization: Children's National Medical Center
Address: 111 Michigan Ave NW

* 2. Daily Supervisor

Name: Andrea L Hahn
Degrees: MD, MS
Title: Assistant Professor
Organization: Children's National Medical Center
Address: 111 Michigan Ave NW

* 3. Project Title (250 character limit)
Subtherapeutic Beta-Lactam Antibiotic Exposure Leads to Pathogen Dominance in the Cystic Fibrosis Airway

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. **Sponsor's Research Focus:**
Yes - Pediatrics
Yes - Pharmacology
Yes - Infectious Disease
Yes - Pulmonology

6. **Sponsor's translational level**
*(Please select ONE)*
T0/T1: Basic Science Discovery and Initial Translation to Humans

7. **Hypotheses (200 word limit)**
Cystic fibrosis (CF) is an autosomal recessive disease that affects more than 30,000 people in the US. Patients suffer from recurrent and chronic pulmonary infections that are strongly associated with morbidity and mortality. CF patients are typically treated aggressively with antibiotics when they experience pulmonary exacerbations. A commonly used group of antibiotics, beta-lactams, are often unintentionally under-dosed, in part due to increased drug metabolism and in part due to infection with antibiotic resistant organisms. Pharmacokinetic (PK) modeling can be used to predict pharmacodynamic (PD) indices reflecting achievement of therapeutic versus subtherapeutic antibiotic exposure. Recent use of culture-independent next generation sequencing (NGS) has identified diverse communities of bacteria within the CF airway. Decreased microbial diversity (the number and relative abundance of bacteria present) is associated with poor lung function. While cumulative exposure to antibiotics is associated with decreasing diversity, the impact of short courses of antibiotics for treatment of pulmonary exacerbations is less clear. We hypothesize that subtherapeutic antibiotic exposure preferentially targets commensal bacterial communities and is directly associated with a shift to a dominant airway pathogen versus a balance of pathogenic and commensal microorganisms.

8. **Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).**
Project Goal: Determine the effect of β-lactam antibiotic PD indices on the changes in pediatric airway microbiome taxonomic and functional diversity. Respiratory samples have been collected from 27 children receiving IV antibiotic treatment with beta-lactam antibiotics at three time points: onset of pulmonary exacerbation, end of antibiotic treatment, and follow up. We have evaluated plasma drug concentrations of beta-lactam antibiotics to determine time above the MIC (T>MIC) against pathogenic bacteria. We have performed shotgun NGS and used PathoScope to characterize the CF airway microbiome in terms of dominant pathogens, richness (number of species), and evenness (relative abundance of species). Bacterial NGS data will also be used to determine bacterial gene and metabolic pathways using HUMAnN2. T>MIC, which predicts bacterial killing, will be used to classify patients as therapeutic or subtherapeutic and will be related to changes in airway microbiome taxonomic diversity and bacterial gene and metabolic pathways. Measurable Objective: Twenty seven patients have 2-3 respiratory samples with corresponding NGS sequencing data. A total of 71 sequencing files will analyzed for bacterial metabolic pathways, and changes between exacerbation onset and A) end of antibiotic treatment and B) follow up will be compared between those patients receiving therapeutic versus subtherapeutic beta-lactam antibiotics.
9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.

Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

This is a prospective study of 27 patients with CF (age = 18 years). IRB approval for this research proposal was received on 8/29/16. Sputum and two oropharyngeal (OP) swabs for microbiome studies were collected when patients were admitted for treatment of IV antibiotics, when they were nearing the end of their antibiotic treatment course, and again at their next follow up to the pulmonary clinic after hospital discharge. Metadata collected to correspond with each airway sample include: age, gender, race/ethnicity, CFTR genotype, weight, height, medications, and results of pulmonary function tests (PFTs) and respiratory cultures. Plasma drug concentrations of IV beta-lactam antibiotics were obtained during the treatment course to model the subjects’ antimicrobial exposure. Determination of Antibiotic PK/PD. Plasma drug concentrations of IV beta-lactam antibiotics were obtained during the treatment course to model the subjects’ antimicrobial exposure. Beta-lactam antibiotic concentrations were determined from each sample using liquid chromatography/mass spectrometry. T>MIC was evaluated to predict the likelihood of bacterial killing using Bayesian estimation in population models. For data analysis, T>MIC was measured as a continuous variable normalized to the optimal duration (40% of the dosing interval for carbapenems, 50% of the dosing interval for penicillins, and 60% of the dosing interval for cephalosporins). Respiratory Sample Collection and Processing. Sputum samples and oropharyngeal swabs were collected and processed by research staff according to standardized procedures. Bacteria for both sample types were pelleted through centrifugation (12,000 g x 10 minutes). Supernatants were removed and bacterial pellets were frozen at -80°C until they underwent DNA extraction. Respiratory Culture Results. Culture results were reviewed and MICs for various antibiotics of bacteria grown by conventional culture techniques were documented. The clinical microbiology laboratory uses MicroScan (BeckmanCoulter) to determine identification and susceptibility of pathogens grown in culture. DNA Extraction. Pelleted bacterial cells were rapidly thawed and a QIAamp DNA Microbiome kit (Qiagen) will be used to extract bacterial DNA. The use of this kit increases the ratio of bacterial to human DNA extracted. DNA Sequencing. Shotgun NGS was performed at the GWSPH Genomics Core using Nextera XT Library Prep and NextSeq 500 Mid-Output 150 bp (Illumina). Quality of sequences were evaluated using FastQC and trimmed using FlexBar 3.0. Bioinformatic Analysis. PathoScope 2.0 was used for sequencing-based taxonomic profiling. PathoScope cross references a library of human genomes to filter out unassembled sequencing reads of human origin. The remaining sequencing reads undergo an additional quality control step, and then are assembled and mapped to a library of microbial strains. Prior to performing bacterial gene and metabolic profiling, KneadData will be used to filter out human DNA contamination. HUMAnN2 will be used to map DNA sequences against a reference database of bacterial proteins and pathways to identify gene family abundance, pathway abundance, and pathway coverage, stratified by organism. Statistical Analyses. R programs, such as vegan and DeSeq2, will be utilized to compare differences in bacterial gene and metabolic pathways between groups and changes following antibiotic exposure, as well as correlations between bacterial taxonomic diversity and metabolic pathways.

10. Describe the student's role in the project (200 word limit)

The student will gain access to the high performance computing cluster at GW, Colonial One. The student will use command line and bash scripts to submit jobs to the cluster to remove human DNA contamination from sequencing files and to determine bacterial metabolic pathways. The student will perform statistical analyses using R to compare differences in bacterial gene and metabolic pathways between groups and to evaluate changes in bacterial metabolic pathways following antibiotic exposure. The student will also compare correlations between bacterial taxonomic diversity and identified bacterial metabolic pathways. The student will present the results of this work at a research presentation at the end of the summer. The student will prepare an abstract for submission to GW Research Days and CNHS Research and Education Week (first author). The student will also prepare the first draft of the manuscript describing this portion of the research project (second author).

11. Describe the mentor's role in the project. (200 word limit)
The mentor will help the student gain access to Colonial One, will teach the student basic command line, and will share bash scripts to perform KneadData (removal of human DNA contamination) and HUMANn2 (profiling of bacterial gene and metabolic pathways) on sequence data. The mentor will show the student how to use Rstudio and will share R scripts to perform statistical analyses. The mentor will provide background information and guidance for the student to create their presentation, write the abstracts, and write the first draft of the manuscript.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

Gill Fellow 2016 – Amit Sanyal. Amit performed bench laboratory techniques to process CF respiratory samples. He also utilized an online sequencing program to evaluate taxonomic microbial diversity. He presented an abstract at GW Research Days and CNHS Research and Education Week. He was second author on a published manuscript: Hahn A, Sanyal A, et al. Different next generation sequencing platforms produce different microbial profiles and diversity in cystic fibrosis sputum. Journal of Microbiological Methods. 2016; 130: 95-99. Gill Fellow 2017 – Caroline Jensen. Caroline created pharmacokinetic models of antibiotic exposure in CF patients. She performed the statistical analyses of pulmonary function and quality of life surveys, comparing those with therapeutic versus subtherapeutic beta-lactam antibiotic exposure. She wrote the first draft of a manuscript, and presented an abstract at GW Research Days and CNHS Research and Education Week. She also presented an abstract at the American Thoracic Society National Meeting, and was second author on a published manuscript: Hahn A, Jensen C, et al. Relationship of Pulmonary Outcomes, Microbiology and Serum Antibiotic Concentrations in Cystic Fibrosis Patients. J Pediatr Pharmacol Ther 2018; 23(5): 379-389. She will be co-author on an additional manuscript that has been submitted for peer review.

13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: CNMC Pro8047

* IRB Date: 8/29/2016
W.T. Gill Summer Fellowship Faculty Proposal by Rana Hamdy

*1. Faculty Sponsor*

* Name: Rana Hamdy
* Degrees: MD, MPH, MSCE
* Title: Assistant Professor of Pediatrics
* Organization: Children's National Medical Center
* Address: 111 Michigan Ave NW
* Apt/Suite: West Wing 3.5, Suite 100
* City: Washington
* State: DC
* Zipcode: 20010
* Office Phone: 2024765051
* Email Address: rhamdy@childrensnational.org

*2. Daily Supervisor*

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

*3. Project Title (250 character limit)*

Clinical epidemiology of children with orbital cellulitis

*4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.*


* 5. Sponsor's Research Focus:
Yes - Pediatrics
Yes - Infectious Disease

* 6. Sponsor's translational level
* (Please select ONE)
T3: Translation to Practice

* 7. Hypotheses (200 word limit)
We hypothesize that 1) the microbiologic patterns leading to orbital cellulitis are evolving over time, and that 2) among children with orbital cellulitis, those who develop subperiosteal abscesses will have different clinical characteristics compared to those who do not develop abscesses.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
Through this project, the Gill Fellow will receive training and learn skills in clinical research and apply them to this clinical epidemiologic research study. Measurable objectives include: 1) Completion of research ethics curriculum (CITI training; 1-2 days) 2) Completion of database training (REDCap training 1-2 days) 3) Completion of training on review of the medical literature (with a medical librarian; 1 day) 4) Completion of a literature review on the subject (3-4 days) 5) Completion of training for using Cerner, the electronic health record system at Children’s National (1-2 days) 6) Data collection through chart reviews (approximately 150 charts; 4-5 weeks) 7) Data analysis of completed charts reviewed (1 week) 8) Presentation of project to division faculty and fellows at conclusion of fellowship

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

This is a single-center retrospective cohort study of children with orbital cellulitis. The primary objective of the study is to describe the clinical characteristics of children with orbital cellulitis including microbiology of pathogens cultured from surgical specimens of children with subperiosteal abscesses; the antibiotic treatment regimens used; and the clinical outcomes. The secondary objective is to compare the clinical characteristics of children with orbital cellulitis who develop subperiosteal abscesses with those who do not develop abscesses. This study has been approved by the Children’s National IRB and the database has been developed. The student’s role in the study and timeline will be as follows: 1) Completion of research ethics curriculum (CITI training; 1-2 days) 2) Completion of database training (REDCap training 1-2 days) 3) Completion of training on review of the medical literature (with a medical librarian; 1 day) 4) Completion of a literature review on the subject (3-4 days) 5) Completion of training for using Cerner, the electronic health record system at Children’s National (1-2 days) 6) Data collection through chart reviews (approximately 150 charts; 4-5 weeks) 7) Data analysis of completed charts reviewed (1 week) 8) Presentation of project to division faculty and fellows at conclusion of fellowship

* 10. Describe the student's role in the project (200 word limit)
The student will meet with the principal investigator (PI) to design a curriculum covering basic concepts of clinical research throughout the summer, including research ethics, literature review, database development and management, data collection, and data analysis. The student’s primary role in this study will be data collection, data management, and data analysis. Greater involvement in different roles would be considered given the student’s time and interest. The student will be expected to present his or her work to the Infectious Diseases Division faculty and fellows at the conclusion of the summer. Additional structured training to be included in the summer curriculum includes: a) training in research ethics through the CITI training course, b) in-person training in database development using REDCap, and c) one-on-one training in literature review with a medical librarian.

* 11. Describe the mentor's role in the project. (200 word limit)

Dr. Hamdy will meet with the student for 1-2 hours per day during the first week to develop and refine the student's schedule for the next eight weeks, to discuss the background and rationale behind the study and to clarify the student's role and expectations. During the remaining 7 weeks, Dr. Hamdy will meet with the student during scheduled times approximately 3-4 hours per week, and will be available to answer any questions that arise in the interim. The student will have access to office space in the Division of Infectious Diseases suite at Children's National, where Dr. Hamdy has her office space. Dr. Hamdy will be accessible during times that she is not on clinical service and will be available to answer any questions that arise.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

1. Marissa Hennelly; MD Candidate, George Washington University School of Medicine and Health Sciences, Class of 2020. o Dr. Hamdy served as her primary mentor for summer research project studying the use of endotracheal aspirate culture results in the neonatal intensive care unit; 2017-2018 o Awarded the 2017 W.T. Gill Summer Fellowship from GWSMHS for this work o Awarded the 2017 IDSA Medical Scholars Award for this work o Oral presentation on this work was awarded third place award for best oral poster presentation at GW Research Day, April 2018 o Ms. Hennelly presented a poster of this work as first author at the 2018 Pediatric Academic Societies Annual Meeting in Toronto, Canada, May 2018

2. Hannah Chase, MD Candidate, George Washington University School of Medicine, Class of 2021. o Dr. Hamdy served as primary mentor for summer research project studying the utility of anaerobic blood cultures in neonates hospitalized in the neonatal intensive care unit; 2018-2019 o Awarded the 2018 W.T. Gill Summer Fellowship from GWSMHS for this work o Submitted an abstract as first author for presentation of this work for the 2019 Pediatric Academic Societies Annual Meeting in Baltimore, Maryland, May 2019

* 13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: Pro00011070

* IRB Date: 10/25/2018
1. Faculty Sponsor

* Name: Mary Beth Howard
* Degrees: MD, MSc
* Title: Dr.
* Organization: Children's National Health System
* Address: 111 Michigan Avenue
* Apt/Suite: EMTC
* City: Washington
* State: DC
* Zipcode: 20011
* Office Phone: 2024764177
* Email Address: mhoward2@childrensnational.org

2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

3. Project Title (250 character limit)

Safe Infant Sleep in DC: Beliefs and Barriers

4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Pediatrics
Yes - Emergency Medicine

6. Sponsor's translational level
(Please select ONE)
T4: Translation to Population Health

7. Hypotheses (200 word limit)
Co-sleeping is a known risk factor for infant accidental death. Despite national Safe to Sleep campaigns and local Safe Sleep programs, DC continues to have one of the highest infant death rates in the nation. This research study is aimed at understanding beliefs and barriers to safe sleep practices in the DC area. Through focus groups and surveys of caregivers presenting with an infant age 0-12 months to the Emergency Department, we intend to explore beliefs, experiences, and barriers and facilitators of safe sleep practices with the ultimate goal of decreasing SIDS. Because this research is exploratory in nature, with the goal to uncover themes that will inform hypotheses for future epidemiologic and interventional work, we do not have specific hypotheses about what themes will emerge in our focus groups and surveys of caregivers. However, based on previous research, and our clinical experience, we plan to develop probe questions that will address (1) knowledge and beliefs regarding safe sleep practices (2) cultural beliefs and norms around safe sleep practices (3) equipment and space required for safe sleep (4) other adults caring for infants with different beliefs regarding safe sleep.

8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
This project seeks to explore the experiences and beliefs of caregivers regarding safe sleep practices through both focus groups and surveys aimed at: 1. Understanding caregivers’ experiences with safe sleep practices 2. Exploring caregivers’ beliefs regarding safe sleep and co-sleeping 3. Identifying caregivers’ perceived barriers and facilitators to safe sleep practices 4. Providing safe sleep education through researcher contact with study families 5. Providing safe sleep resources to families that align with their beliefs and experiences. A secondary, long-term objective is to reduce infant morbidity/mortality caused by unsafe sleep practices and co-sleeping through lessons learned (above), which can be tracked over time. To achieve the above goals, we plan to hold 2 focus groups of 10-15 caregiver participants each. We plan to administer the survey to 200 caregivers. This number is feasible based on approximately 1500 infant visits/month to the Emergency Room and will require 25 surveys complete/week over 8 weeks.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

To achieve the research aims, we will employ focus groups and surveys, along with an educational component. Focus Groups: Focus groups will explore participants’ knowledge and experiences surrounding safe sleep practices to elicit rich experiential data. We will recruit English-speaking caregivers of infants aged 0-12 months presenting to the ED for 2 focus groups each consisting of 10-15 caregivers. Focus groups will be facilitated by a consultant, and data from the focus groups will be analyzed by the research team. Surveys: From focus group results, we will develop surveys regarding safe sleep practices. We will survey a convenience sample of English caregivers of infants 0 to 12 months presenting to the ED. Subject eligibility will be determined by Research Assistants in the ED. Eligible caregivers will be approached during an ED visit and asked to complete a 10 to 15-minute anonymous
survey via tablet regarding sleep knowledge and beliefs, as well as specific questions regarding co-sleeping. Following survey responses, families will be provided with education regarding safe sleep practices, as well as access to safe-sleep resources. Education: In addition to data gathering, our proposed study will include an education component. All families involved in the study will be provided with a pamphlet on recommended safe sleep practices as well as a 10-minute safe sleep video by the National Institute of Health. Access to additional safe-sleep resources will be provided. Proposed timeline: January – March 2019: Develop focus group survey with input of ED providers, community safe sleep resources, and consultant. March 2019 – April 2019: Hold focus groups. Transcribe and review results to inform survey development. April 2019 – May 2019: Develop survey and associated education materials. Perform field testing and revise. June 2019 – August 2019: Survey implementation and education. Goal to complete 25 surveys/week over 8 weeks. July 2019 – October 2019: Data analysis. Develop interventions based on survey and focus group findings. Dissemination of research findings (including abstract submission to Pediatric Academic Societies) Intended Outcomes: Our long-term intended outcome is to improve safe sleep practices while decreasing sleep-related infant deaths in the District, by evaluating and addressing causes and factors that contribute to unsafe sleeping behaviors. While all families participating in the focus group and survey will receive safe sleep education and resources, we hope the results of these studies will allow us to provide directed, evidence-based solutions to improve sleeping environments for infants in Washington, DC.

* 10. Describe the student's role in the project (200 word limit)

The student will help with focus group analysis, survey administration, maintaining RedCap database of responses, and assisting in statistical analysis. Following survey completion, the student will have the opportunity to assist in dissemination of findings through poster presentations at local and national academic meetings, as well as manuscript drafting, editing, and submission.

* 11. Describe the mentor's role in the project. (200 word limit)

As primary mentor, Dr. Howard (Research instructor in Pediatric Emergency Medicine, with expertise in Maternal Child Health Research) will provide guidance and mentorship in approaching research participants, data analysis, and presentation of findings. She will meet with the student bi-weekly (minimum) in person to provide guidance and feedback. She will oversee participant recruitment, survey administration, data collection, and data analysis. Mentorship from senior researchers in the Division of Pediatric Emergency Medicine will also take place at monthly meetings with the Safe Sleep Education Research team.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

Principle Investigator, Mary Beth Howard, is a current Pediatric Emergency Medicine Fellow with an interest in medical student education and received medical student teaching awards during residency. Katie Donnelly, a project mentor, is the Co-director or Medical Student and Resident Education for the Children’s National Health System Emergency Department. She sits on the Clinical Subcommittee for GWU and the Medical Education Committee for Children’s National Health System. Last year she worked with a Gill Fellow, Dariush Kafashzadeh, on the project "Barriers to Gun Injury Research."

* 13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Pending)
* 1. Faculty Sponsor

Name: Michael Hsieh  
Degrees: MD, PhD  
Title: Associate Professor  
Organization: Children's National and GW  
Address: 9410 Key West Avenue  
Apt/Suite: 
City: Rockville  
State: MD  
Zipcode: 20850  
Office Phone: 4152058835  
Email Address: mhsieh@childrensnational.org

* 2. Daily Supervisor

Name: Evaristus Mbanefo  
Degrees: PhD  
Title: Research Scientist  
Organization: Biomedical Research Institute  
Address: 9410 Key West Avenue  
Apt/Suite: 
City: Bethesda  
State: MD  
Zipcode: 20817  
Office Phone:  
Email Address: embanefo@afbr-bri.org

* 3. Project Title (250 character limit)

Defining how microbial-induced inflammation clears infection and causes cancer

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Cancer
Yes - Infectious Disease
Yes - Surgery

* 6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

* 7. Hypotheses (200 word limit)
Using the urinary tract, we examine the hypothesis the bacteria- and parasite-induced inflammation can either result in clearance of infection or cause cancer. The pathogen models used are bacterial uropathogens such as E. coli and the urogenital parasite Schistosoma haematobium.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
The goal is for the student to contribute to the writing of a first draft of a manuscript for publication in a peer-reviewed journal. Last summer a GW medical student worked in the laboratory and became a co-author of a Parasite Immunology paper that is in press as of November 16, 2018.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

The student will learn mouse models of bacterial and parasitic urinary tract infection and how to apply immunologic methods to these models. For example, the student will have opportunities to learn the mouse urinary tract infections model, as well as mouse models of urogenital schistosomiasis. These models involve general anesthesia and survival surgery. The student will also learn how to perform post-necropsy dissection of the mouse bladder, and how to perform downstream assays (biochemical, immunological [i.e., ELISA]) on mouse bladder tissue and blood. Finally, the student will have opportunities to learn tissue culture methods, and a subset of the following techniques: flow cytometry, qPCR, RNA isolation, recombinant protein production and purification. Last summer a GW medical student worked in the laboratory and became a co-author of a Parasite Immunology paper that is in press as of November 16, 2018.

* 10. Describe the student's role in the project (200 word limit)
The student will learn mouse models of bacterial and parasitic urinary tract infection and how to apply immunologic methods to these models. Last summer a GW medical student worked in the laboratory and became a co-author of a Parasite Immunology paper that is in press as of November 16, 2018.
11. Describe the mentor's role in the project. (200 word limit)
I meet with every lab member as a group once a week, and also make a point of individually meeting with lab members (including summer students) once weekly. Lab members (including summer students) also submit weekly updates of their research, and I provide feedback. I will personally supervise this project.

12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
Last summer, George Khludenev, a GW medical student worked in the laboratory and became a co-author of a Parasite Immunology paper that is in press as of November 16, 2018. DOCTORAL STUDENTS SUPERVISED OR MENTORED: Dates Name Program or School Role 2011-2014 Luke Pennington Stanford University MD/PhD student 2016 Yuanlong Zhao George Washington University Summer medical student (Gill Fellow) 2016 Terry Agbo George Washington University Summer medical student 2016 Ezra Young Jun Lee Eastern Virginia Medical School Summer medical student 2016 Dannah Farrah George Washington University Medical student

13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)
Selected No (Not Required)

Please specify why it is not required.
No human subjects research is conducted as part of this project.
1. Faculty Sponsor

Name: Dr. Marijane Hynes
Degrees: MD
Title: Director, Weight Management Program
Organization: Medical Faculty Associates
Address: 2150 Pa. Ave
City: Washington DC
State: DC
Zipcode: 20037
Office Phone: 2403154701
Email Address: mhynes@mfa.gwu.edu

2. Daily Supervisor

Name: April Barbour
Degrees: MD, MPH
Title: Internal Medicine Division Chief
Organization: MFA
Address:
City:
State:
Zipcode:
Office Phone:
Email Address: abarbour@mfa.gwu.edu

3. Project Title (250 character limit)

What is the Percentage of Patients with Adverse Childhood Events that also have obesity? Is the severity of obesity related to the number of Adverse Childhood Events?

4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Psychiatry

* 6. Sponsor's translational level
* (Please select ONE)
T3: Translation to Practice

* 7. Hypotheses (200 word limit)
It is known that Adverse Childhood Events Affect Obesity. The ACE survey is a validated research tool that For physical abuse dominant maltreatment, depression mediated faster BMI gain in girls, suggesting treatment for depression in this population may slow weight gain in childhood or adolescence. -Study by Sacks et al. Overweight adolescents are more likely to be bullied, putting them at increased risk of depression and anxiety and may develop coping strategies including avoiding physical exercise and binge eating, which contributes further to overweight. However, secure relationships with parents provide a protective factor against bullying. In the absence of positive parental figures, as occurs in many ACE, bullying may further contribute to poor cardiometabolic outcomes. -Study by Lin, Latner, Fung, & Lin The Adverse Childhood Events Survey is a validated survey would be able to pick up what percentage of patients that also have obesity had ACE, and see if increasing score of ACE is also related to the severity of obesity.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
1. The goal is that we will have 200 patients complete the survey by the end of the summer. We see about 40 patients per week in the clinic total and with the student working with all of us this would be attainable. 2. We would attain demographic information from the patients chart such as age, type of insurance, zip code, BMI. 3. The goal would be to see if: there is a high percentage of patients with a significant ACE score which looks at abuse, neglect and household dysfunction. As your ACE score increases, so does the risk of disease, social and emotional problems. We propose with an ACE score of 4 or more, risk of severe obesity increases. (i.e., BMI>40)

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

The student will do a review of the literature of the meet with the statistician assigned to the case. The student will have the patient sign a consent form. The student will attend the team obesity meetings and keep us informed of its progress. The student will have the patient fill out the ACE form. The ACE form Once all the surveys are completed, the student will review the data with the team and meet again with the statistician and see if there is significance between the ACE scores and obesity and also see if an increasing sum of the ACE scores (especially greater than 4) is associated with obesity severity, that is, and increasing body mass index. The student will submit the data on a program which I have used before called REDCap, and go to training on it. Then the student , with my help, will submit a poster for research day. Finally, we will write the article and submit for publication. There is not enough data on this timely topic and it is a publishable topic.
* 10. Describe the student's role in the project (200 word limit)

The student will do as above, and be responsible for the attaining and transmission of the ACE data into the REDCap data base. It is an easy form to fill out and it will be a relatable project for the student. The data, if significant could add to our data regarding the relationship between obesity and psychosocial risk factors, and will be a topic that will add to a field that desperately needs more concrete data. The student will then be responsible for writing the poster and presenting it at research day. The student can also help to write the paper, and submit it to journals.

* 11. Describe the mentor's role in the project. (200 word limit)

I have already had students in the past do this (see sleep apnea study). I realize the student will need supervision as I have done this before and they need much guidance. They will need to consent the patient and then give them the survey to fill out. The library staff is wonderful and there is a tutorial and meetings that can help the student write a good poster and submit it.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

I have never had a Gill Fellow. Our group of Weight Management internists have all had publications: Dr. Ginger Winston, who is widely published, Dr. Mihir Patel, who has done international research and Dr. Michael Knight, who is a Robert Wood Johnson Foundation Clinical Scholar. We will help the student grow and learn in a scholarly, supportive environs.

* 13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Pending)
W.T. Gill Summer Fellowship Faculty Proposal by Nobuyuki Ishibashi

*1. Faculty Sponsor*

*Name:* Nobuyuki Ishibashi  
*Degrees:* MD  
*Title:* Associate Professor  
*Organization:* Children's National Health System  
*Address:* 111 Michigan Avenue, NW,  
*Apt/Suite:*  
*City:* Washington  
*State:* DC  
*Zipcode:* 20010  
*Office Phone:* 2024762388  
*Email Address:* nishibas@childrensnational.org

*2. Daily Supervisor*

Name:  
Degrees:  
Title:  
Organization:  
Address:  
Apt/Suite:  
City:  
State:  
Zipcode:  
Office Phone:  
Email Address:

*3. Project Title (250 character limit)*

Neuroprotection in Children with Congenital Heart Disease

*4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.*


* 5. Sponsor's Research Focus:
Yes - Cardiology
Yes - Neurology
Yes - Surgery

* 6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

* 7. Hypotheses (200 word limit)
Hypothesis 1: Impaired generation, migration and maturation of neural stem/progenitor cells are the underlying cellular mechanisms resulting in the brain immaturity observed in patients with congenital heart disease (CHD).
Hypothesis 2: Mesenchymal stromal cell (MSC) delivery to the early postnatal brain promotes endogenous regeneration of damaged neuronal and glia cells in children with congenital heart disease (CHD).

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
Following three goals are designed to test hypothesis 1. Goal 1: to determine proliferation of progenitor cells using immunohistochemical methods. Goal 2: to determine development from progenitor cells to mature cells by fluorescent marker histology. Goal 3: to determine microstructural maturation of developing brain by volumetric analysis and diffusion tensor imaging. Following three goals are designed to test hypothesis 2. Goal 4: to determine the systemic effect of MSC delivery during CHD surgery. Goal 5: to determine the effect of MSC treatment on oligodendrocyte progenitor cells. Goal 6: to determine the effect of MSC treatment on neural stem/progenitor cells.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
  * The project design makes it likely that the objectives will be achieved
  * The project is likely to result in a report of interest to other scholars
  * The project fulfills discovery/original research

Significant neurodevelopmental delay is emerging as one the most important current challenges for patients with congenital heart disease (CHD). Clinical studies demonstrate that reduced oxygen delivery due to CHD in utero results in subnormal brain development. However, cellular mechanisms underlying delayed brain maturation in CHD remain poorly understood. Our previous studies have led to our first hypothesis to be tested by the proposed study, namely that: Impaired generation, migration and maturation of neural stem/progenitor cells are the underlying cellular mechanisms resulting in the brain immaturity observed in patients with CHD. Neonatal piglets will be placed in a hypoxia chamber to simulate the perinatal hypoxia that results from CHD and to test our first hypothesis. Our previous findings have led to our second hypothesis that: MSC delivery to the early postnatal brain promotes endogenous regeneration of damaged neuronal and glia cells in children with congenital heart disease (CHD).
our second hypothesis that: MSC delivery to the early postnatal brain promotes endogenous regeneration of damaged neuronal and glia cells in children with CHD. Pediatric cardiac surgery provides a unique opportunity to control cerebral perfusion of the developing brain though cardiopulmonary bypass (CPB). We are proposing the use of CPB itself as a new MSC delivery system in the CHD population. Three goals will be immunohistologically determined using our unique piglet hypoxia and CPB model. The goal of the proposed project is to design novel cell-based therapy aimed at regenerating damaged neural and glia cells, and thereby to improve neurodevelopmental outcome in children with CHD. The proposed studies have the potential to identify and assess novel strategies to treat brain immaturity and brain injury, and define new standards of perinatal care in the patient with CHD. The resulting improved neurodevelopmental outcomes would be of enormous benefit to those individuals with CHD.

* 10. Describe the student's role in the project (200 word limit)
The program is intended to provide the highest quality experience for medical school students with a strong interest in pursuing careers as physician-scientists. To define hypoxia-induced alterations on the gyrencephalic brain and the effect of MSC delivery through CPB during CHD surgery, the student role will be focused on either immunohistochemical assay or MRI-based structural analysis of the developing brain in our clinically relevant experimental models. We offer students the opportunity to: 1) learn uniquely integrated research field in developmental neuroscience and pediatric cardiology/cardiac surgery; 2) gain experience in hands-on laboratory research; 3) interact with faculty, postdoctoral fellows, and other summer interns; 4) attend weekly luncheon/seminar presentations by members on specific research projects and cutting-edge research tools; and 5) improve presentation, writing, and communication skills. In partnership with Children's National Heart Institute, students can participate in weekly surgery case discussions and daily Cardiac ICU rounds to learn more about congenital heart disease. Our pediatric cardiac surgery team performs hundreds of cardiac surgeries. World-renowned, pediatric cardiac surgeon Richard Jonas, MD, is the co-director of the Heart Institute.

* 11. Describe the mentor's role in the project. (200 word limit)
The nature of Dr. Ishibashi’s training plan will entail multiple sessions, so that he/she can overcome the technical obstacles that are intrinsic to the study in the piglet brain. Daily supervisor - Drs. Leonetti, Maeda, Li, or Saric (Post-doc research associates in my lab) - and he/she will meet one-on-one before each experiment in order to establish the best experimental approach to be used and to determine how to avoid any difficulties that may naturally arise with the use of different samples. The training will be provided through multiple hands-on sessions at the time of actual analysis of samples and imaging data. Once he/she has acquired data, meetings with Dr. Ishibashi will be focused on data interpretation and building hypotheses relevant to our future study.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)
Selected No (Not Required)
Please specify why it is not required.

IRB approval is not required for our pre-clinical animal studies.
1. Faculty Sponsor

Name: Shana Jacobs
Degrees: MD
Title: Attending physician, associate professor
Organization: Childrens
Address: 111 Michigan Ave NW
City: Washington
State: DC
Zipcode: 20010
Office Phone: 202-476-5755
Email Address: ssjacobs@childrensnational.org

2. Daily Supervisor

Name: Catriona Mowbray
Degrees: RN, PhD
Title: Research nurse
Organization: Childrens
Address: same

3. Project Title (250 character limit)

SuPPORT - Supportive, Personalized Pharmacogenetics in Oncology Research & Treatment.

4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.

- Hinds PS, Wang J, Cheng Y, Stern ED, Waldron M, Gross H, Dewalt DA, Jacobs S., PROMIS Pediatric Measures Validated in a Longitudinal Study Design in Pediatric Oncology, Pediatric blood and Cancer, Accepted for publication
* 5. Sponsor's Research Focus:
Yes - Genomics
Yes - Pediatrics
Yes - Cancer

* 6. Sponsor's translational level
* (Please select ONE)
T2: Translation to Patients

* 7. Hypotheses (200 word limit)
The survival rate for pediatric cancer has improved dramatically since the 1970s. Despite this success, a substantial number of patients experience acute and chronic treatment-related toxicities, which affect general health and quality of life. The ability to predict which patients are at risk for specific toxicities and to modify therapy accordingly has the potential to improve clinical outcomes, reduce complications of treatment and reduce the cost of treatment. Pharmacogenetic analysis aims to define how genetic variation influences interpatient variability in drug response and toxicity. Despite technological advances, few genotypes have amassed a sufficient level of evidence to influence drug selection or dosage adjustments. Further research is needed to confirm prior observations and to discover additional genotypes that can influence drug selection. The overarching objective of this research project is to systematically collect prospective information on toxicities associated with cancer therapy, including patient reported outcomes, and to correlate these data with genes that have been implicated in drug metabolism.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
1) To evaluate the frequency of polymorphisms associated with altered metabolism and transportation of ondansetron and to test the hypothesis that specific polymorphisms are associated with ondansetron failure and nausea and vomiting in patients with those polymorphisms. 2) To evaluate the frequency of polymorphisms associated with altered metabolism and transportation of methotrexate and to test the hypothesis that specific polymorphisms are associated with toxicities in patients with those polymorphisms. 3) To assess the percentage of participants who have actionable SNPs that could lead to alterations of chemotherapy or supportive care medication dosing. 4) To create a comprehensive database of genetics, patient reported outcomes and clinician-measured toxicities to correlate toxicities to genetic variants in drug metabolizing enzymes. 5) To explore retrospectively whether patients with key serious toxicities associated with cancer therapy have SNPs that may have predisposed to the toxicity. 6) To assess provider and family interest in and comfort with genetic testing and results information. 330 patients will be enrolled

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
The student will be participating in this ongoing multiyear research project. The student will be trained in good research practice (CITI), REDCap database use, retrieving and interpreting information from our electronic medical record (CERNER) and how to complete our study toxicity forms. The student will be trained on how to delve into participants’ medical record for toxicity due to treatment and will complete toxicity documentation for 10 patients. The student will also attend weekly study meetings and will be responsible for consenting and enrolling patients and for reporting to the study team. The student will be able to report on select results at the completion of the project.

* 10. Describe the student's role in the project (200 word limit)
The student will be involved in participant screening and consent, in collection of patient reported outcomes and in scanning the medical record for collection of clinical toxicities. The student will also be involved in the weekly maintenance of the study as well as ongoing data management and analysis.

* 11. Describe the mentor's role in the project. (200 word limit)
Both Dr. Jacobs and Dr. Mowbray will mentor the student throughout the summer. Mentors will ensure student has all the necessary training and access. The mentor will ensure that the student understands what is relevant and why. The mentor will oversee data entry and perform quality checks. The mentor will be available to the student whenever they are on site. The student will also have the opportunity to shadow Dr Jacobs in her weekly leukemia clinic.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
Our team has had 3 previous trainees. 2017: 1 pre-med student 2018: 1 GW med student between 1st and 2nd year and 1 pre-med student

* 13. Do you have or will you obtain IRB approval for this project? Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)
Selected Yes

Please provide IRB number and date
* IRB Number: Pro00008058
* IRB Date: 2/27/2017
**1. Faculty Sponsor**

- **Name:** Jyoti K Jaiswal  
- **Degrees:** MS, PhD  
- **Title:** Associate Professor  
- **Organization:** Children's National Medical Center  
- **Address:** 111 Michigan Av NW  
- **Apt/Suite:** Center for Genetic medicine Suite 5721  
- **City:** Washington  
- **State:** DC  
- **Zipcode:** 20852  
- **Office Phone:** 2024766456  
- **Email Address:** jkjaiswal@gwu.edu

**2. Daily Supervisor**

Name:  
Degrees:  
Title:  
Organization:  
Address:  
Apt/Suite:  
City:  
State:  
Zipcode:  
Office Phone:  
Email Address: 

**3. Project Title (250 character limit)**  
Using STAT3 and TGFβ inhibition to treat stem cell dysfunction in mouse model of Duchenne Muscular Dystrophy

**4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.**


* 5. Sponsor's Research Focus:
Yes - Anatomy
Yes - Pediatrics
Yes - Biochemistry
Yes - Pharmacology

* 6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

* 7. Hypotheses (200 word limit)
Diminished regenerative capacity of the muscle stem cells is a feature of Duchenne Muscular Dystrophy is caused by high TGFb dependent STAT3 activity, providing their inhibition as a viable therapy for these patients.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
The goal of the proposed study is to perform mechanistic and preclinical studies using a mouse model of DMD, which mimics the reduced myogenic ability seen in DMD patients. To achieve this goal the project involves performing molecular (Western blot and gene expression) and histopathological (Immunostaining and histological staining of skeletal muscle sections) or untreated mice and of mice that are treated with drugs that inhibit TGFb, STAT3, or both these pathways.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

TGF-ß is a key cytokine responsible for fibrosis, but it is also implicated in regulating satellite cell myogenic function. Our preliminary studies demonstrate that muscles from the DMD mouse model (D2-mdx) has high TGF-ß levels and it undergoes conspicuous degeneration and limited regeneration between 3-6 weeks of age. However, this model has not been used to investigate the role of TGF-ß in myogenic failure in DMD. Understanding of this is required for future clinical trials of TGF-ß inhibitors for treating myogenic deficit in in DMD patients. In the proposed study the fellow will evaluate the effects of TGF-ß inhibition using a high-affinity neutralizing antibody. In addition to TGF-ß, high STAT3 signaling is another inhibitor of satellite cell myogenic activity in dystrophic muscle. Our preliminary data shows that activated STAT3 is elevated in muscles from D2-mdx mice. Thus, in a parallel preclinical study the fellow will participate in testing the effectiveness of STAT3 inhibition in reversing satellite cell dysfunction and improve regeneration of dystrophic muscle. For this, we have already identified a potential drug candidate in clinical trial and will be tested. To monitor myogenesis we have developed a pulsed-BrdU labeling approach to mark nuclei of the satellite cells that contribute to myogenesis. Use of this approach has identified that the satellite cells D2-mdx mouse model, but not of a related mouse model (B10-mdx) shows impaired myogenic ability, as indicated by the limited number of new (BrdU+) nuclei that end up in muscle fibers. The fellow will use this assay to monitor muscle regeneration in D2-mdx mice treated with the above-mentioned drugs to inhibit TGF-ß and STAT3 activity. Additionally, the fellow will be able to perform
histopathological and molecular analysis of the mice in this preclinical trial to monitor the impact of improved myogenesis on improving function at the molecular and histological level.

* 10. Describe the student's role in the project (200 word limit)
The fellow will get training in the planning and execution of a preclinical trial and receive hands on training and support in pursuit of the approaches required to pursue the experiments that will allow testing the efficacy of the trial. Due to the short duration, while the student will not be required to perform live animal work, if it is of interest to the student efforts will be made to include them in the animal protocol so they can also get hands on exposure in working with animals. The student will also be required to prepare a poster and generate a write up of the work performed which will be included in the publication of the broader work that this project will contribute towards.

* 11. Describe the mentor's role in the project. (200 word limit)
This work has already been initiated and the participating Gill scholar will thus have the opportunity to receive hands on day-to-day mentorship as well as opportunity to interact with other group members involved in complimentary, but independent research focussed on understanding and treating genetic disorders of muscle that result in excessive tissue degeneration. This is a focus of the laboratory and the mentorship provided by Dr. Jaiswal will help the scholar receive exposure to a wide variety of tools to study degenerative human diseases.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
The most recent of the GWU medical fellows who have worked in our laboratory is Chen-min (Steven) Hung. Aside from that medical students and MDs from other schools have also been involved in short or long-term studies in the laboratory. The last Gill fellowship awardee was unable to start her work due to a family issue.

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)
  Selected No (Not Required)

Please specify why it is not required.
The study is primarily animal based and has required IACUC approval, and does require an IRB.
* 1. Faculty Sponsor

- Name: Massoud Kazzi
- Degrees: MD
- Title: Physician
- Organization: George Washington University Department of Emergency Medicine
- Address: 2120 L Street NW
- Apt/Suite: Suite 450
- City: Washington
- State: DC
- Zipcode: 20037
- Office Phone: 2027412911
- Email Address: mkazzi@mfa.gwu.edu

* 2. Daily Supervisor

Name:

Degrees:

Title:

Organization:

Address:

Apt/Suite:

City:

State:

Zipcode:

Office Phone:

Email Address:

* 3. Project Title (250 character limit)

InVESTED - Review of mechanical ventilation settings of Intubated ED patients and its effects on outcomes

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Emergency Medicine

6. Sponsor's translational level
* (Please select ONE)
T3: Translation to Practice

7. Hypotheses (200 word limit)
Retrospective chart review looking at the mechanical ventilator settings of patients intubated in the Emergency Department to determine what percentage were placed on Low Tidal Volume ventilation (aka Lung Protective Ventilation) and whether this had any effects on outcomes such as days on the ventilator, ICU length of stay and a few other metrics. Low Tidal Volume ventilation is evidence based approach for ARDS but there are other studies showing its benefit in other patient populations. We'd like to determine firstly how many of our own patients are getting Low Tidal Volume ventilation and whether in non-ARDS patients it is also associated with improved outcomes.

8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
Our goal is to review about 150 charts to look at a number of parameters including diagnosis, initial vent settings in ED and in ICU, ICU length of stay, hospital length of stay, mortality etc.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

We have a list of intubated ED patients. We will access patient medical records in order to perform a retrospective chart review of intubated ED patients. We will collected data and perform an analysis. The chart review should be accomplished within a dedicated one month time frame. Then we can perform an analysis over the next 4 weeks and write our findings.

10. Describe the student's role in the project (200 word limit)
The student's responsibility would be chart review and data collection and analysis. There would also be opportunity to get involved with prospective trial we'd like to perform in the ED which would integrate a Low Tidal volume setting for all ED patients getting intubated and review outcomes to see if there is any change pre/post intervention as compared to our retrospective data.

11. Describe the mentor's role in the project. (200 word limit)
I will be supervising the team which also includes a group of residents. I will help familiarize the student with the medical record how to perform the search where to record the data and check in regularly to assist.

12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
There have been no previous medical students involved.
* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)
Selected Yes

Please provide IRB number and date

* IRB Number: 031818

* IRB Date: 04/13/2018
W.T. Gill Summer Fellowship Faculty Proposal by Jennifer Keller

* 1. Faculty Sponsor

* Name: Jennifer Keller  
* Degrees: MD MPH  
* Title: Associate Professor  
* Organization: Medical Faculty Associates/ SMHS  
* Address: 2150 Pennsylvania Ave NW  
* Apt/Suite:  
* City: Washington  
* State: DC  
* Zipcode: 20037  
* Office Phone: (202) 741-2500  
* Email Address: jkeller@mfa.gwu.edu

* 2. Daily Supervisor

Name: Shahnaz Khan  
* Degrees: MPH Doctoral student, Translational Health Sciences  
* Title: Doctoral student, Translational Health Sciences  
* Organization: GWU SMHS  
* Address:  
* Apt/Suite:  
* City:  
* State:  
* Zipcode:  
* Office Phone:  
* Email Address: kshahnaz@gwmail.gwu.edu

* 3. Project Title (250 character limit)
A mixed methods study evaluating the current uptake of co-testing based on the United States Preventive Services Task Force (USPSTF) cervical cancer screening recommendations and multilevel barriers to guideline implementation in an urban healthcare setting

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.

5. Sponsor's Research Focus:
Yes - Obstetrics/Gynecology

6. Sponsor's translational level
* (Please select ONE)
T4: Translation to Population Health

7. Hypotheses (200 word limit)
The overarching hypothesis is that different determinants such as patient race, age, and insurance type will be predictors of guideline adherence for cervical cancer screening as well as provider type and practice setting.

8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
All patient health records from the GW MFA clinics for females between the ages of 30-65 seen for routine cervical cancer screening between 2012-2018 following specified inclusion and exclusion criteria will be reviewed. It is estimated that there are approximately 1000 records that require screening for inclusion. This project will provide a dataset for the researcher to calculate the uptake (%) of co-testing performed in the MFA practice settings and also measure the screening interval using the first negative co-test as baseline to next screening test in EMR. Co-testing is defined as a pap smear plus a human papillomavirus test. Specified variables from each patient EMR will be extracted for the dataset. The student will be involved in data collection and analysis.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Upon receiving IRB approval (estimated Spring 2019) students will query the EMR to retrieve all routine cervical cancer screening records. Inclusion and exclusion criteria will be provided. Data will be extracted and entered into a spreadsheet. Completion of the student project is expected to be no later than August 2019.

10. Describe the student's role in the project (200 word limit)
The student’s role will be to extract and clean data from MFA EMRs using specified inclusion and exclusion criteria and enter into a spreadsheet. If data collection is completed before the end of the summer the student will also be able to participate in data analysis and write up of the project.

11. Describe the mentor's role in the project. (200 word limit)
I am an advisor to the doctoral candidate and a member of her defense committee. I helped to design the study and will assist in the analysis of data as well as will answer clinical questions related to data collection. I will also be available to the medical student for help as questions arise during data collection.
I have mentored several Gill students in past years. The projects have resulted in presentations/posters and abstracts. We have just finalized our paper that has resulted from the project that I oversaw last summer and hope to have that accepted for publication in the next few months.

* 13. Do you have or will you obtain IRB approval for this project?
   **Please note:** Students cannot begin a human subjects project without IRB approval.
   * (Please select ONE)
   Selected No (Pending)
1. Faculty Sponsor

Name: Anjeni Keswani
Degrees: MD, MSCI
Title: Assistant Professor of Medicine, Division of Allergy/Immunology
Organization: Medical Faculty Associates
Address: 2300 M St NW
Apt/Suite: Suite 200
City: Washington
State: DC
Zipcode: 20037
Office Phone: 202-741-2771
Email Address: akeswani@mfa.gwu.edu

2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

3. Project Title (250 character limit)

Comparison of Surgical Outcomes in Chronic Rhinosinusitis based on Allergic Sensitization

4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Infectious Disease
Yes - Pulmonology
Yes - Surgery

6. Sponsor's translational level:
(Please select ONE)
T2: Translation to Patients

7. Hypotheses (200 word limit):
The purpose of the study is to analyze allergic sensitization in chronic rhinosinusitis as a factor in outcomes following sinus surgery. The study aims to determine if allergic sensitization plays a role in the symptomatic response to sinus surgery and further investigates whether the type of allergic sensitization (seasonal vs perennial) influences the response.

8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
Surgical outcomes and standardized symptoms/quality of life measures will be compared in allergic vs non-allergic individuals. Sinonasal outcome test-22 (SNOT-22) scores will be compared pre- and post-surgery. Improvement in SNOT-22 scores pre- and post-surgery will be analyzed using a paired t-test. Further, pre-surgery SNOT-22 scores, post-surgery SNOT-22 scores, and mean change in SNOT-22 scores (between pre- and post-surgery scores) will be stratified by allergic status to compare allergic vs non-allergic individuals by way of a t-test.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Individuals with chronic rhinosinusitis can be treated with a combination of medical and surgical therapies. At this time, the factors which predict a more successful surgical outcome are not fully known. As allergies are thought to contribute to the development of chronic rhinosinusitis in certain cases, it would be important to know if patients with underlying allergies have the same symptom improvement as those without allergies. In a study by Bonfils et al, 63 subjects with chronic rhinosinusitis with nasal polyps were analyzed to determine if the results of surgical polypectomy were influenced by the presence of allergic sensitization (1). Improvement in the three nasal symptoms assessed: nasal obstruction, posterior rhinorrhea, and loss of smell were not statistically different in the two groups stratified by allergic status (1). Cumulative corticosteroid consumption was also similar between the two groups (1). Gevaert et al determined that allergic sensitization was a risk factor for revision sinus surgery in chronic rhinosinusitis with nasal polyps (2). As these studies showed different outcomes, an additional larger retrospective study would add significantly to the body of research. The project has a specific research question and the scope is achievable during the summer research time frame. These original research results will be published to better aid physicians in determining if allergic inflammation in chronic rhinosinusitis predicts a differential symptomatic response to functional sinus surgery. This would allow otolaryngologists more precision in counseling potential surgical candidates and would help allergists determine if they need to be more aggressive in treating allergies.

* 10. Describe the student's role in the project (200 word limit)

The student's role would be to perform chart review of subjects from Otolaryngology and Allergy clinic who have undergone both sinus surgery and skin prick allergy testing during the identified time frame. They would evaluate standardized symptom scores taken at each Otolaryngology visit (Sino-Nasal Outcome tests, pre and post-surgery) and perform statistical analysis (under the guidance of the mentor) to determine if patients with allergic sensitization (seasonal or perennial) had a difference in standardized surgical outcomes compared to non-allergic patients.

* 11. Describe the mentor's role in the project. (200 word limit)

As the mentor, I will oversee the chart review process. I will obtain the list of patient's charts to be reviewed as well as discuss the key pieces of data which need to be collected. I will also aid in statistical analysis. Once the analysis is completed, an abstract will be written for presentation at the annual Allergy/Immunology conference. I like to interact with my student mentee frequently and am committed to education about chronic sinus disease as well as research methods. I believe the project is a collaboration between the student, myself, and my Otolaryngology colleagues.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

I have had the privilege of mentoring numerous trainees from medical students, residents, and fellows in clinical research during the past 6 years. Most of the trainees have had successful research projects resulting in publications and abstracts and are currently pursuing careers in Allergy/Immunology or Otolaryngology. Currently, I am working with a GW Internal Medicine resident on a separate research project but would like the opportunity to work with a medical student as well.

* 13. Do you have or will you obtain IRB approval for this project? Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: 041805

* IRB Date: 04/18/18
* 1. Faculty Sponsor

* Name: A. Yasmine Kirkorian
* Degrees: MD
* Title: Assistant Professor of Dermatology & Pediatrics
* Organization: Children's National Health System
* Address: 111 Michigan Avenue NW
* Apt/Suite: Suite 3W-618
* City: Washington
* State: DC
* Zipcode: 20010
* Office Phone: 202-476-4195
* Email Address: akirkori@childrensnational.org

* 2. Daily Supervisor

Name: Same as above
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)
North American Study of Pediatric Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis: Setting Diagnostic Criteria, Systematic Review and Retrospective Cohort Analysis Comparing Outcomes of Common Treatments

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.
* 5. Sponsor's Research Focus:
Yes - Dermatology

* 6. Sponsor's translational level
* (Please select ONE)
T3: Translation to Practice

* 7. Hypotheses (200 word limit)
Stevens-Johnson syndrome-toxic epidermal necrolysis (SJS-TEN) spectrum diseases refer to a category of acute-onset skin disorders with mucositis involving at least two different mucous membranes and varying percentage of epidermal necrosis. SJS-TEN is classically triggered by medications and is rare in children. More recently there are increasing reports of an SJS-TEN-like presentation in children occurring in the setting of infection, especially Mycoplasma pneumonia infection. This presentation is referred to as Mycoplasma-induced rash and mucositis (MIRM). There is no consensus on appropriate treatment and various treatment protocols ranging from supportive care, systemic corticosteroids and systemic immunosuppressant medications are used at different institutions. The hypothesis of this project is that the rate of SJS-TEN/MIRM presentation is increasing and that treatment practices for these diseases vary widely across North America.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
The goal for the Gill student will be to perform a chart review of pediatric patients presenting with SJS/TEN/MIRM in the last 10-years at Children's National Health System as part of a multi-center retrospective cohort study examining the relationship between treatment and outcomes in pediatric SJS/TEN/ MIRM cases. The multi-center study is supported by the Pediatric Dermatology Research Alliance.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
Our institution is participating in a 10-year multi-center retrospective cohort study examining the relationship between treatment and outcomes in pediatric SJS/TEN/ MIRM cases. The multi-center study is supported by the Pediatric Dermatology Research Alliance (PeDRA). The goal of the Gill project is to perform our portion of the chart review and upload the data into the REDCap database created and maintained by the Children's Hospital of Eastern Ontario. We will complete our chart review and data submission over the course of the summer. The collated data from all centers will be presented at the PeDRA meeting from November 14-16, 2019.

* 10. Describe the student's role in the project (200 word limit)
The Gill fellow will perform the retrospective chart review for this project over the course of the summer. They will input the extracted data into the REDCap database. In addition to this responsibility, the student will have the opportunity to work on case reports/case series for first authored publication and to participate in pediatric dermatology clinic if interested.
* 11. Describe the mentor's role in the project. (200 word limit)
I will directly supervise the Gill fellow in their daily work. I will instruct them on proper data review and extraction and how to work with REDCap. I will verify the quality of the data submission. I will also serve as a mentor in Pediatric Dermatology in general. Depending on student interest this could entail further first authored publications such as case reports or case series as well as shadowing in clinic.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
Prior Gill Fellow: Justin Arnold -- Justin performed a similar retrospective chart review of pediatric hidradenitis suppurativa patients as part of a multi-site PeDRA study. He completed the study successfully over the summer. Our institution actually collected the largest number of patients in the study which led to Justin being included as a co-author on the upcoming publication. Justin and I also designed and successfully published multiple epidemiological publications based on database analysis. Those publications have appeared in our premier dermatologic journals. They are listed below: 1. Arnold JD, Yoon S, Kirkorian AY. Inpatient burden of pediatric dermatology in the United States. Pediatr Dermatol. 2018 Sep;35(5):602-606. 2. Arnold JD, Crockett RM, Kirkorian AY. Hospital readmissions among patients with skin disease: A retrospective cohort study. J Am Acad Dermatol. 2018 Oct;79(4):696-701 3. Arnold JD, Hoek SN, Kirkorian AY. Epidemiology of staphylococcal scalded skin syndrome in the United States: A cross-sectional study, 2010-2014. J Am Acad Dermatol. 2018 Feb;78(2):404-406. I also have mentored many other medical students and residents who completed successful publications. To date, I have 20 such senior-authored publications where I have served as a mentor to medical students and residents in the past 4 years.

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)
Selected No (Pending)
W.T. Gill Summer Fellowship Faculty Proposal by Ioannis Koutroulis

* 1. Faculty Sponsor

* Name: Ioannis Koutroulis
* Degrees: MD, PhD, MBA
* Title: Assistant Professor of Pediatrics and Emergency Medicine
* Organization: Children's National Medical Center
* Address: 111 Michigan Ave. NW
* Apt/Suite: 
* City: Washington
* State: DC
* Zipcode: 20010
* Office Phone: 2024764177
* Email Address: ikoutrouli@childrensnational.org

* 2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)
The role of MSC-derived exosomes in the immunometabolism of sepsis

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Pediatrics
Yes - Biochemistry
Yes - Infectious Disease
Yes - Emergency Medicine

* 6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

* 7. Hypotheses (200 word limit)
In order to examine the role of exosomes in sepsis therapeutics with the goal to design clinical trials, we will first use a murine sepsis model and utilize the cecal slurry protocol. We hypothesize that improved energy production in inflammatory cells from septic mice treated with exosomes will reduce inflammatory cytokines.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
Aim 1. To test exosomes in vivo in a murine model of sepsis for improved energy production. Aim 2: To test exosomes in vivo in a murine model of sepsis for improved hyperimmune inflammation. The goal of this application is to better understand the interaction between cell respiration and hyperimmune inflammation during sepsis. The next step is to investigate the ways metabolism and innate immunity interact in the septic process and whether altering cell communication would lead to favorable clinical outcomes. We will include 40 septic mice in the study and 20 controls. Once a mouse is euthanized assays will be run to measure cell respiration (glycolysis, oxidative phosphorylation) and will also perform cytokine quantitative analysis.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
We will have two experimental groups, with mice treated with a dose of exosomes and mice that are treated with vehicle. Male C57BL/6J recipient mice will be weighed then gently restrained and their abdomens will be aseptically prepared with a chloraprep swab. An intraperitoneal injection of the cecal slurry suspension will be made using a 23-gauge needle. Following administration of the cecal slurry suspension, each mouse will be placed in a cage with ad libitum food and water. At 12 hours post-injection of cecal slurry, mice will be treated with either vehicle or exosomes. The differences in sepsis severity will be assessed clinically using a murine sepsis scoring system developed by Shrum et al., that evaluates appearance, level of consciousness, activity, response to stimulus, eyes, respiratory rate and respiratory quality. When mice show a sepsis score of 15 or higher on the scale ranging from 0 to 28, they will be euthanized. The resulting blood from the euthanized animals will be analyzed and inflammatory cells will be isolated in order to measure cell respiration and inflammatory markers (cytokines, NFkB) for correlation with rate of reaching a sepsis score of 15 or higher. Survival following induction of sepsis will be assessed and monitored as described above.
* 10. Describe the student's role in the project (200 word limit)

The student will have an active role in inducing sepsis in mice using the cecal slurry model, assessing sepsis severity with the proposed scoring system and also perform cell respiration and cytokine assays utilizing equipment at Children's Research Institute. As this is a basic sciences project, it is expected that the PI and research staff will train the student in all the required techniques and that there will be ample time for the student to learn and apply the project relevant concepts.

* 11. Describe the mentor's role in the project. (200 word limit)

The mentor will be responsible to familiarize the student with all required techniques as well as animal handling. He will also supervise the student while performing all assays and ensure that there is always someone from the research staff available to help and teach. The mentor will also be available for troubleshooting and resolve any issues related to the project as well as guide the student when needed. It is also expected that the PI will help the student with presentations/abstracts and manuscripts that will be produced using the results of the proposed work. The student might utilize the training from this project for a career in basic and translational research and the mentor will also support him/her in future career decision making.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

All experiments will take place at Children's Research Institute (CRI) at CNMC and within the Center of Genetic Medicine and the Freishtat lab. Dr. Freishtat and the team have extensive experience with students and other trainees and have supported Gill Fellows in the past. The mentor of this projects has also worked with medical student in clinical and translational projects in the past that were successfully completed and presented at prestigious conferences and were submitted for publication. The current infrastructure can support multiple students in basic science projects and CNMC/CRI has hosted numerous GW students through this fellowship and other programs.

* 13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: IACUC 00030714

* IRB Date: 09/20/2018
**1. Faculty Sponsor**

* Name: Finza Latif  
* Degrees: M.D.  
* Title: Asst Professor  
* Organization: Children's National Health System  
* Address: 111 Michigan ave NW  
* City: Washington  
* State: District of Columbia  
* Zipcode: 20010  
* Office Phone: 2024764842  
* Email Address: flatif@childrensnational.org

**2. Daily Supervisor**

Name: Sarah Hornack  
Degrees: PhD  
Title: Asst. Professor  
Organization: Children's National Health System  
Address: 111 Michigan ave NW  
City: Washington  
State: District of Columbia  
Zipcode: 20010  
Office Phone: 2024764842  
Email Address: shornack@childrensnational.org

**3. Project Title (250 character limit)**
Assessing impact of a novel manualized combined behavioral weight loss and cognitive behavior therapy intervention on Body Mass Index (BMI) trajectories in obese adolescents

**4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.**


* 5. Sponsor's Research Focus:
Yes - Psychiatry

* 6. Sponsor's translational level
* (Please select ONE)
T2: Translation to Patients

* 7. Hypotheses (200 word limit)
This project will use data from an ongoing study 'Use of a calorimeter as a therapeutic tool for children and adolescents with Binge-Eating Disorder and Obesity' This study is in the process of assessing efficacy of a novel intervention for Binge Eating Disorder. The student project will study the effect of this intervention on BMI trajectories for subjects who have completed the study. The hypothesis for the student project states that the intervention will lead to reduction of rate of increase in BMI.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
Chart reviews to be conducted on 9 subjects who have completed the study and any that may complete the study prior to start of project. Up to 4 more patients are expected to enroll and complete the study prior to the summer. Objective of data review is to determine if the Cognitive Behavioral intervention was effective in modifying BMI trajectories in obese adolescents.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Method: Collect BMI data for up to a year prior to enrollment in study (as available in Electronic health Record) via chart reviews for all subjects who have completed the study Obtain BMI data collected in Redcap at each of 9-12 intervention sessions for each patient. Analyze above data to create BMI trajectory pre and post intervention

* 10. Describe the student's role in the project (200 word limit)
The student will: 1. Obtain access to EHR (Cerner) and Redcap 2. Conduct chart reviews for enrolled study patients to collect past height, weight and BMI information 3. Analyze BMI information from 1 year before, during and 3-6 months after study to determine changes in trend 4. Write abstract on findings 5. Submit abstract for poster presentation for the International Academy of Eating Disorders 2020 6. If interested, the student will also have the option of getting involved with the ongoing study for Binge Eating Disorder and role may include screening patients, obtaining consent and collecting data.

* 11. Describe the mentor's role in the project. (200 word limit)
The mentor will guide and supervise student in above steps in person and via phone and email. The mentor will support student with obtaining access to EHR and Redcap. The mentor will provide hands on support for data analysis and abstract writing. The study team submitted a poster on baseline characteristics of study patients which was recently accepted at the Academy of Eating disorders 2019 conference. There is a dearth of data in the area of Binge Eating Disorder in adolescents, therefore the student poster has a high likelihood of being accepted. The mentor will provide opportunities to expand knowledge in eating disorders in adolescents specifically and behavioral health in general based on student interest.

12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

In my role as Director of Pediatric Psychiatry Consultation Liaison Service at Children's National, I have supervised approximately 8 GW Physician Assistant Students a year and 5-6 Child and Adolescent Psychiatry fellows each year for 4 years. I mentored a GW medical student in 2015 and she had a poster accepted at the Child and Adolescent Psychiatry Conference 2015. I have also mentored residents and fellows who have then had poster presentations at various conferences.

13. Do you have or will you obtain IRB approval for this project? Please note: Students cannot begin a human subjects project without IRB approval.

(Please select ONE)

Selected Yes

Please provide IRB number and date

IRB Number: Pro00009002

IRB Date: 4/17/17
W.T. Gill Summer Fellowship Faculty Proposal by Claire M. Lawlor

* 1. Faculty Sponsor

* Name: Claire M. Lawlor
* Degrees: M.D.
* Title: Assistant Professor, Pediatric Otolaryngology
* Organization: Children's National Health System/GWUMHS
* Address: 111 Michigan Ave NW

* 2. Daily Supervisor

Name: Claire M. Lawlor
Degrees: M.D.
Title: Assistant Professor, Pediatric Otolaryngology
Organization: Children's National Health System/GWUMHS
Address: 111 Michigan Ave, NW

* 3. Project Title (250 character limit)

Is a Multidisciplinary Aerodigestive Clinic More Effective at Treating Recalcitrant Aerodigestive Complaints Than a Single Specialist? Follow up and Review of Recalcitrant Cases.

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


Children with disorders of the aerodigestive tract often present with a myriad of symptoms, ranging from cough to recurrent respiratory infections to failure to thrive. The varied presentations often result in these patients bouncing from specialists to specialist without a concise and unified plan of care. We propose that a multidisciplinary aerodigestive clinic (ADC) at Children's National Health System, consisting of a pediatric otolaryngologist, pediatric gastroenterologist, pediatric pulmonologist, and speech language pathologists will provide these complex patients with improved outcomes, higher patient/family satisfaction, and increased cost effective care. A review of our outcomes from this multidisciplinary clinic (MDC) in it's infancy was completed as a Gill fellowship project between 2013-2014. At that time, we demonstrated significant patient improvement or resolution of their symptoms in 73% of patients. We would like to review the patients treated in our clinic since that time to assess for continued efficacy of the MDC and examine the causes of failures in our recalcitrant patients and opportunities for improvement. Our hypothesis is that our clinic has continued to provide our patients with similarly positive outcomes (>75% improvement/resolution) and that our recalcitrant cases are due to failure to achieve proper diagnosis.

The first review of this kind was published in 2017: Rotsides JM, Krakovsky GM, Pillai DK, Sehgal S, Collins ME, Noelke CE, Bauman NM. Is a Multidisciplinary Aerodigestive Clinic More Effective at Treating Recalcitrant Aerodigestive Complaints Than a Single Specialist? Ann Otol Rhinol Laryngol. 2017 Jul;126(7):537-543. PMID: 28474959. It also resulted in a poster presentation at a national meeting. The Gill fellow that participated in this project, Janine Rotsides, GWUMHS '16, received a first author publication and a poster presentation at a national meeting. She subsequently matched into a top otolaryngology residency program. We expect to perform a retrospective review of all patients of the ADC at CNHS between August 2013-December 2018. This will be an approximately 250 patient record retrospective review. The patients meeting inclusion criteria are easy to capture, as we have a nurse coordinator that manages all of our patients. Data collected will include parent-completed preclinical screening surveys, initial clinic evaluations, operative reports, diagnostic test results, and follow-up clinic evaluations. Project goals include 1-2 peer reviewed publications and 1-2 poster or podium presentations at national meetings. The second publications could arise from developing assessment/treatment algorithms for these complex patients.

Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
Retrospective cohort study. At the start of the summer, the list of patients that meet inclusion criteria for the study will be provided to the Gill fellow. The fellow will begin and complete the chart review within the first 4 weeks to create a data set. Working with the mentor, the fellow will then determine what statistical questions can be answered from the data. Statistical analysis will then be performed by our support team at CNHS; ideally, the fellow will participate in this process and understand the statistical tests performed for our project. The fellow will then work to understand the results of the data and write the manuscript, under the guidance of the mentors. The student will also submit the manuscript for presentation at a national meeting (submission deadlines open in fall 2019).

10. Describe the student's role in the project (200 word limit)
Chart review, database creation, development of clinical questions to be answered by statistical analysis of data, understanding of statistical tests, manuscript drafting, manuscript editing, presentation at national meetings. We will also expect the fellow to participate in the revision process during publication of the manuscript. The fellow will also have the opportunity to shadow the mentors in the ADC clinic and their respective ORs (the medical student should have the ability to scrub in OR cases). They can observe diagnostic testing (eg. radiology swallow studies, etc). Should the student have an interest in otolaryngology, involvement in projects of this nature is now critical to ensure success in a very competitive residency match (anticipated match rate for 2018-2019 of 66%). This project will help the fellow understand what it takes to bring a clinical research project from conception to completion and ultimately presentation. We expect the fellow to take pride and ownership of this project. This is a tremendous skill for a first year medical student and will be an excellent talking point during residency applications.

11. Describe the mentor's role in the project. (200 word limit)
The following physicians will serve as additional mentors in this project (members of the ADC team): Nancy Bauman, MD Dinesh Pillai, MD Sona Sehgal, MD Mentors conceived of the project. Mentors will finalize IRB approval prior to the onset of the project and ensure that the patients meeting inclusion criteria are available at the start of the Gill fellowship. Mentors will serve as a readily accessible resource during data collection, data assessment, manuscript drafting, and presentation at national meetings. The mentors will also serve to introduce the fellow to the ADC clinic, their respective specialties, and to the operating room. Should the fellow have interest, the mentors hope to continue to work with the fellow on research projects during their time at GWUMHS. The mentor can serve as a career advisor, research advisor, and peer reference.

12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
The Gill fellow that participated in the first iteration of this project, Janine Rotsides, GWUMHS ’16, received a first author publication and a poster presentation at a national meeting. She subsequently matched into a top otolaryngology residency program. The IRB for the first project just lapsed and is being renewed, expected IRB approval by January 2019. The lead mentor on this case has mentored medical students and residents in the following capacities: - Chair of the Section of Residents and Fellows of the American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS) - Resident advisor to the ENT interest group at Tulane University SOM. - Resident advisor to the Women in Surgery interest group at Tulane University SOM. - >20 peer reviewed publications - Served in a supervisory role to junior students/physicians in 5-10 peer reviewed publications. - Mentored >10 students through residency application and/or fellowship application processes. Additionally, as a medical student myself (Tufts SOM ’12), I participated in a similar first year research fellowship. My career interest in clinical research is an example of the success of these research fellowships.

13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

(Please select ONE)
Selected No (Pending)
W.T. Gill Summer Fellowship Faculty Proposal by Norman H Lee

* 1. Faculty Sponsor

* Name: Norman H Lee
* Degrees: PhD
* Title: Professor
* Organization: GW Cancer Center/GWU
* Address: 2300 I Street NW
* Apt/Suite: Ross Hall, Room 601
* City: Washington
* State: DC
* Zipcode: 20037
* Office Phone: 202-994-8855
* Email Address: nhlee@gwu.edu

* 2. Daily Supervisor

Name: Norman H Lee
Degrees: PhD
Title: Professor
Organization: GW Cancer Center/GWU
Address: 2300 I Street NW
Apt/Suite: Ross Hall, Room 601
City: Washington
State: DC
Zipcode: 20037
Office Phone: 202-994-8855
Email Address: nhlee@gwu.edu

* 3. Project Title (250 character limit)
Role of the short isoform of phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit delta (PI3K-delta) in malignant B-cell resistance to small molecule inhibitors

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.

* 5. Sponsor's Research Focus:
Yes - Genomics
Yes - Cancer

* 6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

* 7. Hypotheses (200 word limit)
We have published (Wang et al., Nature Communications 2017) and unpublished data (i.e. cell-free recombinant protein kinase assays) demonstrating that kinase activity of the short, but not long, isoform of PI3K-delta is resistant to inhibition by small molecule inhibitors (SMI), such as idelalisib (FDA approved drug for B-cell malignancies). This finding has clinical and translational relevance as ~40-50% of B-cell malignant patients are non-responsive to idelalisib therapy (Gopal et al., N Engl J Med 370: 1008-18, 2014). The mechanism responsible for this resistance to SMI therapy is currently unknown. Interestingly, our Nature Communications publication demonstrated for the first time that prostate cancer cell lines over-expressing the short isoform of PI3K-delta were resistant to idelalisib-mediated growth inhibition. Based on these findings, our overarching hypothesis is that idelalisib resistance may be due, in part, to over-expression of the short isoform of PI3K-delta in malignant B-cells.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
The testing of our hypothesis will be accomplished by the following project goals/experiments: Goal 1. Correlate expression of the short isoform of PI3K-delta and idelalisib-mediated suppression of proliferation in a panel of five to ten B-cell cancer cell lines (e.g. Jeko-1, Raji, Mino, SupB15, etc.). We hypothesize that expression of PI3K-delta will be inversely correlated with idelalisib-mediated suppression of proliferation. Goal 2. Correlate expression of the short isoform of PI3K-delta and idelalisib-mediated apoptosis in a panel of B-cell cancer cell lines. We hypothesize that expression of PI3K-delta will be inversely correlated with idelalisib-mediated apoptosis. Goal 3. If time permits (depending on the laboratory proficiency of the Gill Fellow), we will perform genetic experiments to knock-down PI3K-delta expression in three B-cell cancer cell lines Jeko-1, Raji, and/or SupB15. Following knock-down, we will measure 2 phenotypic endpoints: proliferative ability and apoptosis. We have already confirmed expression of the short isoform of PI3K-delta by molecular cloning of the mRNA in each of the 3 cancer cell lines.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Research design and experimental protocols will be implemented in accordance to prior publications from the Lee lab (Wang et al., Nature Communications 8:15921, 2017; Knox et al., Sci Reports, 2018, in press; House et al., Sci Reports 5:11541, 2015; Wang et al., Clin. Cancer Res. 21:4970-4984, 2015). Research design as follows: 1) Expression of the short isoform of PI3K-delta in B-cell cancer lines will be measured by reverse transcription-PCR (RT-PCR). RT-PCR will be performed on N=5-8 independent subcultures of each cell line, providing ~80% power to distinguish 2-fold differences in expression. RT-PCR experiments are part of Goals 1 and 2; time line of proposed
work is weeks 1-4. 2) Proliferation assay is based on a high-throughput (i.e. 96- or 384-well plate) fluorescent-based protocol measuring BrdU incorporation in cancer cell lines pre-treated with idelalisib. Proliferation assay will be performed on N=5-8 independent subcultures of each cell line. Proliferation assay is part of Goal 1; time line of proposed work is weeks 3-6. 3) Apoptosis assay is based on a high-throughput (i.e. 96- or 384-well plate) fluorescent-based Apo-ONE caspase-3/7 protocol performed in cancer cell lines pre-treated with idelalisib. Apoptosis assay will be performed on N=5-8 independent subcultures of each cell line. Apoptosis assay is part of Goal 2; time line of proposed work is weeks 5-8. 4) If time permits, genetic knock-down of the short isoform of PI3K-delta will be accomplished by shRNA-mediated sequence-specific silencing in B-cell cancer cell lines, followed by proliferation and/or apoptosis assays. Knock-down experiments will be performed on N=5-8 independent subcultures of each cell line. Knock-down assay is part of Goal 3; time line of proposed work is weeks 5-8.

* 10. Describe the student's role in the project (200 word limit)

The Gill Fellow will be responsible for the implementation of Goals 1 and 2 as outlined in Section 9, under the supervision of Dr. Lee. If time permits, the Gill Fellow will work with a PhD student in Dr. Lee's lab to complete (or at least initiate) Goal 3.

* 11. Describe the mentor's role in the project. (200 word limit)

Dr. Lee will directly supervise experiments performed by the Gill Fellow. As mentor, Dr. Lee will also provide mentorship to the Fellow on all aspects of experimental design (e.g. generation of hypothesis, hypothesis testing, independent measures versus repeated measures, sources of experimental error - systematic error versus random error), data interpretation, statistical analysis, and data presentation during weekly lab meetings. Lab meetings will comprise the Gill Fellow, Dr. Lee and Dr. Lee's PhD graduate students (3).

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

2013 Jason Kaushik (GWU Medical Student) Project: Mouse Models of Drug Seeking Behavior 2014-2016
Katerina Yale (GWU Medical Student) Project: CD99 Signaling in Colon Cancer 2016 Lauren Simpkins (GWU Medical Student) Project: Ion Channels in Cancer Signaling 2016 Daniel Szvrca (GWU Medical Student) Project: Ion Channels in Cancer Signaling 2016-2017 Kenneth Nguyen (Philadelphia College of Osteopathic Medicine) Project: Molecular cloning of PI3KCD 2018 Emily Sun (GWU Medical Student) Project: Development of a cell-free PI3KCD Kinase Assay 2018 Arjun Panda (GWU Medical Student and Gill Fellow co-supervised by Drs. Horvath and Lee) Project: RNA Splicing

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Not Required)

Please specify why it is not required.

Project does not involve patient recruitment
1. Faculty Sponsor

- **Name:** Susie Lew, MD
- **Degrees:** MD
- **Title:** Professor
- **Organization:** GW Medical Faculty Associates
- **Address:** 2150 Pennsylvania Ave NW
- **Apt/Suite:** 10-403
- **City:** Washington
- **State:** DC
- **Zipcode:** 20037
- **Office Phone:** (202) 741-2290
- **Email Address:** slew@mfa.gwu.edu

2. Daily Supervisor

- **Name:** Neal Sikka, MD
- **Degrees:** MD
- **Title:** Associate Professor
- **Organization:** GW Medical Faculty Associates
- **Address:** 2120 L Street NW
- **Apt/Suite:** Suite 530
- **City:** Washington
- **State:** DC
- **Zipcode:** 20037
- **Office Phone:** 2027412956
- **Email Address:** nsikka@mfa.gwu.edu

3. Project Title (250 character limit)

Improving Specialty Care via Telemedicine

4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Kidney

6. Sponsor's translational level
* (Please select ONE)
T3: Translation to Practice

7. Hypotheses (200 word limit)
Our project entails providing specialty consultation to patients at the Unity Health Center, a federally qualified health center, via telemedicine. Our hypothesis is that by providing specialty services in the community at a familiar location we will decrease the no show rate for appointment attendance. Secondarily, we hypothesize that the telemedicine cohort will have equal or better clinical outcomes and utilization metrics to those getting in person care.

8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
The overall project goals is to recruit 216 patients at the Unity Anacostia clinic to get specialty care (nephrology, endocrinology, and cardiology) consultations over 3 years. We are part way to this goal. We are also collecting patient and provider satisfaction as well as clinical outcomes and no show rates.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

- The Department of Emergency Medicine (DEM) has a long experience with Telemedicine. The DEM in conjunction with Department of Medicine and specifically Dr. Lew, received in July 2016, a Care First Foundation Grant totaling $410K to provide telehealth services with Unity Clinic – Anacostia and conduct a research project on the delivery of these services. The project started to see patients in March 2017 with about 75 visits to date. The study enrolls patients who are referred by their Unity Primary Care Doctor for nephrology, endocrine and cardiology consultations. The participants are offered telemedicine specialty consults that can be conducted in their own community health center and avoid the challenges of leaving the neighborhood, managing transportation, and attending at a unfamiliar facility. The primary outcome for the study is no – show rate. Secondary outcomes are clinical. We are also learning how to bill Medicaid for telehealth services which has never been done in DC before.
  - We are on target to enroll our target number with a 1 year extension until 2020. There is great interest in this project and it has already been presented at 1 national meeting and 1 regional meeting. We expect a number of abstracts and papers to result.

10. Describe the student's role in the project (200 word limit)
The Gill Fellow will work closely with Dr Lew, Co-PI and Dr Sikka PI, for the CareFirst Foundation Grant and serve as a research assistant for the studies. Working to enroll participants at the Unity Clinic, capture survey data, train participants in the use of the telehealth equipment and basic physical exam. The student will assist with data analysis and preparing a publication. The student will also participate / exposed to the other health technology projects in the Department and other telehealth related educational activities such as journal club, shadowing, and learning about activities in the department. There are numerous other telehealth related activities that can be matched to the fellow’s interest to ensure a wide exposure to a variety of telehealth programs. We are currently working on proposals for telehealth services in the domains of otolaryngology, neurology, pain management, and urgent care. Given interest and timing, the student can participate in development of these product lines.

*11. Describe the mentor's role in the project. (200 word limit)*

Dr Lew is Co-PI on this project and is a leader in Nephrology Telehealth. Dr Lew will mentor the student on nephrology, nephrology telehealth and emerging legislation that may impact care for renal patients leveraging technology. Dr Lew also provides clinical care via telemedicine and the student will learn strategies for optimal teleconsultation. Dr Sikka is the PI for the study and works on the day to day operations of the project from a technology and workflow perspective.

*12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)*

The mentor team has enjoyed working with numerous Gill and HSP students in the last few years. Each student has had significant hands on exposure to telehealth or technology related projects and mentoring. Students with interest in technology, health disparities, health access, telehealth, virtual reality and other innovative solutions at the cross of clinical care and population health will enjoy working with our team and have a high likelihood of having an abstract selected for a regional or national meeting as well as peer reviewed publications.

*13. Do you have or will you obtain IRB approval for this project?*

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: 051609

* IRB Date: 07/07/2018
W.T. Gill Summer Fellowship Faculty Proposal by Jianqing Lin

* 1. Faculty Sponsor

* Name: Jianqing Lin
* Degrees: MD, MS, MA
* Title: Associate professor
* Organization: GW Cancer Center
* Address: 2150 Pennsylvania Ave, NW
* Apt/Suite: 
* City: Washington
* State: DC
* Zipcode: 20037
* Office Phone: 2027412210
* Email Address: jilin@mfa.gwu.edu

* 2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)

Long-Term Follow-Up of African American Prostate Cancer patients on Active Surveillance: regional and national data analysis

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Cancer

6. Sponsor's translational level
(Please select ONE)
T3: Translation to Practice

7. Hypotheses (200 word limit)
The main hypothesis of this study is that young African American with low or very low risk prostate cancer might have higher chance and/or sooner to receive definitive local therapy and worse long term outcome if they undergo active surveillance.

8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
First, to look into the data at GW University Hospital cancer registry about the prostate cancer patients who had been on active surveillance (AS). The focus will be the African Americans younger than 60 years old. The time from their AS enrollment to eventually intervention (local therapy either surgery or radiation or even the treatment of metastatic disease) and long term survival. Secondly, we will seek the data from national cancer database (NCDB) to study the same question.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

African American (AA) men exhibit 2.4-fold higher mortality rates of prostate cancer (PCa) compared with European American (EA) men. Higher mortality and recurrence rates are still observed in AA PCa even after adjustment of socioeconomic factors, suggesting that intrinsic biological differences also play a contributing role in PCa disparities. Currently, active surveillance is increasingly accepted as a treatment option for favorable-risk prostate cancer. Long-term follow-up also showed AS is feasible and seems safe in the 15-year time frame. In one study, 2.8% of patients have developed metastatic disease, and 1.5% have died of prostate cancer. This mortality rate is consistent with expected mortality in favorable-risk patients managed with initial definitive intervention. These data were mostly from non-African Americans. Most data in AS programs showed only 4 - 5 % AA males were in their program and was reported similar outcome of AA male to EA patients. The other concern is that young AA male, such as patients younger 60 years old might be not safe to put them on AS. Design of the study: retrospective data analysis. GW hospital cancer registry and national cancer database will be studied. In GW, at least 300 cases with patients of younger than 60 years old were in AS in the past 15 years and chart review will be performed. We will also get data from NCDB to review the following (focusing on AA male patients): age of prostate cancer diagnosis and time between enrollment and local therapy, 5, 10 and 15 year outcome in terms of mortality. These data will be available in NCDB. Significance: if there is no difference among patients (focusing on young AA patients) with different genetic background in terms of long term outcome, which is current standard, we will be more confident to offer low risk AA patients for AS.

10. Describe the student's role in the project (200 word limit)
Work with PI to look into GW cancer data base first. Organize and analyze the data. Discuss with statistician for further analysis. The second step is to look into NCDB and then compare the outcome with published prospective data focusing on the difference between AA and non-AA patients.

* 11. Describe the mentor's role in the project. (200 word limit)

Responsible to get the NCDB to GW for research. I will apply for this. Work with GW cancer registry to get the list of patients on AS (done this part). Help analyze the data and discuss /find statistician for the project. Overall guide and monitor the project progress for final publication.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

Gill fellow Stephanie Rodriguez, GWMS 2021 was working with me last summer for the project: Racial disparities in late-stage prostate cancer: A SEER database analysis 2005-2015

* 13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Pending)
W.T. Gill Summer Fellowship Faculty Proposal by Maureen E. Lyon

* 1. Faculty Sponsor

* Name: Maureen E. Lyon
* Degrees: PhD
* Title: Clinical Health Psychologist & Professor Pediatrics
* Organization: Children's National
* Address: 111 Michigan Avenue Northeast
* Apt/Suite: Room M7658
* City: Washington
* State: District of Columbia
* Zipcode: 20017
* Office Phone: 202-476-5442
* Email Address: mlyon@childrensnational.org

* 2. Daily Supervisor

Name: Lyon
Degrees: PhD
Title: Clinical Health Psychologist
Organization: Children's National
Address: 111 Michigan Avenue Northeast
Apt/Suite: Room M7658
City: Washington
State: District of Columbia
Zipcode: 20017
Office Phone: 202-476-5442
Email Address: mlyon@childrensnational.org

* 3. Project Title (250 character limit)

Qualitative Assessment of Respecting Choices Advance Care Planning Interview with Adolescents with Cancer.

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Cancer

6. Sponsor's translational level
(Please select ONE)
T3: Translation to Practice

7. Hypotheses (200 word limit)
Advance care planning with teens with cancer and their families will elicit patient understanding of illness, themes of hope and a willingness to consider limiting treatments under some circumstances and families willingness to support the adolescent.

8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
Create 25 patient/family transcripts from videotapes. Create coding book in NVIVO. Analyze transcripts using nodes. Submit abstract to professional meeting. If accepted, present findings. Publish findings.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

The project design makes it likely that the objectives will be achieved. The project is likely to result in a report of interest to other scholars. The project fulfills discovery/original research.

Building Evidence for Effective Palliative/End of Life Care for Teens with Cancer is funded by NIH and undergone rigorous peer review.

10. Describe the student's role in the project (200 word limit)
Student would learn NIVIVO software to analyze transcripts from qualitative/structured advance care planning interviews on one of two study populations: 1. adolescents with cancer and their families; 2. families of children with rare diseases who cannot communicate.

11. Describe the mentor's role in the project. (200 word limit)
Supervision, weekly. Support to conduct analysis, interpret results, present at professional meeting and publish.

12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
NA
13. Do you have or will you obtain IRB approval for this project?  
Please note: Students cannot begin a human subjects project without IRB approval.  
(Please select ONE)  
Selected Yes

Please provide IRB number and date

* IRB Number: 5648  

* IRB Date: 4/04/2019
1. Faculty Sponsor

Name: Jaytoya Manget
Degrees: DNP, MSPH, MSN, BS
Title: Nurse Practitioner
Organization: Children's National Health System
Address: 11709 Balsamwood Ter
City: Laurel
State: MD
Zipcode: 20708
Office Phone: 4107821893
Email Address: jmanget@childrensnational.org

2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

3. Project Title (250 character limit)

Expedited Partner Therapy for Adolescents in SE DC

4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:

Yes - Pediatrics
6. Sponsor's translational level
(Please select ONE)

T2: Translation to Patients

7. Hypotheses (200 word limit)

This project aims to test the feasibility of expedited partner therapy (EPT) in the adolescent population. The Centers for Disease Control encourage the usage of EPT for partner treatment of certain sexually transmitted diseases however little is know about how this practice can be adapted in the adolescent population. Although EPT is legal in DC and MD, there are variations in provider uptake of usage.

8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).

The main objectives of this project are to improve provider usage of EPT in CNHS clinics serving adolescents and increase partner treatment of EPT in SE DC using EPT envelopes. This will be measured by chart review and patient and provider interviews to assess how often EPT packets are delivered to partners, if partners attempted to fill the prescription and any barriers that might have been encountered at the pharmacy. Additionally pharmacist interviews will be performed to measure their understanding of the current laws on EPT and patients will be followed prospectively to see if they continue to receive routine testing for STIs.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.

Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

The initial phases of the project began March 2018. We have used feedback and results from that cycle to make some changes and will soon launch revised EPT packets and capture different information from the patient charts. Over the next year the data from the revised packets will be measured. The use of a Gill Fellow will help us measure this with more timeliness and intensity than we did in the first phase. Additionally, in the next 12 months poster presentations will be developed for CNHS research week in the Spring of 2019 and submitted to other conferences as available thereafter. By Fall 2019 an abstract is hoped to be developed and submitted to the CDC STD Conference taking place in 2020. It is anticipated that by the end of 2019, a draft of at least one publication should also be prepared. The provision of EPT is hoped to be an ongoing, sustainable workflow within the centers but is currently only taking place in two centers in SE DC. The 12 months+ goal is to extend this process CNHS primary care centers throughout the city.

10. Describe the student's role in the project (200 word limit)

The student would be responsible for chart reviews, patient call backs, pharmacist interviews and help with improvement aspects of study along the way. The student may also help with the writing of manuscripts and presentations with a goal of one or more publications from the various aspects of this project.

11. Describe the mentor's role in the project. (200 word limit)

I will provide oversight and guidance for the student's activity. I will also serve as the clinician for patients requiring treatment and medical advice.
12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

I frequently work with medical students in the clinical setting and serve as a mentor to medical, physician assistant and nurse practitioner students. I have not applied for a Gill Fellow in the past.

13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

Selected Yes

Please provide IRB number and date

* IRB Number: Pro00010525
* IRB Date: 3/13/2018
W.T. Gill Summer Fellowship Faculty Proposal by Kathryn Marko

*1. Faculty Sponsor*

* Name: Kathryn Marko
  * Degrees: MD
  * Title: Assistant Professor, Residency Program Director
  * Organization: GW MFA
  * Address: 2150 Pennsylvania Ave
  * Apt/Suite: 6A
  * City: Washington
  * State: DC
  * Zipcode: 20037
  * Office Phone: 2403951050
  * Email Address: kmarko@mfa.gwu.edu

*2. Daily Supervisor*

Name: Kathryn Marko
Degrees: MD
Title: 
Organization: 
Address: 
Apt/Suite: 
City: 
State: 
Zipcode: 
Office Phone: 
Email Address: 

*3. Project Title (250 character limit)*

Cesarean Prevention: The GW Vaginal Breech Initiative

*4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.*

Marko KI, Ganju N, Krapf JM, Gaba ND, Brown JA, Benham J, Oh J, Richards LM, Meltzer AC. Effectiveness of a Mobile Prenatal Care App to Reduce In-Person Visits: A Prospective Trial. JMIR Preprints.


5. Sponsor's Research Focus:
Yes - Obstetrics/Gynecology

6. Sponsor's translational level
*(Please select ONE)*
T2: Translation to Patients

7. Hypotheses (200 word limit)
We have established a Vaginal Breech Initiative (VBI) to increase access to, and training in, the process of vaginal breech delivery. The VBI is a collaborative care team composed of physicians and nurse-midwives that leads care of participating women. Components of the VBI are: thorough antenatal screening, strict inclusion and exclusion criteria, rigorous informed consent, established delivery guidelines, and frequent simulation training. We are conducting a retrospective review of patients who have undergone a vaginal breech trial of labor.

8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
This is a retrospective analysis of the VBI from 8/2011 to present. We have thus far included 47 patients into our database to 11/2017. However, we will need assistance reviewing the more recent charts.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

This is a retrospective chart review of patients undergoing a vaginal breech trial of labor. We have performed the initial chart review and database formation. Over the next 6 months we plan to complete the chart review, begin data analysis, and start to write our manuscripts. We anticipate several manuscripts and abstracts from this research.

10. Describe the student's role in the project (200 word limit)
The student will work directly with the PI, Dr. Marko, as well as her residents and fellows to identify and review the charts of the patients who have undergone a breech trial of labor. The student will become well versed in REDCap as well as our electronic medical record.

11. Describe the mentor's role in the project. (200 word limit)
The mentor will meet frequently with the student to answer questions and supervise progress.

12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
The Fellow will have one on one training by Dr. Marko as well as her research fellow and Ob/Gyn residents. This will include REDCap training. We have yet to have a Gill Fellow.

13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: 121403

* IRB Date: 12/15/17 (pending renewal)
* 1. Faculty Sponsor

* Name: Anjali Martinez
* Degrees: MD
* Title: Assistant Professor
* Organization: Medical Faculty Associates
* Address: 2150 Pennsylvania Ave NW

* 2. Daily Supervisor

Name: Erryn Tappy
Degrees: MD
Title: Resident physician
Organization: GWU Dept of Obstetrics and Gynecology
Address: 2150 Pennsylvania Ave NW

* 3. Project Title (250 character limit)
Postpartum urinary retention: Prevalence, risk factors, and clinical outcomes

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Obstetrics/Gynecology

* 6. Sponsor's translational level
* (Please select ONE)
T3: Translation to Practice

* 7. Hypotheses (200 word limit)
Data regarding postpartum urinary retention is highly variable. We expect to confirm traditionally recognized risk factors (use of epidural anesthesia, prolonged second stage of labor, operative delivery, episiotomy, and fetal weight larger than 4 kg) for postpartum urinary retention among our patient population. The incidence of postpartum urinary retention in our population will be estimated based on the number of cases identified. Previously described management strategies for postpartum urinary retention include intermittent clean catheterization and indwelling catheterization; however, significant variation in choice of management strategies as well as duration of treatment exists. This variation can largely be attributed to lack of data and lack of standardized guidelines for management of postpartum urinary retention. We expect to see some variation of management strategies at our institution as well, and will collect data on the outcomes of the strategies.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
The goal is to complete the data collection for the cases and controls. Although all the cases/controls are yet to be identified, we estimate it will be about 150-200 patient records in total.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Data regarding the incidence and risk factors for postpartum urinary retention is mixed due to variations on the definition used for urinary retention. There is minimal data describing management strategies and outcomes. This retrospective case-control study will collect data regarding risk factors and information regarding outcomes of treatment strategies. This information will help inform future prospective studies to compare different treatment modalities and may guide standardized protocols to manage postpartum urinary retention. All the deliveries at GW Hospital in a one year period will be screened by the PI and the resident physician to find cases of postpartum retention. 2 controls will also be studied for each identified case. Data regarding the patient's history, labor course, and postpartum course will be collected into a REDCap database and analyzed to determine the incidence and risk factors for postpartum retention and management strategies and outcomes. The two main researchers will finish identifying cases and controls by early Spring 2019. Data collection should be done by mid-Summer 2019, and data analysis will be done in late Summer 2019. We hope to present our data at a national meeting in 2019-2020 and submit a manuscript for publication.

* 10. Describe the student's role in the project (200 word limit)
The student will collect data from Cerner (GWU Hospital's Electronic Medical Record) regarding patients with postpartum urinary retention and matched controls and enter it into a REDCap database. The cases and controls will be identified ahead of time. The student will need to complete CITI training in order to work on this project and have Cerner access. Once the data collection is complete, the mentor and resident will analyze the data with the help of a statistician; the Gill fellow may help with that process and/or manuscript preparation as time allows.

* 11. Describe the mentor's role in the project. (200 word limit)

The mentor (and the resident physician involved in the study) will identify the cases and controls that will need data collection. The mentor has already created the REDCap database to be used. We will sit with the Gill Fellow to collect data from several records together to help the student navigate both Cerner and REDCap, before having the student continue on their own. We have developed a "tip sheet" to facilitate finding the desired data in Cerner. We will be available to help give clinical guidance or help find data as needed. Once the data collection is complete, the mentor and resident will analyze the data with the help of a statistician; the Gill fellow may help with that process and/or manuscript preparation as time allows.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

We have two medical students who have completed Citi and RedCap training and are ready to start data collection. There are no Gill Fellows working on this project yet. We have created a "tip sheet" to help data collectors locate the desired information within the Cerner system.

* 13. Do you have or will you obtain IRB approval for this project? Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)
  
  Selected Yes

Please provide IRB number and date

* IRB Number: 111725

* IRB Date: 12/1/17, renewed 11/20/18
W.T. Gill Summer Fellowship Faculty Proposal by Paul Marvar (Pharm/Phys) Imtiaz Khan (MITM)

* 1. Faculty Sponsor

* Name: Paul Marvar (Pharm/Phys) Imtiaz Khan (MITM)
* Degrees: Marvar (PhD) Khan (PhD)
* Title: Assistant Professor (Marvar) Professor (Khan)
* Organization: SMHS
* Address: Ross Hall 457
* Apt/Suite:
* City: Washington
* State: DC
* Zipcode: 20037
* Office Phone: 202-994-5584
* Email Address: pmarvar@gwu.edu

* 2. Daily Supervisor

Name: Paul Marvar
Degrees: PhD
Title: Assistant Professor
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)

CD8+ T cells in Toxoplasma gondii induced brain and behavioral abnormalities

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Pharmacology
Yes - Infectious Disease
Yes - Psychiatry

6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

7. Hypotheses (200 word limit)
Chronic Toxoplasma infection has been implicated in psychiatric disorders like schizophrenia. Schizophrenia is a multifactorial heterogenous neuropsychiatric disorder with unknown etiology. The identification of new biological pathways and targets for schizophrenia is therefore critical. Antigen specific CD8+ T cell exhaustion, is a major complication of Toxoplasma infected animals, which leads to reactivation of latent disease. The goal of this proposal is to determine if infected animals exhibit schizophrenia-like brain and behavioral changes due to PD-1 mediated CD8 exhaustion and whether antibodies against this molecule can prevent it. We hypothesize that a partial loss of CD8 functionality results in periodic reactivation of the quiescent T. gondii parasites in the brain. This reactivation will lead to local inflammation and resultant neuronal dysfunction and/or injury to contribute to exacerbation of the existing schizophrenia behavioral traits or manifestation of a new psychopathology in patients.

8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
The Gill Fellowship Awardee will contribute to determining if reactivation of latent toxoplasmosis due to compromised CD8+ T cell responses can lead to toxoplasma-mediated behavioral changes. C57BL/6 mice (6-8 weeks old / n=12/group) will be orally infected with ova transgenic parasites (Khan Lab) and the mice will be evaluated for schizophrenia-like behavioral changes (Marvar Lab). Brain tissue will be collected and analyzed for infection of T. gondii, brain inflammation and neuronal injury. Over the 8 week fellowship period the main goal of the student will be to conduct and aid researchers in performing the following 4 behavioral assays in toxoplasma infected mice 1) novelty-induced hyperactivity in open field and impairment in pre-pulse inhibition of the acoustic startle to evaluate the behaviors analogous to positive symptoms of schizophrenia; 2) abnormal social interaction to assess the abnormalities resembling aspects of negative symptoms; and 3) poor learning and memory using object recognition test and spatial recognition test and working memory in Y maze to examine potential cognitive deficits similar to those in patients. The outcome and completion from these 4 behavioral experiments and data analysis will be used as the primary measurable objective for the project.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
The project design makes it likely that the objectives will be achieved: One of the main objectives is for the Fellow to assist in and independently conduct mouse behavioral assays to evaluate toxoplasma-mediated behavioral changes in mice. My postdoctoral fellow Dr. Zhe Yu (Marvar Lab), has extensive animal behavioral experience, in detecting mouse anxiety, depression, fear, pain, schizophrenia, motor and addiction related behaviors will aid in training and instruct the Fellow with carrying out these studies. My laboratory has successfully established behavioral assays in the lab for anxiety, startle, fear learning and memory while the Khan lab will provide the toxo-infected mice and expertise for evaluating cyst formation infection in the brain. The first 4 weeks of the fellowship will include mouse behavioral assay training and data analysis instruction. The final 4 weeks (or more) will focus on the experimental studies using toxoplasma infected animals (Khan Lab). To monitor progress, myself and Dr. Khan will meet with the Fellow at our joint weekly lab meetings to discuss progress, address experimental plans, data analysis, trouble shoot problems and general planning. We will aim to complete these 4 behavioral assays, combined with the necessary training in behavior, data analysis and results write up during the time frame of the fellowship. Depending on how quickly the fellow acquires the techniques and data analysis will determine how much of the project aim is completed. The project is likely to result in a report of interest to other scholars: The largest number of studies associating an infectious disease agent to schizophrenia has involved T. gondii, however, the mechanism(s) whereby this parasite affects brain and behavioral changes (ie., fear, aggression, anxiety, impulsivity, sensory gating and working memory) remain poorly understood. Therefore this Gill Fellows translational research project will have high interest to other scholars at GWU and beyond. The project fulfills discovery/original research: The Fellow will contribute to an interdisciplinary Co-Mentored project that potentially (1) identifies a novel immuno-therapeutic approach to mental illness associated with chronic T. gondii infection; (2) Combines and leverages cross-disciplinary expertise in immunology (Khan), psychiatry and animal behavioral neuroscience (Marvar); (3) Advance the field and build a foundation for future studies to more mechanistically examine the neuroimmune and behavioral abnormalities in T. gondii infected animals and humans.

* 10. Describe the student's role in the project (200 word limit)

The fellow will assist in and independently conduct mouse behavioral assays to evaluate toxoplasma-mediated behavioral changes in mice. The first 4 weeks of the fellowship will include mouse behavioral assay training, data analysis instruction and general background reading of relevant literature. The final 4 weeks (or more) will focus on conducting the experimental studies using toxoplasma infected animals (Khan Lab). The fellow will present results at weekly lab meetings and have opportunities to present papers relevant to project objectives during bi-weekly journal clubs in the Marvar lab. Future opportunities will exist to present these results at local and national scientific meetings and authorship on any publications that result from the work.

* 11. Describe the mentor's role in the project. (200 word limit)

This is a co-mentored application, Dr. Khan and I have agreed to meet with and include the student at our joint weekly lab meetings to monitor and discuss progress on project objectives, address experimental plans, data analysis, trouble shoot problems and general planning. The fellow will present their results and progress at these meetings and we will provide the necessary guidance and input for successful completion of project goals.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

Our Mentoring team (Khan/Marvar) has had previous medical students trained in our laboratories. For example, this past summer (Marvar Lab) served for the first time as a Health Services Summer Scholarship project advisor for Margot Quinn (GWU Medical School Class of 2021). I worked with Margot to develop an 8-week project that would complement her interests (impact of emotional stress on cardiovascular system) and research for the integrative medicine track. Margot reviewed the most recent literature and clinical research trials pertaining to the treatment of posttraumatic stress disorder (PTSD), explaining the physiological mechanisms and relevance to the renin angiotensin system and integrative treatment recommendations for PTSD. Margot achieved all the goals and objectives for the projects which contributed to an invited review article (manuscript in preparation). I am also currently a research mentor for Puneet Gupta, first year GWU medical student who spent 2 previous summers (2017; 2018) in my laboratory as part of the St. Bonaventure-GWU dual admit medical school program. Puneet has
been working on a research project examining the impact of emotional stress / trauma recall on the immune system, becoming proficient in the use of flow cytometry for the analysis of immune cells in mice.

* 13. Do you have or will you obtain IRB approval for this project?  
**Please note:** Students cannot begin a human subjects project without IRB approval.  
* (Please select ONE)  
Selected No (Not Required)

Please specify why it is not required.

animal research
W.T. Gill Summer Fellowship Faculty Proposal by Tim McCaffrey

* 1. Faculty Sponsor

* Name: Tim McCaffrey
* Degrees: Ph.D.
* Title: Professor of Medicine and Microbiology, Immunology, and Tropical Medicine
* Organization: School of Medicine and Health Sciences
* Address: 2300 I Street NW
* Apt/Suite: Ross 443
* City: Washington
* State: DC
* Zipcode: 20037
* Office Phone: 202-994-8919
* Email Address: mcc@gwu.edu

* 2. Daily Supervisor

Name: same
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)
Detection of infectious biofilms by RNA biomarkers in blood.

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Gastroenterology
Yes - Genomics
Yes - Infectious Disease
Yes - Cardiology
Yes - Surgery

6. Sponsor's translational level
(Please select ONE)
T2: Translation to Patients

7. Hypotheses (200 word limit)
A genomically-derived panel of RNA biomarkers present in circulating neutrophils will provide diagnostic information about the presence of bacterial biofilms on prosthetic joints.

8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
In published studies, we have identified RNA biomarkers that indicate activation of circulating neutrophils in patients with surgically confirmed appendicitis (Chawla et al, 2016). Appendicitis is a biofilm infection of the appendix that cause severe inflammation, pain, and sometimes rupture. Other biofilm infections of medical important occur on prosthetic implants, especially knee and hip replacements. Because they are localized infections, and produce atypical inflammation, they can be difficult to diagnose. The RNA biomarkers will hopefully provide a new source of diagnostic information about whether the joint is infected, or whether it is merely inflamed due to physical, but non-infectious, activity. The project goal is to collect 20 surgically retrieved joints with suspected infection, with concurrent blood samples, and then determine whether the RNA biomarkers are diagnostic of the biofilm infection on the retrieved joint.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

The project design is straightforward, and has been successfully completed in other studies here at GW, and elsewhere, where blood RNA profiles have been compared to disorders such as coronary artery disease, appendicitis, pneumonia, and attention-deficit hyperactivity disorders (ADHD). The present studies will be a collaboration with Dr. Eric Heinz (Anesthesia), and GW Orthopedic Surgeons. Patients with suspected infection of a knee or hip joint prosthesis will be consented for participation in a purely observational, minimal risk study. Blood samples will be collected prior to surgery, and the prosthetic joint, and surrounding debrided tissue will be collected for routine microbiological and pathological analysis, with special emphasis on the detection of, and identification of any bacterial biofilm. The blood sample will be analyzed for the levels of specific RNAs that are related to the activation of circulating neutrophils. The key metric is the sensitivity and specificity of the RNA biomarkers in relation to the presence or absence of the biofilm.
* 10. Describe the student's role in the project (200 word limit)
The student will be involved in all areas of the research. The student will be able to assist in consenting of subjects, drawing blood samples, the recovery of the joint prosthesis in surgery, and pathological and microbiological evaluation. The student will be taught to perform the RNA biomarker analysis using state-of-the-art droplet digital PCR methods.

* 11. Describe the mentor's role in the project. (200 word limit)
Dr. McCaffrey, in collaboration with Dr. Heinz, who will be present in the surgeries to recover the joints, and Dr. McCaffrey's lab team, including Dr. Ian Toma, will oversee and instruct the student in proper consenting techniques, surgical and anesthetic techniques, and the molecular methods of RNA quantification.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
My lab has hosted a Gill Fellow every summer for ~15 years and I was a former member of the Research Committee that administered the program until about 3 years ago. Former Gill Fellows that are still at GW include Nikhila Janakiram and Aoibhinn Nyhan.

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)
Selected No (Pending)
1. Faculty Sponsor

Name: Melissa L McCarthy  
Degrees: MS and ScD  
Title: Professor  
Organization: Milken Institute School of Public Health  
Address: 950 New Hampshire Avenue, Room 618  
Apt/Suite:  
City: Washington  
State: DC  
Zipcode: 20053  
Office Phone: 2029947407  
Email Address: melmccar@gwu.edu

2. Daily Supervisor

Name: Marcee Wilder  
Degrees: MD  
Title: Instructor  
Organization: MFA Department of Emergency Medicine  
Address: 2120 L Street  
Apt/Suite: Suite 450  
City: Washington  
State: DC  
Zipcode: 20037  
Office Phone: 202-741-2955  
Email Address: marceewildermd1@gmail.com

3. Project Title (250 character limit)
Evaluate the Feasibility of Screening Emergency Department Patients for Sexual Risk Practices to Determine Eligibility and Referral for pre-exposure prophylaxis (PrEP), a highly effective treatment to prevent HIV infection.

4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.
Gender differences in the Quality of EMS Care Nationwide for Chest Pain and Out-of-Hospital Cardiac Arrest. Women's Health Issues (in press).
5. Sponsor's Research Focus:
Yes - Emergency Medicine

6. Sponsor's translational level
* (Please select ONE)
T4: Translation to Population Health

7. Hypotheses (200 word limit)
(1) A substantial portion of emergency department (ED) patients surveyed will screen positive for PrEP eligibility (i.e. > 30%). (2) There will be an inverse relationship between self-perceived risk for acquiring HIV infection and risk estimated by subjects' reported health behaviors (i.e. sexual practices and substance use). (3) Among those who receive a referral and follow-up appointment with a community PrEP provider, less than 50% will complete the appointment within three months of the index ED visit.

8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
We will conduct a self-administered sexual health survey of 500 adult patients insured by the District of Columbia Medicaid program who present to the emergency department at United Medical Center (UMC) during a 2 month period with chief complaints indicative of HIV risk. Patients will be surveyed about their sexual and substance use practices, self-perceived risk of HIV infection, knowledge and attitudes about PrEP. At the end of the survey, those who meet CDC criteria for PrEP eligibility, will be asked if they would like a referral to a community health provider who prescribes PrEP. We will obtain a copy of their DC Medicaid claims data to determine if subjects keep their appointment and start PrEP after the index ED visit and referral.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

We will use a prospective cohort design where we screen patients who arrive at the ED for chief complaints that may suggest higher risk sexual practices. They will be consented and self-administer the survey. We already have IRB approval for the survey and have administered it at an urgent care setting and a different ED so the project is ready to start at the ED at United Medical Center. PrEP is an effective medication but the uptake has been low so this project is highly innovative because it may lead to ED providers giving patients a starter pack of PrEP if they are at high risk and then a referral to continue their PrEP care with a community provider. We will use the project data as preliminary data for an NIH grant application. It should also lead to a publishable manuscript.

10. Describe the student's role in the project (200 word limit)
The student will be responsible for identifying eligible subjects for the survey, consenting subjects and making sure they complete the survey on a tablet and answering any questions about the survey as the subject completes it. Following survey completion, the student will check to see if the subject meets CDC guidelines for PrEP eligibility and if they do, the student will talk to the subject about his/her interest in learning more about PrEP and receiving a referral to a community health provider who prescribes PrEP. The student will also interface with the ED providers because subjects who are at high risk of HIV infection will also be given the option for a PrEP starter pack while in the ED. The student will be a co-author on the manuscript.

* 11. Describe the mentor's role in the project. (200 word limit)

While Dr. McCarthy is the primary mentor, the Gill fellow will also receive mentorship from Dr. Marcee Wilder, an emergency medicine physician who works at the ED at United Medical Center as well as Dr. Amanda Castel, a pediatrician and HIV epidemiologist. Dr. McCarthy will ensure that the student is able to successfully carry out the project at UMC. Dr. McCarthy and the student will review the data together and Dr. McCarthy will help the student summarize the data. Dr. Wilders and Castel are both physician scientists and will be good role models for medical students who thinking about a career in medicine and public health research.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

The majority of research training that Dr. McCarthy is involved with is with undergraduates who want to go to medical school and take a clinical research course that I teach at GWU. I also supervise approximately 6 research assistants at any given point in time, most of whom are taking a gap year before going to medical school. I have been involved with three medical students since being on the faculty at GWU. The first was a Gill Fellow in 2012 who worked on a prospective cohort study involving abdominal pain. The second was a medical student who worked with me one year ago for approximately 6 months; we are readying a manuscript for submission. Finally, I currently have a 4th year medical student who is working on a systematic review article with me.

* 13. Do you have or will you obtain IRB approval for this project? Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: 121709

* IRB Date: 1/25/18
W.T. Gill Summer Fellowship Faculty Proposal by Andrew C. Meltzer

* 1. Faculty Sponsor

* Name: Andrew C. Meltzer
* Degrees: MD, MS
* Title: Associate Professor
* Organization: George Washington University School of Medicine & Health Sciences
* Address: 2120 L Street NW
* Apt/Suite: Suite 450
* City: Washington
* State: DC
* Zipcode: 20037
* Office Phone: 202-741-2952
* Email Address: ameltzer@mfa.gwu.edu

* 2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)
Creation and validation of a novel instrument to improve communication between doctors and patients on dangers of radiation risk associated with common medical tests

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.

* 5. Sponsor's Research Focus:
Yes - Emergency Medicine

* 6. Sponsor's translational level
* (Please select ONE)
T2: Translation to Patients

* 7. Hypotheses (200 word limit)
Shared decision making will improve the efficiency of diagnostic test utilization compared to standard medical communication for Emergency Department patients with abdominal pain.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
Our goal is to enroll 100 patients in this research study. Each enrolled patient will have their encounter observed and graded based on validated tools to assess decision-making. In addition, each subject and physician will complete surveys which assess factors which lead to their decision making processes. Finally, subjects will have a brief chart review to determine diagnostic testing, disposition and Emergency Department diagnosis.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Expanding on two previous research studies that my team has conducted on Shared Decision Making in the Emergency Department, this summer we aim to conduct a randomized controlled trial to gain a better understanding of the effect of a Shared Decision Making learning intervention on utilization of CT scans for patients with abdominal pain. This research study will involve collaboration with a professor who is an expert in implementation science. We propose developing and validating a shared decision process that incorporates patient values to communicate both the radiation risk of a CT scan and the medical risk of not having a CT scan for patients who present to the ED with non-traumatic abdominal/head pain. Improved communication may address many of the root causes for over-testing by improving patient knowledge, improving accuracy of risk perception, improving patient–clinician communication and reducing decisional conflict. We will approach patients with one specific complaint: Abdominal pain. We have chosen this specific complaints due to likelihood of patients obtaining a CT scan for diagnosis and the lack of validated clinical decision making aids. Study Staff will screen for eligible patients in the Emergency Department with a chief complaint of abdominal pain. Each subject will have their physician encounter observed and audio-recorded. We will provide physicians with an information card which lists the five principiles of shared decision making and an IPad which has the NIH "Understanding Medical Scans" application for their use. We will ask physicians follow up questions which will help us understand more about the factors that affect their clinical decision making for diagnostic testing. Each encounter will be graded using the validated OPTION-5 survey to assess decision making. Finally, subjects will have a brief chart review to determine diagnostic testing, disposition and Emergency Department diagnosis.
* 10. Describe the student's role in the project (200 word limit)

The student will have a well-rounded experience working on the Shared Decision Making study. The students will be able to have hands-on experience working with research, engaging with the medical staff in the ED, as well as interacting with patients, I will have the student review current literature to gain an understanding of current implementation of shared-decision making in Emergency Medicine. The student would be trained and certified to perform all tasks of the study recruitment, protocol, this includes chart review, discussing case with the attending, taking a medical history from the patient, consenting subjects into the study, and data cleaning. The project will also entail the research and composition of a review article to describe the trends of shared decision making in Emergency Medicine. In addition, I have ongoing research projects and will want to understand the interests of the student to see if they have any additional learning opportunities of interest. The student will also be able to attend our research team meeting where the emergency department faculty and resident discuss and evaluate potential research studies. Finally, there is potential for the student to assist in journal writing depending upon the student’s time and interest.

* 11. Describe the mentor's role in the project. (200 word limit)

I will be available as a resource and mentor to the Gill Fellow. Supervision will be set up bi-weekly to review understanding and progress of student’s engagement with the study. I will also be available to the fellow via e-mail and phone to assist with any questions that may arise. Direction will be provided during our bi-weekly meetings but also via e-mail to track progress.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

Throughout my tenure as a faculty member at GW SMHS, I have mentored and trained many students. I have had a Gill Fellow each year for the past 4 years and have also sponsored multiple students each summer for the Health Services Scholarship.

* 13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: 071613

* IRB Date: 7/29/2018
*1. Faculty Sponsor*

**Name:** Drs. David Mendelowitz and Vivek Jain  
**Primary Sponsor: David Mendelowitz, Ph.D. Professor and Vice-Chair, Department of Pharmacology and Physiology, Secondary Sponsor: Vivek Jain, M.D., Associate Professor of Medicine, GWU, MFA Division of Pulmonary Medicine**  
**Title:** Professor (DM) and Associate Professor (VJ)  
**Organization:** GWU SMHS and MFA  
**Address:** Ross Hall  
**City:** Washington  
**State:** DC  
**Zipcode:** 20037  
**Office Phone:** 2029943466  
**Email Address:** dmendel@gwu.edu

*2. Daily Supervisor*

**Name:** David Mendelowitz  
**Degrees:** Ph.D.  
**Title:** Professor and Vice-Chair, Department of Pharmacology and Physiology  
**Organization:** GWU SMHS  
**Address:** Ross Hall  
**City:** Washington  
**State:** DC  
**Zipcode:** 20037  
**Office Phone:** 2029943466  
**Email Address:** dmendel@gwu.edu

*3. Project Title (250 character limit)*

Beneficial Effects of Oxytocin in Sleep Apnea

*4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.*


* 5. Sponsor's Research Focus:
Yes - Pharmacology
Yes - Cardiology
Yes - Pulmonology
Yes - Neurology

* 6. Sponsor's translational level
* (Please select ONE)
T2: Translation to Patients

* 7. Hypotheses (200 word limit)
One major, yet poorly understood cardiovascular health risk that occurs in as many as ~24% of males and 9% of females within the US population is obstructive sleep apnea (OSA). Recent work in the Mendelowitz lab has demonstrated that activation of oxytocin neurons in the hypothalamus can prevent the hypertension and deleterious changes in heart rate that occur in an animal model of OSA. The Gill Summer Fellow will build upon these exciting results by participating in both animal and clinical studies currently underway. In the first project the fellow will advance from the work that has shown activation of oxytocin neurons prevents the development of hypertension with OSA, and will test if activation of oxytocin neurons reverses, or blunts progression of pre-existing hypertension caused by OSA. In the second project the fellow will examine, in human volunteers, whether intranasal administration of oxytocin significantly blunts the deleterious hypoxia/hypercapnia induced changes in heart rate that occur during apnea in patients with OSA, and in another group of patients whether intranasal administration of oxytocin increases the compliance of OSA patients to continuous positive airway pressure (CPAP) treatment and reduces the pressure required to open the airway in patients with OSA.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
The student’s role in the animal study will be test these hypotheses by conducting and analyzing the experiments, and in the clinical studies the fellow will analyze the data on heart rate changes during apnea from in-house sleep studies and the data (auto-CPAP pressure, event durations and frequency) from at home auto-CPAP devices during the 5 week randomized double blinded cross-over design study.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
The project design makes it likely that the objectives will be achieved. Our group has a long track record of successful basic science and clinical studies. Our clinical study will enroll patients in a 5 week study - feasible for a summer fellowship. The project is likely to result in a report of interest to other scholars. Our group has a strong publication history. The project fulfills discovery/original research, as shown by our publication history.

*10. Describe the student's role in the project (200 word limit)*

The student’s role in the animal study will be test these hypotheses by conducting and analyzing the experiments, and in the clinical studies the fellow will analyze the data on heart rate changes during apnea from in-house sleep studies and the data (auto-CPAP pressure, event durations and frequency) from at home auto-CPAP devices during the 5 week randomized double blinded cross-over design study. A considerable amount of analysis could be done remotely, if desired, by the fellow.

*11. Describe the mentor's role in the project. (200 word limit)*

The mentor will have daily hands-on training for the animal study. The clinical aspect will be supervised by Dr. Vivek Jain and his team at the sleep clinic at the MFA.

*12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)*

A former Gill Fellow (2017), Min Lee, will be co-author on an upcoming study submitted for publication. Dr. Ryan Bateman, a former GWU medical student and Gill Fellow, has been a co-author on 10 publications from his work in the Mendelowitz lab (some while as a former research associate prior to medical school). Dr. Cory Evans, a former GWU medical student, has been a co-author on 20 publications from his work in the Mendelowitz lab (some while as a former research associate prior to medical school).

*13. Do you have or will you obtain IRB approval for this project? Please note: Students cannot begin a human subjects project without IRB approval.*

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: IRB#031857
* IRB Date: 8/3/18
W.T. Gill Summer Fellowship Faculty Proposal by Maureen Monaghan

* 1. Faculty Sponsor

* Name: Maureen Monaghan
* Degrees: PhD, CDE
* Title: Associate Professor of Psychology and Behavioral Health
* Organization: Children's National Health System
* Address: 111 Michigan Ave NW
* Apt/Suite: Center for Translational Science #M7668
* City: Washington
* State: DC
* Zipcode: 20010
* Office Phone: 202-476-4726
* Email Address: mmonagha@childrensnational.org

* 2. Daily Supervisor

Name: Maureen Monaghan
Degrees: PhD, CDE
Title: 
Organization: 
Address: 
Apt/Suite: 
City: 
State: 
Zipcode: 
Office Phone: 
Email Address: 

* 3. Project Title (250 character limit)

Improving health communication in adolescents and young adults with type 1 diabetes

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Endocrinology

* 6. Sponsor's translational level
* (Please select ONE)
T2: Translation to Patients

* 7. Hypotheses (200 word limit)
Aim 1. Determine initial efficacy of the PREP-DC intervention (Plan, Reflect, and Engage with Providers for Diabetes Care) for improving health communication and resulting type 1 diabetes health outcomes in adolescents as with type 1 diabetes across the transition to adult medical care. Hypothesis 1.1: In comparison to standard care at the first follow-up period (~4 months post-baseline), AYAs in the intervention will evidence: 1) higher quality health communication (e.g. higher rated engagement, more questions, more disclosure); 2) better T1D self-care (better adherence, higher transition readiness). Hypothesis 1.2: In comparison to standard care at the second follow-up period (~8 months post-baseline; post-transfer to adult diabetes care), AYAs in the intervention will evidence: 1) better glycemic control (lower A1c; lower mean glucose level); 2) shorter gap in time between the last visit in pediatric diabetes care and the first visit in adult diabetes care; 3) better T1D self-care (better adherence); 4) fewer reported complications (e.g. emergency department visits; missed school/work days).

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
This project is part of an ongoing randomized controlled trial examining the impact of a patient-focused behavioral intervention designed to promote health communication and transition readiness among adolescents and young adults (AYAs) with type 1 diabetes. The project is currently enrolling participants (enrollment began November, 2018). 100 AYAs with T1D will be randomized to intervention (n=50) or standard care (n=50). Assessments are conducted pre- intervention, 4 months post-baseline (immediately after intervention), and after transfer to adult medical care (expected to be ~8 months post-baseline). Health communication skills are evaluated by observed and self-report (AYA/health care provider) measures. Glycemic control is evaluated by hemoglobin A1c and glucose monitoring data; acute complications are assessed by AYA/health care provider report and medical record review. T1D self-care includes assessment of adherence to the T1D regimen and readiness for transition to adult medical care.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Late adolescents and young adults (AYAs; ages 17-21) with type 1 diabetes (T1D) are at high risk for serious acute and chronic complications directly related to their diabetes management, initiating a costly and potentially dangerous trajectory of suboptimal health that continues well into adulthood. Youth who are not engaged with the health care system are at highest risk for poor glycemic control and related complications, particularly across the transition from pediatric to adult medical care systems. Equipping AYAs with specific skills to optimize communication in health care settings has the potential to improve AYA health and preclude the declines in
self-care evident across late adolescence and young adulthood. Results from this study will answer the scientific question if promoting AYA health communication skills while in pediatric diabetes care can improve T1D self-care and glycemic outcomes and reduce the risk of T1D-related complications across the transition to adult diabetes care. A rigorous randomized controlled trial (RCT) is currently underway to evaluate a multicomponent intervention targeting communication with diabetes health care providers (HCPs). PREP-DC (Plan, Reflect, and Engage with Providers for Diabetes Care) aims to promote insight into AYA’s own communication preferences and skills, identify opportunities for AYA communication improvement, and enhance planning and integration related to glucose data review and other T1D concerns in preparation for adult diabetes care. Intervention content is delivered in pediatric diabetes care, allowing AYAs to practice these communication skills with a familiar provider and plan for the impending transfer to adult medical care. We are currently recruiting 100 AYAs ages 17-21 who are expected to transfer to adult medical care within the next 6-12 months to participate in the PREP-DC intervention and determine if AYA health communication skills can be improved and the resulting impact on T1D self-care and glycemic control across the transition to adult diabetes care. We are targeting enrollment to AYAs with 2 clinic visits left in pediatric diabetes care, and deliver intervention content during the time between their final two pediatric visits. Assessments are conducted pre- and immediately post-intervention (~4 months post-baseline; final pediatric diabetes visit) and post-transfer to adult medical care (~8 months post-baseline; expected to align with the first adult medical care visit). This project is currently in the first year of participant enrollment, and is funded by the American Diabetes Association's Pathway to Stop Diabetes Program through 12/2022. We are actively enrolling participants, delivering intervention content, and conducting follow-up assessments. Assessments are conducted at medical diabetes visits and via online surveys through REDCap.

* 10. Describe the student's role in the project (200 word limit)
Specific roles for a research fellow on this project include medical record reviews and in-clinic data collection. The fellow also has the opportunity to complete data analyses with prior datasets from studies with AYAs with T1D, including a pilot of PREP-DC and an observational study of patient-provider communication in AYAs with T1D. It is expected that the fellow will prepare an abstract for national conference presentation and participation in manuscripts will be encouraged, depending on the fellow’s interests. The fellow will also work with our medical diabetes team to observe inpatient and outpatient medical encounters with the diabetes program and contribute to AYA-focused clinical initiatives in the Diabetes Program, including the ongoing implementation of a structured transition program to prepare AYAs for the transfer to adult medical care.

* 11. Describe the mentor's role in the project. (200 word limit)
The mentor takes primary responsibility for day-to-day supervision of the Gill fellow and will directly support training for data collection and analyses. The mentor will actively engage the Gill fellow in all aspects of ongoing research, including regular attendance at research team meetings, participant enrollment and data collection, and developing an abstract for conference submission.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
Dr. Monaghan has worked with a number of medical students and mentored three Gill fellows in behavioral diabetes research in recent years (2015, 2016, and 2017). All Gill fellows under Dr. Monaghan's mentorship have had, at a minimum, a first authored poster presentations at national meetings.

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)
Selected Yes

Please provide IRB number and date
* IRB Number: 00008141

* IRB Date: 8/30/2018
**W.T. Gill Summer Fellowship Faculty Proposal by Pamela Mudd**

*  **1. Faculty Sponsor**

* Name: Pamela Mudd  
  * Degrees: MD, MBA  
  * Title: Attending pediatric otolaryngologist  
  * Organization: Children's National Health System  
  * Address: 111 Michigan Ave NW  
  * Apt/Suite:  
  * City: Washington  
  * State: DC  
  * Zipcode: 20010  
  * Office Phone: 2024764852  
  * Email Address: pmudd@cnmc.org

*  **2. Daily Supervisor**

Name:  
Degrees:  
Title:  
Organization:  
Address:  
Apt/Suite:  
City:  
State:  
Zipcode:  
Office Phone:  
Email Address:

*  **3. Project Title (250 character limit)**

Neurodevelopment outcomes of PDA ligation in NICU patients.

*  **4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.**


* 5. Sponsor's Research Focus:
Yes - Pediatrics

* 6. Sponsor's translational level
*(Please select ONE)*
T2: Translation to Patients

* 7. Hypotheses (200 word limit)
Neonatal patients undergoing PDA ligation have no increased risk to neurologic development compared to those undergoing medical therapy for PDA closure alone.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
Evaluate 78 patients who have undergone PDA ligation, and compare them to 78 age matched controls who have not had a PDA ligation. Records will then be evaluated for neurodevelopment outcomes in both the immediate and long term care of each patient through review of radiology, and neurodevelopment clinic appointments. We have already completed the review of 78 PDA ligation patients, and need review of age matched controls to determine clinical differences.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.

Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Retrospective review from a prospectively acquired NICU database. A current METOR scholar has found abnormalities in infants who have undergone PDA ligation. However, in order to allow for the best research quality, age matched controls will be needed. This will be used for publications. The Gill fellow will have additional opportunities within the PDA ligation and VCP group for individual publications, and would be included in the large scale publication anticipated from the involvement in this research. IRB is currently be written for completion of this study.

* 10. Describe the student's role in the project (200 word limit)
Retrospective review through patient charts. Requires CITI training for IRB. Also will require RedCap training for database entry, and training for Cerner for research purposes. Some work can be completed at home. Bi weekly-monthly meetings with research team and frequent check in with PI. Expected time for review of charts is about 1 month. The student will be expected to present at a national meeting some portion of the work through poster or podium presentation.

* 11. Describe the mentor's role in the project. (200 word limit)
Direct supervision, and mentorship of all elements. Mentor will have completed IRB prior to Gill fellow starting and will help with getting credentials completed to be involved in the study.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

Ari Mandler and Melissa Peace in the MS II class are continually involved. They each presented at a national meeting on other aspects of a similar study looking at vocal paralysis after PDA. They each also presented poster presentations for case studies. Prior Gill Fellow Marian Ashraf was involved in a tonsil study and presented a podium at a national meeting. Emily Wikner has been involved in multiple research projects with me. Savannah Smith is also involved in projects with our team.

* 13. Do you have or will you obtain IRB approval for this project?

**Please note:** Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Pending)
W.T. Gill Summer Fellowship Faculty Proposal by Sarah Mulkey

* 1. Faculty Sponsor

* Name: Sarah Mulkey
* Degrees: MD, PhD
* Title: Fetal-Neonatal Neurologist
* Organization: Children's National Health System
* Address: 111 Michigan Ave., NW
* City: Washington
* State: DC
* Zipcode: 20010
* Office Phone: 202-476-5815
* Email Address: sbmulkey@childrensnational.org

* 2. Daily Supervisor

Name: Sarah Mulkey
Degrees: MD, PhD
Title: Fetal-Neonatal Neurologist
Organization: Children's National Health System
Address: 111 Michigan Ave. NW
City: Washington
State: DC
Zipcode: 20010
Office Phone: 202-476-5815
Email Address: sbmulkey@childrensnational.org

* 3. Project Title (250 character limit)

Autonomic nervous system dysfunction in the critically ill infant

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Pediatrics
Yes - Neurology

* 6. Sponsor's translational level
* (Please select ONE)
T2: Translation to Patients

* 7. Hypotheses (200 word limit)
Hypothesis 1: ANS tone will be depressed in critically ill infants (infants in an intensive care unit [ICU]) and its recovery will be incomplete (compared to previously collected normative data) at term-corrected age/or ICU discharge. Hypothesis 2: Disturbances in sympathetic and parasympathetic tone will not only serve as an important surrogate for autonomic impairment and will predict intraventricular hemorrhage and worsening hydrocephalus in the newborn.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
The overarching goal of the application is to perform a retrospective medical record review of newborn infants undergoing intensive care to advance our understanding of the autonomic nervous system’s (ANS) role in cardiorespiratory and state regulation and to gain insight into clinical factors that influence the ANS role in these functions and which may predict short- and long-term outcome. The student project will focus on newborns with neurologic injury including intraventricular hemorrhage and hydrocephalus.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

This is a retrospective study, relying on patient medical records. We will include all newborns =30 days admitted to the cardiac and neonatal intensive care units at Children’s National from May 2017 to November 2018 in which we have archived physiologic signal data. Clinical factors to be explored include the role of (i) gestational and postnatal age, (ii) the role of clinical factors including cardiorespiratory support (i.e. medications, respiratory support/ventilation), sepsis, brain lesions by clinical cranial ultrasound/brain MRI, epilepsy, and nutrition, among others. We will access all stored physiologic signal data through the IRB approved BIOPSi protocol (Pro00008883) for the duration of the infants ICU admission. Using stored physiologic signal data, we will evaluate measures of autonomic nervous system tone using heart rate variability. Baroreflex function will be measured in babies in who we have continuous blood pressure measurement.

* 10. Describe the student's role in the project (200 word limit)
The student will review medical records of infants who meet study criteria from the neonatal intensive care unit and complete case report forms in a Redcap database. The student will learn how to retrieve archived longitudinal physiologic signal data and process data to determine metrics of heart rate variability and baroreflex function. To do this, the student will work with a Computational Biologist, Dr. RB Govindan in the Physiological Signal Processing Laboratory of the Fetal Medicine Institute at Children's National. These measures will then be related to the clinical data.

11. Describe the mentor's role in the project. (200 word limit)
The mentor will support the student's learning of the project, understanding of the neonatal conditions involved, and of the developing autonomic nervous system. The mentor is the study PI and has submitted the protocol which is under expedited review. The mentor will prepare the study database for the student. The mentor will oversee the data collection by the student and meet regularly to discuss progress and short-term weekly goals. The mentor will review and edit all scholarly products from the project by the student.

12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
The Fetal Medicine Institute at Children's National typically has 1-2 summer students for research projects. They have successfully completed projects, presented posters, and written manuscripts. The team has not previously had a Gill Fellow.

13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

(Please select ONE)
Selected No (Pending)
W.T. Gill Summer Fellowship Faculty Proposal by Robert Nickel

* 1. Faculty Sponsor

* Name: Robert Nickel
* Degrees: MD, MSc
* Title: Assistant Professor
* Organization: Children's National
* Address: 111 Michigan Ave NW
* Apt/Suite: 
* City: Washington
* State: DC
* Zipcode: 20010
* Office Phone: 202-476-3122
* Email Address: rnickel@childrensnational.org

* 2. Daily Supervisor

Name: 
Degrees: 
Title: 
Organization: 
Address: 
Apt/Suite: 
City: 
State: 
Zipcode: 
Office Phone: 
Email Address: 

* 3. Project Title (250 character limit)

Minimizing toxicity in HLA-identical sibling donor transplantation for children with sickle cell disease (SUN Trial)

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Pediatrics

* 6. Sponsor's translational level
* (Please select ONE)
T3: Translation to Practice

* 7. Hypotheses (200 word limit)
The SUN Study is a multicenter clinical trial (NCT03587272) seeking to determine if a nonmyeloablative transplant approach can decrease the toxicity of transplant while achieving a high cure rate for children with sickle cell disease with an HLA-identical sibling donor. To help with study recruitment, we plan to screen all hospitalized patients with SCD for eligibility and offer HLA typing if not already done. We hypothesize that HLA typing will be accepted by a majority (>50%) of hospitalized sickle cell patients with full siblings and this screening will help with the clinical trial recruitment.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
Student will screen all hospitalized patients with sickle cell disease for clinical trial eligibility and offer referrals for HLA typing for patients with full siblings if not already done. About 10 patients with sickle cell disease are hospitalized at Children's National each day and over the course of 2 months over 100 patients are likely hospitalized. Student will keep secure database of this screening.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Children's National Health System (CNHS) cares for one of the largest populations of children with sickle cell disease in the entire nation. CNHS is thus an ideal location for the current study and given its patient volume, enough patients will be hospitalized during one summer to conduct the study evaluating the effectiveness of screening and offering HLA typing to inpatients. It is not currently known if hospitalized families will be interested in HLA typing, especially at an institution that already routinely offers HLA typing to patients at clinic visits. If this screening is effective, it could also significantly help recruitment on the active clinical trial.

* 10. Describe the student's role in the project (200 word limit)
After training, the student will be responsible for approaching hospitalized families and maintaining a screening database.

* 11. Describe the mentor's role in the project. (200 word limit)
Mentor will train student in how to review patients' medical records and offer referral for HLA typing to hospitalized patients. Mentor will assist student in organizing screening log. Mentor will assist student in analyzing the effectiveness of this screening.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

Adam Greenfest (GW medical student) volunteered on the clinical research project Quick Start Hydroxyurea Initiation Project during part of his summer. This project has resulted in two oral abstracts at national meetings and a recent publication in the Journal of Pediatrics in which Adam is a co-author.

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)
Selected Yes

Please provide IRB number and date

* IRB Number: Pro00010322

* IRB Date: 4/19/2018
W.T. Gill Summer Fellowship Faculty Proposal by Francis O'Connell

* 1. Faculty Sponsor

Name: Francis O'Connell
Degrees: MD
Title: Assistant Professor
Organization: GWU Emergency Medicine
Address: 2120 L Street
Apt/Suite: Suite 450
City: Washington
State: DC
Zipcode: 20037
Office Phone: 202-741-3477
Email Address: foconnell@mfa.gwu.edu

* 2. Daily Supervisor

Name: Marcee Wilder
Degrees: MD, MPH
Title: Instructor
Organization: GWU Emergency Medicine
Address: 2120 L Street
Apt/Suite: Suite 450
City: Washington
State: DC
Zipcode: 20037
Office Phone: 202-741-3477
Email Address: marceewildermd1@gmail.com

* 3. Project Title (250 character limit)

Pilot Project To Examine The Feasibility and Preliminary Evidence of the Effectiveness of Peer Recovery Coaches in Emergency Department Medication Assisted Treatment.

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
   Yes - Emergency Medicine

* 6. Sponsor's translational level
   * (Please select ONE)
   T4: Translation to Population Health

* 7. Hypotheses (200 word limit)
(1) A substantial percentage of patients who present to the United Medical Center Emergency Department for care will screen positive for a substance use disorder (i.e. > 30%). (2) Among adult ED patients with an opioid use disorder, greater than 50% will agree to initiate medication-assisted treatment (i.e. suboxone) in the ED. (3) There will be a greater percentage of patients who agree to a referral and follow-up with an outpatient substance use provider if a peer recovery support specialist is involved in their care in the ED.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
   The goals of this project are to screen 400 adult ED patients who present to UMC for a substance use problem and if they screen positive, to offer them a referral to a community provider (inpatient or outpatient) willing to treat their problem and/or a follow-up appointment. If the patient screens positive for an opioid use disorder, the subject will be eligible for a pilot randomized controlled trial. The main intervention in the RCT will be the involvement of a peer recovery coach who will help convince the patient to start ED MAT and to connect to follow-up substance use treatment compared to usual care (only ED providers offer tx and referral). Main outcome will be whether subject is receiving substance use treatment one month after index ED visit.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
   Selection criteria include:
   * The project design makes it likely that the objectives will be achieved
   * The project is likely to result in a report of interest to other scholars
   * The project fulfills discovery/original research

   This project will involve both a prospective cohort study and a nested pilot RCT. The cohort study will screen adult ED patients insured by the DC Medicaid program for a substance use disorder and offer them a referral for further care in the community if they screen positive. Those who screen positive for an opioid use disorder, will be asked to participate in a pilot RCT of 60 subjects. We will compare initial uptake of ED MAT and one month substance use treatment rates between 2 groups: those who have a peer recovery coach involved in ED MAT vs. those that do not. This project is highly innovative, only one group has involved a peer recovery coach in ED MAT and they have not rigorously evaluated its effectiveness.

* 10. Describe the student's role in the project (200 word limit)
The student will be responsible for conducting the substance use survey to approximately 400 ED patients. Anyone who screens positive for a substance use disorder, the student will work the ED providers, social worker and subject to identify post ED treatment options. The student will also be responsible for consenting, randomizing and enrolling 60 subjects in the pilot RCT. The student will call the peer recovery coach for subjects randomized to the peer recovery coach. The student will document all treatment administered in the ED. We will use the DC claims data to determine whether subjects are in treatment one month post.

* 11. Describe the mentor's role in the project. (200 word limit)

Dr. O’Connell is the chief of the emergency department at UMC and will ensure that the student is able to successfully carry out the project at UMC. He will be aided by Dr. Wilder, an emergency medicine physician who works at UMC as well as Dr. Melissa McCarthy, the clinical research director for the Department of Emergency Medicine at GWU. All three faculty will supervise and interact with the student. The team will work with a community organization that employs peer recovery coaches as well as a health care organization that integrates primary care and substance use treatment. The student will also interact and receive mentorship from staff at these two organizations as well.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

The Department of Emergency Medicine faculty interact with the medical students frequently for special projects and short-term research rotations. This past year, the GWU EM faculty won the contract to provide the emergency care services at the UMC ED. It is a more vulnerable and disadvantaged patient population than at GWU ED. We would like to expand our research projects over at the UMC ED to see if we can provide benefits to the patient population there. The student will get exposure to a high risk population and have the opportunity to interact alot with the patients, providers and community organizations that are trying to help them. This project should yield several publishable manuscripts.

* 13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Pending)
W.T. Gill Summer Fellowship Faculty Proposal by Rajeev Pandarinath

* 1. Faculty Sponsor

* Name: Rajeev Pandarinath
* Degrees: MD
* Title: Assistant Professor, Orthopedic Surgery
* Organization: Medical Faculty Associates
* Address: 2300 M Street NW
* Apt/Suite: 5th Floor
* City: Washington
* State: DC
* Zipcode: 20037
* Office Phone: 202-741-3394
* Email Address: rpandarinath@mfa.gwu.edu

* 2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)
Evaluating the effectiveness of meniscal root repair.

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
   Yes - Surgery

* 6. Sponsor's translational level
* (Please select ONE)
   T2: Translation to Patients

* 7. Hypotheses (200 word limit)
   Meniscal root repair helps patients with pain, function, and halts the progression of medial compartment osteoarthritis. Patients will see an improvement in pain scales and function at 3 and 6 months following surgery.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
   Evaluate 30 postoperative patients following meniscal root repair.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
   Selection criteria include:
   - The project design makes it likely that the objectives will be achieved
   - The project is likely to result in a report of interest to other scholars
   - The project fulfills discovery/original research
   Prospective and retrospective data will be collected from patients and the success of meniscal root repair will be evaluated. This information will be submitted for regional/national presentation and eventual publication.

* 10. Describe the student's role in the project (200 word limit)
   The student will collect data from patients and analyze outcomes using statistical analysis. They will work with GW Orthopedic Residents in developing a manuscript for publication.

* 11. Describe the mentor's role in the project. (200 word limit)
   Principal Investigator

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
   Currently a preceptor for 1st, 2nd, 3rd, and 4th year medical students.

* 13. Do you have or will you obtain IRB approval for this project?
   Please note: Students cannot begin a human subjects project without IRB approval.
   * (Please select ONE)
   Selected No (Pending)
* 1. Faculty Sponsor

* Name: Adrienne Poon
* Degrees: MD, MPH
* Title: Academic Hospitalist/Assistant Clinical Professor of Medicine
* Organization: GW Medical Faculty Associates
* Address: 900 23rd St, NW
* Apt/Suite: 5th Floor, Hospital Medicine
* City: Washington
* State: DC
* Zipcode: 20010
* Office Phone: 202-715-5109
* Email Address: apoon@mfa.gwu.edu

* 2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)
Prevalence of dementia and cognitive impairment and association with self-rated health

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.
Prevalence of chronic obstructive pulmonary disease (COPD) in China in 1990 and 2010 KY Chan, X Li, W Chen, P Song, NWK Wong, AN Poon, W Jian, IN Soyiri, ... Journal of global health 7 (2)
Prevalence of epilepsy in China between 1990 and 2015: A systematic review and meta–analysis P Song, Y Liu, X Yu, J Wu, AN Poon, A Demaio, W Wang, I Rudan, ... Journal of global health 7 (2)
Differences in risk behaviours and HIV/STI prevalence between low-fee and medium-fee female sex workers in three provinces in China L Han, C Zhou, Z Li, AN Poon, K Rou, S Fuller, Y Li, L Shen, D Kang, ... Sex Transm Infect 92 (4), 309-315

* 5. Sponsor's Research Focus:
Yes - Geriatrics

* 6. Sponsor's translational level
* (Please select ONE)
T4: Translation to Population Health

* 7. Hypotheses (200 word limit)
Prevalence of dementia and cognitive impairment among elderly in China may be related to poorer self-reported health status

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
Project goal includes development of a manuscript ready for submission to a journal for peer review. Conduct a literature search and review. Design table shells for display of results. If relevant, conduct data analyses using data from a publicly available database. Summarize results and discussion.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Prevalence of dementia and cognitive impairment amongst elderly in China has been uncharacterized. The goals of this research project are to understand the prevalence of dementia and cognitive impairment amongst elderly in China and its association with self-reported health status, which may be a marker of mortality. China has undergone significant changes in economic development over the last few decades. With increasing life expectancies due to advances in healthcare, the unique issues facing a huge and rapidly growing aging population have been understudied. This study will use data from China Health and Retirement Longitudinal Study (CHARLS), a longitudinal prospective cohort study conducted through Peking University’s China Center for Economic Research. The national baseline survey was conducted in 2011 amongst 17,596 individuals age 45 or older from 28 of China’s 31 provinces using multi-stage probability sampling with probability-proportional-to-size to yield a nationally representative sample. The CHARLS study aims to follow-up individuals every 2 years, with the 2013 results now available and have included a number of new questions on memory and cognition. These questions have surveyed a nationally representative population sample and is publicly de-identified and accessible to the public for original research purposes. Given the limited understanding and diagnosis of cognitive impairment and dementia amongst the population in China, the results of this original research will add to the growing body of research on this topic.

* 10. Describe the student's role in the project (200 word limit)
A student will be asked to design a research study using data from the CHARLS questionnaire including a review of literature, designing results tables, and writing up results and discussion. The goal is to develop a manuscript for publication in a peer-reviewed journal. An understanding of basic epidemiology and statistics is a must. A background in public health especially with training to use statistical analytic tools such as SAS are highly desirable.

* 11. Describe the mentor's role in the project. (200 word limit)
The mentor will guide the student through the different steps in designing a research study, analyzing results, and manuscript writing.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
Currently, I am working with a 3rd year medical student with a public health background on a variety of ongoing research projects with a goal of developing a student-led research study.

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)
Selected No (Not Required)

Please specify why it is not required.
We would be conducting secondary analysis of the data available in the China Health and Retirement Longitudinal Study (CHARLS) database. In the initial data collection for the survey, a IRB had been filed with Peking University. We are not collecting any new data and only analyzing what is publicly available, which is de-identified. For more information on CHARLS: http://charls.pku.edu.cn/en/page/about/CHARLS
# W.T. Gill Summer Fellowship Faculty Proposal by Ali Pourmand

## 1. Faculty Sponsor

<table>
<thead>
<tr>
<th>Name:</th>
<th>Ali Pourmand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degrees:</td>
<td>MD, MPH</td>
</tr>
<tr>
<td>Title:</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Organization:</td>
<td>GW Medical Faculty Associates</td>
</tr>
<tr>
<td>Address:</td>
<td>2120 L Street NW</td>
</tr>
<tr>
<td>Apt/Suite:</td>
<td>Suite 4th floor</td>
</tr>
<tr>
<td>City:</td>
<td>Washington</td>
</tr>
<tr>
<td>State:</td>
<td>DC</td>
</tr>
<tr>
<td>Zipcode:</td>
<td>20037</td>
</tr>
<tr>
<td>Office Phone:</td>
<td>2027413476</td>
</tr>
<tr>
<td>Email Address:</td>
<td><a href="mailto:apourmand@mfa.gwu.edu">apourmand@mfa.gwu.edu</a></td>
</tr>
</tbody>
</table>

## 2. Daily Supervisor

<table>
<thead>
<tr>
<th>Name:</th>
<th>Neal Sikka</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degrees:</td>
<td>MD</td>
</tr>
<tr>
<td>Title:</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Organization:</td>
<td>GW Medical Faculty Associates</td>
</tr>
<tr>
<td>Address:</td>
<td>2120 L Street NW</td>
</tr>
<tr>
<td>Apt/Suite:</td>
<td>Suite 530</td>
</tr>
<tr>
<td>City:</td>
<td>Washington</td>
</tr>
<tr>
<td>State:</td>
<td>DC</td>
</tr>
<tr>
<td>Zipcode:</td>
<td>20037</td>
</tr>
<tr>
<td>Office Phone:</td>
<td>2027412956</td>
</tr>
<tr>
<td>Email Address:</td>
<td><a href="mailto:nsikka@mfa.gwu.edu">nsikka@mfa.gwu.edu</a></td>
</tr>
</tbody>
</table>

## 3. Project Title (250 character limit)

Use of virtual reality tools in healthcare

## 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Emergency Medicine

* 6. Sponsor's translational level
* (Please select ONE)
T3: Translation to Practice

* 7. Hypotheses (200 word limit)
There are three VR related activities with hypotheses listed below: 1. Using VR to improve success rate in drainage of Peritonsillar abscess. Hypothesis: VR can improve success rate of I and D of peritonsillar abscess 2. Can Immersive VR breaks during shiftwork in health care workers improve alertness? Hypothesis: Immersive VR will improve alertness during healthcare provider work hours 3. Designing a innovation lab on design principles. Hypothesis: VR and AR can be used to develop low cost validations for health care innovations.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
Project Goals for the Summer for each project are listed: 1. Using VR to improve success rate in drainage of Peritonsillar abscess. Plan to Enroll 10 cases in which VR is used and at least 10 cases where VR is not used (no imaging) 2. Can Immersive VR breaks during shiftwork in health care workers improve alertness? To date we have collected 30 observations. We hope to add another 30 observations. 3. Designing a innovation lab on design principles. Work on at least 1 VR based innovation project.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
• The project design makes it likely that the objectives will be achieved
• The project is likely to result in a report of interest to other scholars
• The project fulfills discovery/original research

This project will have three components. The first part will be to work on an ongoing project to evaluate the use of virtual reality for treatment of peritonsillar abscess (IRB Approved) Second will be to continue with a VR project from last summer examining the use of immersive VR breaks done to improve alertness during work hours (IRB approved). Third will be to contribute to a project in which you apply VR and AR and other technology tools to test and validate new health innovations as part of a GW Institute (high likelihood to secure small grant from GW Icorps program). There will also be the opportunity do discovery research into why non-healthcare companies are interested in disrupting health care (Samsung, Amazon, JP Morgan Chase).

* 10. Describe the student's role in the project (200 word limit)
The Gill Fellow will work closely with Dr Pourmand and Dr Sikka serving as a research assistant for the 2 studies and the Institute Project. On the research projects, working in the ED/Hospital to enroll participants, capture survey data, data analysis, and writing. The student will assist with data analysis and preparing a publication. The student will also participate / exposed to the other health technology projects in the Department and other telehealth related educational activities such as journal club, shadowing, and learning about activities in the department. There are numerous other telehealth related activities that can be matched to the fellow’s interest to ensure a wide exposure to a variety of telehealth programs. Given interest and timing, the student can participate in development of these product lines.

**11. Describe the mentor's role in the project. (200 word limit)**

Dr. Pourmand has hosted a number of Gill Fellows and focuses on research ideation, study design, and publication. He will mentor the student on digital tools in health as well as how to do research and submit a manuscript. Dr. Sikka, leads telehealth and Innovation efforts. He will mentor the student on health innovation, technology implementation, operations, and telehealth.

**12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)**

The mentor team has enjoyed working with numerous Gill and HSP students in the last few years. Each student has had significant hands on exposure to telehealth or technology related project and mentoring. Student with interest in technology, health disparities, health access, telehealth, virtual reality and other innovative solutions at the cross of clinical care and population health will enjoy working with our team and have a high likelihood of having an abstract selected for a regional or national meeting as well as peer reviewed publications. Some recent Gill Fellows include Sameer Singla, Caylynn Yao, Charles Hartley.

**13. Do you have or will you obtain IRB approval for this project?**

**Please note:** Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: 051818 and 011834

* IRB Date: 6/18 and 3/18
W.T. Gill Summer Fellowship Faculty Proposal by Christina Prather

* **1. Faculty Sponsor**

* Name: Christina Prather  
* Degrees: MD  
* Title: Assistant Professor of Medicine  
* Organization: George Washington University  
* Address: 2150 Pennsylvania Ave, NW  
* Apt/Suite:  
* City: Washington  
* State: DC  
* Zipcode: 20037  
* Office Phone: 202.741.2191  
* Email Address: cprather@mfa.gwu.edu

* **2. Daily Supervisor**

Name:  
Degrees:  
Title:  
Organization:  
Address:  
Apt/Suite:  
City:  
State:  
Zipcode:  
Office Phone:  
Email Address: 

* **3. Project Title (250 character limit)**

1. Patient Symptoms, Caregiving, and Clinical Outcomes of Patients in the GWU Memory Clinic  
2. Screening for Cognitive Impairment and Frailty in Heart Failure Patients

* **4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.**

Multiple posters and chapters, but not peer-reviewed journals

* **5. Sponsor's Research Focus:**

Yes - Geriatrics
6. Sponsor's translational level
   *(Please select ONE)*
   T3: Translation to Practice

7. Hypotheses (200 word limit)
Project 1: Patient Symptoms, Caregiving, and Clinical Outcomes of Patients in the GWU Memory Clinic Persons living with dementia who have high neuropsychiatric symptom burden are at increased risk of having burned out caregivers. We hypothesize that the relationships between symptom presence at time of initial presentation, presence of caregivers, and other social factors likely drive dementia progression and caregiver relationships. This project seeks to establish characteristics of vulnerable memory impaired patients based on initial characteristics at time of presentation to a memory clinic. Project 2: Screening for Cognitive Impairment and Frailty in Heart Failure Patients The American College of Cardiology recommends screening all patients 50 years and older with heart failure for cognitive impairment. Patients at GW hospital with acute heart failure decompensation are not screened for cognitive impairment or frailty. Improving screening is hypothesized to change clinician practice that will result in decreased readmission and improved safety and quality of life on transition out of the acute care environment.

8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
Project 1: Patient Symptoms, Caregiving, and Clinical Outcomes of Patients in the GWU Memory Clinic Primary Goals: To establish characteristics of vulnerable memory impaired patients based on initial characteristics at time of presentation to a memory clinic and impact on clinical course; Secondary Goals: To identify clinical patterns in those presenting to memory clinic and how trained specialists interpret this data to create algorithms for dissemination to the primary care community Objectives/Task: Students will interact with memory clinic patients to take a dedicated history, complete specified clinical questionnaires and testing. Students will participate in data management and data analysis. Project 2: Screening for Cognitive Impairment and Frailty in Heart Failure Patients Primary Goals: To improve screening of cognitive disorders and frailty in heart failure Secondary Goals: To improve safety of care transitions for identified high risk patients through screening; to increase the number of heart failure patients receiving comprehensive assessments of function and goals prior to leaving the hospital Objectives/Task: Students will interview and screen patients admitted to the hospital with acute heart failure for the project duration. Students will participate in data management and data analysis. Students may perform comprehensive assessment of identified patients.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Project 1: Patient Symptoms, Caregiving, and Clinical Outcomes of Patients in the GWU Memory Clinic - The faculty lead is in an established research relationship with faculty from the school of public health with whom they are actively working on projects (submitted for publication) identifying core variables to address the underlying question; this faculty also provides analytic support to ensure project completion after data collection - Prior to the student period, selected interventions to be performed by the students will have been selected based on prior work - Prior to the student period, a database to store data will be created - IRB submission is underway, prior work has previously had IRB approval - This project aligns with the NIH's priority work to explore and better describe caregiving in persons living with Alzheimer Disease and Related Dementias Project 2: Screening for Cognitive Impairment and Frailty in Heart Failure Patients - A GW Hospital priority is improving readmission rates for heart failure patients. Through this this faculty leader has the support of the hospital QI department to ensure project
completion. Heart failure screening is also a priority of the GW MFA QI department chair who is also in full support of this project - This project is researched, proposal written, and data is ready for collection

* 10. Describe the student's role in the project (200 word limit)

Project 1: Patient Symptoms, Caregiving, and Clinical Outcomes of Patients in the GWU Memory Clinic

Students will interact with memory clinic patients to take a dedicated history, complete specified clinical questionnaires and testing. Students will participate in data management and data analysis. Students will have the opportunity for clinical exposure with geriatric memory specialists where the faculty work with fellows, neurology and medicine residents in addition to students. Project 2: Screening for Cognitive Impairment and Frailty in Heart Failure Patients

Students will interview and screen patients admitted to the hospital with acute heart failure for the project duration. Students will participate in data management and data analysis. Students may perform comprehensive assessment of identified patients.

* 11. Describe the mentor's role in the project. (200 word limit)

The mentor serves as the project supervisor to ensure that the students have - meaningful opportunity to interact with clinicians in acute and outpatient environments; - support for understanding the importance of data collection and integrity; - resources to ensure their work is converted into meaningful contributions to patient care; - direction regarding day to day tasks and expectations; - a worthwhile experience!

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

The current team has mentored the following projects: - Erica Tafuro and Jordan Scher: "Evaluation of Discharge Summary Quality" Project through chart review and resulting in poster submission, acceptance, and presentation at the 2018 National Geriatric Society Conference - Ellen Massey: "Patterns In Cognitive Clinic" - Identified patterns of clinical findings in memory clinic resulting in sleep evaluation by clinician specialists, poster submitted conferences in spring 2019.

* 13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Not Required)

Please specify why it is not required.

Project 1: Currently has an IRB; a pending submission will expand the scope of the project Project 2: No IRB is required for this quality improvement work that has established importance for the care of heart failure patients.
W.T. Gill Summer Fellowship Faculty Proposal by Dominic Raj

* 1. Faculty Sponsor

* Name: Dominic Raj
* Degrees: MD
* Title: Professor of Medicine
* Organization: GWU/MFA
* Address: 2150 Penn
* Apt/Suite: 
* City: Washington
* State: DC
* Zipcode: 20037
* Office Phone: 202-741-2283
* Email Address: draj@mfa.gwu.edu

* 2. Daily Supervisor

Name: Ali Ramezani
Degrees: PhD
Title: Assistant Research Professor
Organization: GWU
Address: 2300 I St.
Apt/Suite: Ross 726
City: Washington
State: DC
Zipcode: 20037
Office Phone: 202-994-1128
Email Address: ramezani@gwu.edu

* 3. Project Title (250 character limit)
Investigating the efficacy of probiotics in Trimethylaminuria therapy

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.
Trimethylaminuria is a metabolic disorder that occurs when the body is unable to break down certain nitrogen-containing compounds such as trimethylamine (TMA). Dietary choline is catabolized by the intestinal microbiota to form TMA gas, which is subsequently metabolized by liver FMO3 enzyme into odorless derivative called TMAO, which is secreted out of the body in urine. TMA, which has a fishy odor, is produced in the intestines when certain types of food are digested. In the absence of FMO3 enzyme activity, TMA begins to accumulate in the body and is released in the sweat, urine, reproductive fluids, and breath. This leads to the characteristic odor of trimethylaminuria. Affected individuals do not have other health problems related to the condition, but the unpleasant odor can result in social and psychological problems. Trimethylaminuria seems to be more common in women. Researchers think this may be due to higher hormone levels aggravating symptoms of the disorder. Trimethylaminuria is often caused by mutations in the FMO3 gene. Although there is no cure, trimethylaminuria can often be managed by reducing the amount of trimethylamine in the body. We have recently shown that certain probiotic species have the ability to metabolize TMA as it is produced in the colon and significantly lower the blood levels of its derivative, TMAO.

The purpose of this study is to mimic the trimethylaminuria disorder in mice by knocking down the FMO3 gene expression using inhibitory oligonucleotides, and determine the efficacy of transplanting specific probiotic species in depleting TMA. If proved effective in this pilot proof-of-principal study, the probiotics examined here could be potentially used for treatment of patients with trimethylaminuria, following further human clinical studies.

Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Fifty 4-week old female C57B/6 mice will be purchased from the Jacksons Laboratory and used in the following experiment: Group 1: 10 mice serving as conrol group 1. These mice will not receive any antibiotics, probiotics, anti-FMO3 oligonucleotides, or high choline/TMA diet. Group 2: 10 mice serving as control group 2. These mice will only receive the high choline/TMA diet and the non-targeted (control) antisense oligonucleotide (ASO) Group 3: 10 mice serving as control group 3. These mice will receive the high choline/TMA diet and the FMO3 ASO. Group 4. 10 mice serving as test group 1. These mice will receive antibiotics treatment, high choline/TMA diet, probiotics 1, and FMO3 oligonucleotides Group 5: 10 mice serving as test group 2. These mice will receive antibiotics treatment, high choline/TMA diet, probiotics 2, and FMO3 oligonucleotides Antisense oligonucleotide (ASO) Treatment: Antisense oligonucleotides (ASOs) are short oligonucleotides that localize to the nucleus and provide a pathway for gene silencing by the RNase H pathway. Phosphorothioate (PS) linkages are available to
confer nuclease resistance and, therefore, enhance intracellular stability. • Achieve effective inhibition of gene expression in vitro or in vivo • Target RNA in the nucleus by using oligos with enhanced intracellular stability • Reduce toxicity and artifacts with flexible chimeric designs and useful modifications Phosphorothioate-modified ASOs will be obtained from Integrated DNA Technologies, Inc. (Skokie, Illinois), and used as described previously (13, 17). Briefly, C57B/6 mice will be randomly assigned to groups to receive treatment with either a control non-targeting ASO (control ASO; 5’-TCCCATTTCAGGAGACCTGG- 3’) or an ASO specifically targeting human HMO3 mRNA (ACAT2 ASO; 5-GCTCTAATCACCTCAGAACT- 3’). Biweekly, intraperitoneal injections of 25 mg/kg/week (in 100 ul volume PBS) of ASO will be started at 9 weeks of age and continued for 3 weeks.

*10. Describe the student's role in the project (200 word limit)

The student will be involved in all aspects of the study. Depending on the timing, student will participate in animal experiments and/or analysis of the biological samples obtained from the animals.

*11. Describe the mentor's role in the project. (200 word limit)

Mentor will work side by side with the student on this project and will provide all the necessary training required for completion of the project.

*12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

We have had a Gill flow almost every year for the past 3 years trained in our lab.

*13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Not Required)

Please specify why it is not required.

Human subjects are not involved. We are obtaining IACUC approval for animal work (pending).
W.T. Gill Summer Fellowship Faculty Proposal by Yuan James Rao

* 1. Faculty Sponsor

* Name: Yuan James Rao
* Degrees: Doctor of Medicine
* Title: Assistant Professor
* Organization: Division of Radiation Oncology, Department of Radiology
* Address: 2150 Pennsylvania Ave NW, DC Level
* Apt/Suite:
* City: Washington
* State: DC
* Zipcode: 20037
* Office Phone: 202-715-5097
* Email Address: yrao@mfa.gwu.edu

* 2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)

Prospective assessment of patient-reported quality of life in patients receiving radiation treatment for cancer

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Cancer
Yes - Radiology

* 6. Sponsor's translational level
* (Please select ONE)
T3: Translation to Practice

* 7. Hypotheses (200 word limit)
The specific hypothesis of this project is that it is feasible to implement a completely digital quality of life database in RedCap with data entry by the patient at the time of the clinic encounter. Using this data, we will identify if modifications of radiation dose and radiation volumes in patients with head and neck cancer, prostate cancer, GYN cancers, and other tumors would result in improvements in patient-reported toxicity as measured by the European Organization for the Treatment of Cancer (EORTC) Quality of Life instrument.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
1) The student will learn about the use of the RedCap online database and under the guidance of the faculty mentor, create a prospective database for the Radiation Oncology division for the online collection of patient quality of life data. 2) The student will code existing patient quality of life data from retrospective records into the database. There are expected to be 30-50 of these patient records by the time the student starts the rotation. 3) The student will learn about the creation and validation of quality of life instruments, especially those used for head and neck cancer, prostate cancer, and GYN cancers. 4) The student will learn about the statistical analysis of time variant data using repeated-measures analysis of variance (ANOVA) as well as survival analysis using the Kaplan Meier method, and Cox Regression. 5) The student will be involved in the introduction of the QOL instrument/database tool into the clinic using tablets or a website interface that patients can use for data entry. 6) The student will be first author in a publication describing the implementation of this data-collection process in the oncology clinic, and co-author on all future publications using this data.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Recently, Dr. Rao has implemented routine collection of quality of life measurements using instruments provided by the European Organization for the Treatment of Cancer (EORTC) for patients receiving radiotherapy at GWU. These instruments are provided to his patients at baseline, at the end of radiation, and at every follow-up. This data is used clinically to assess for patient recovery and to identify areas for improvement. Additionally, as radiation techniques improve at GWU, improvements in toxicity should be identifiable on the QoL instruments. However, paper survey data collection is labor-intensive, and the records need to be coded and digitized at a future time. A better way is to create a computer or tablet based survey instrument using the same questions as the EORTC instrument, but with automatic submission of data to a IRB approved RedCap database where it can be used for
clinical tracking of patient recovery after radiation, and for research projects. The student will learn about the EORTC QoL instruments, about cancer care and radiation oncology, and take a RedCap database course. Then, the student will create the RedCap database using questions and response options from the EORTC instruments. The student will code the data from the existing questionnaires into the database. The student will also pilot the initial use of this instruments for patients seen in the Rad Onc clinic. Upon successful implementation of the database, the student will write a manuscript describing the experience for publication in a cancer journal and provide code/examples for implementation at other radiation oncology clinics. The student will analyze existing QoL data, and the initial cohort of data collected during the summer project (expected 30-50 patients). Finally, the student will continue to be involved in research resulting from all future data collection using this database. Over the course of a 4 year medical school career, this project is likely to result in the collection of data from several hundred patients and result in several other publications for each of the individual disease sites (H&N, Prostate, GYN, etc).

**10. Describe the student's role in the project (200 word limit)**

The student will be responsible for learning about RedCap through regular courses provided by GWU, will create the database under the guidance of the mentor, and will pilot the use of the database with patients in the Rad Onc department. Once initial data is collected, the student will be involved in the statistical analysis of QoL as it relates to radiation parameters (dose, chemo, volume, etc) and writing of manuscripts. We hope for continued involvement of the student in this project, even after the completion of the summer term.

**11. Describe the mentor's role in the project. (200 word limit)**

Dr. Rao has experience in quality of life research, database creation and support, RedCap software, and medical student mentoring. The mentor has acquired the required questions and survey instruments in paper form and will teach the student how to create the database and create web interfaces so the patients can use the survey instrument. The mentor will oversee the student as he/she introduces the digital survey into routine patient care in radiation oncology. The mentor will provide the necessary hardware (tablets, computers) so that patients can use the instrument. The mentor will teach the student statistical methods and guide the writing and submission of manuscripts. The mentor will acquire IRB approval for the project, and construction of the database software can begin prior to IRB approval.

**12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)**

Dr. Rao has had an interest in medical school education for many years. When he was at Washington University in St. Louis, he introduced a standardized didactic medical student curriculum in Rad Onc and brought WashU into a national educational collaborative group. The educational outcome results of the standardized curriculum have been published. At WashU, he mentored three medical students who matched into Radiation Oncology and published nearly 10 papers with medical student collaborators as co-authors. After he started as a faculty member at GWU three months ago, he has three manuscripts that are submitted or being drafted with GWU medical students as first author.

**13. Do you have or will you obtain IRB approval for this project?**

*Please note: Students cannot begin a human subjects project without IRB approval.*

* (Please select ONE)

Selected No (Pending)
**W.T. Gill Summer Fellowship Faculty Proposal by Dr. Brian K. Reilly**

* 1. Faculty Sponsor

  * Name: Dr. Brian K. Reilly
  * Degrees: MD
  * Title: Associate Professor of Otolaryngology
  * Organization: Children's National Health System
  * Address: 111 Michigan Ave NW
  * City: Washington
  * State: District of Columbia
  * Zipcode: 20010
  * Office Phone: 202-476-3925
  * Email Address: breilly@cnmc.org

* 2. Daily Supervisor

  Name: Dr. Brian K. Reilly
  Degrees: MD
  Title: Associate Professor of Otolaryngology
  Organization: Children's National Health System
  Address: 111 Michigan Ave NW
  City: Washington
  State: District of Columbia
  Zipcode: 20010
  Office Phone: 202-476-3925
  Email Address: breilly@cnmc.org

* 3. Project Title (250 character limit)

  Chap Stick for Tracheostomy wound care. Our test hypothesis is that chap stick around the tracheal stoma may reduce the risk of wound breakdown and tracheostomy related skin complications. Our study objective was to determine standard post-operative protocol for wound care with a tracheostomy trained nurse with chap stick to decreases the rate of wound care visits and other tracheostomy related complications and clinic visits.

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Surgery

* 6. Sponsor's translational level
* (Please select ONE)
  T3: Translation to Practice

* 7. Hypotheses (200 word limit)
Moist skin, friction from lateral head movement and an inability to offload area from pressure of tracheostomy ties can lead to a perfect storm for an alteration in skin integrity and pressure injuries. Children with tracheostomies often have additional congenital abnormalities, comorbidities and cognitive deficits that can inhibit their ability to alert someone that an area is becoming uncomfortable prior to skin breakdown. Additionally, a number of children with tracheostomies have trouble controlling their oral secretions and in can accumulate under the neck and tracheostomy ties. One proposed solution is the use of chap-stick under trach ties TID and PRN. A search of the literature found no adverse effects with the use chap-stick on the neck as a skin prevention measure. A quality improvement initiative was developed and implemented at the ENT clinic. Caregivers of children with tracheostomies were instructed to apply plain unscented chap stick under the tracheostomies ties avoiding the stoma TID and PRN. On reevaluation in clinic there was a decrease in the redness under the ties. Parents also subjectively reported on call back that the skin was looking less red and irritated.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
Caregivers of children with tracheostomies will be instructed to apply plane unscented chap stick under the tracheostomies ties, avoiding the stoma q TID and PRN. On revaluation in the wound will be assess by clinic nurse
1) Skin assessment scale: Normal, red, blanchable, intact, odor -Improved wound rates and skin breakdown in children with tracheostomy -Diagnose early stages of wound and skin breakdown in order to decrease rate of tracheostomy tube and trach ties skin issues. -Improved rate of skin infection

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Pediatric tracheostomy is a commonly performed procedure for upper airway obstruction and prolonged ventilation. Patients typically have multiple chronic medical problems that place them at high risk for skin and wound complications. This is a pilot study. Processed data will be analyzed with ANCOVA to identify statistical differences of mean values of the different study groups: trach type. chapstick application, dressing types, wound types, skin ulcer grades 1-4, rate of infection. The analysis will also include mean values of the data collected from cultures, wound scores and rates of skin infection.
10. Describe the student's role in the project (200 word limit)
This is a pilot study. Processed data will be analyzed with ANCOVA to identify statistical differences of mean values of the different study groups: trach type, chapstick application, dressing types, wound types, skin ulcer grades 1-4, rate of infection. The analysis will also include mean values of the data collected from cultures, wound scores and rates of skin infection.

11. Describe the mentor's role in the project. (200 word limit)
Dr. Reilly will work with clinic nurse and student to review patient data, monitor outcomes, ensure study stays within QI realm. Caregivers of children with tracheostomies will be instructed to apply plane unscented chap stick under the tracheostomies ties, avoiding the stoma q TID and PRN. On revaluation in the wound will be assess by clinic nurse and team members. A wound scale will be implemented. Skin assessment scale: Normal, red, blanchable, intact, odor. End Points: - Improved wound rates and skin breakdown in children with tracheostomy - Diagnose early stages of wound and skin breakdown in order to decrease rate of tracheostomy tube and trach ties skin issues.

12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
Student will attend airway and tracheostomy conferences, surgeries, Ent clinics, and radiology rounds on a weekly basis as well as meet with me every week to review progress of the project. He/She will have the opportunity to add Sheik Zayed conferences and grand rounds to facilitate learning.

13. Do you have or will you obtain IRB approval for this project? Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)
Selected No (Pending)
*1. Faculty Sponsor*

Name: Alexandra Rucker  
Degrees: MD  
Title: Attending Physician  
Organization: Children's National Health System  
Address: 111 Michigan Avenue, NW  
City: Washington  
State: DC  
Zipcode: 20010  
Office Phone: 202-476-4177  
Email Address: arucker@cnmc.org

*2. Daily Supervisor*

Name: Alexandra Rucker  
Degrees: MD  
Title: Attending Physician  
Organization: Children's National Health System  
Address: 111 Michigan Avenue, NW  
City: Washington  
State: DC  
Zipcode: 20010  
Office Phone: 202-476-4177  
Email Address: arucker@cnmc.org

*3. Project Title (250 character limit)*

Health related social problems in emergency department patients: can the highest risk patients be identified and social navigation provided?

*4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.*


*5. Sponsor's Research Focus:*
*6. Sponsor's translational level
* (Please select ONE)
T2: Translation to Patients

*7. Hypotheses (200 word limit)
Pediatric patients who present to the emergency department (ED) with any of nine (9) high risk chief complaints, patients with poor asthma control, patients who are obese and patients who have frequent non-urgent ED visits will have a higher number of self-reported health-related social problems as measured by an electronic survey than the general pediatric ED population and can be prospectively targeted for rapid intervention. We also hypothesize that adolescent patients who are offered social navigation services will have decreased ED recidivism and social risk score at 12 month follow up compared with a control group who complete the survey but receive only usual ED care and a printed brochure containing community resources.

*8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
We will enroll 600 caregivers and 400 adolescents in this project. We expect to use the data from this project to design and implement a public health and social navigation team in the ED to screen for and address social determinants of health in ED patients.

*9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

In this ongoing analysis, caregivers of patients 0-17 and adolescents 13-17 who speak English or Spanish are approached in the ED to complete a self-administered, computerized survey using RedCAP® software. The survey tests thirteen social domains for caregivers and adolescents. The outcome of interest is the number of self-reported health related social problems, or cumulative social risk score. Adolescent patients and families in the intervention group receive community resource referrals and immediate interventions for emergency issues (e.g., suicidality) from the social navigation team at the point of care in the ED. At 3 months, phone follow up is completed, assessing satisfaction with resources and barriers to accessing them. All adolescent patients are then followed at 6 months and 12 months post-survey to determine repeat visits to the emergency department and to complete a second social risk assessment online (at 12 months). The outcomes of interest for adolescent patients are number of repeat visits to the ED in 12 months and change in social risk score. For all patients, we will determine if patients with any of nine (9) chief complaints thought to be high risk, obese patients, patients with poor asthma control and/or patients with 3 or more nonurgent visits in the preceding 12 months have a higher social risk score than those without any of these characteristics. Statistical analyses are conducted using SAS. We expect to complete enrollment in the next 12 months, and to complete follow up of adolescent patients in the subsequent 12 months. Statistical analysis is ongoing and will continue in earnest following completion of enrollment.

*10. Describe the student's role in the project (200 word limit)
The student will function as a research assistant and social navigator on this project. This will involve consenting patients, assistance with survey completion and patient follow up. The social navigation role will require further interaction with families to refer them to community resources at the point of care in the ED. In addition, the student will assist with data entry and analysis of the project’s results. The student will gain valuable experience in data collection, interaction with research subjects, and use of statistical software. The Gill fellow will be required to complete the CITI program modules in research as required by Children’s National Health System as well as receive specific training in consent from the ED Research Intern team. This project is ideal for the student with an interest in social determinants of health, especially as it relates to care in the emergency department. Additionally, students with strong interests in public health interventions in the emergency department, pediatric emergency care, public health in pediatrics and health disparities will benefit from participation.

* 11. Describe the mentor's role in the project. (200 word limit)

The role of the mentor in this project has been to supervise the student's performance in all areas, to serve as a liaison between the student and the research team and to provide information, training and guidance regarding research methods, interaction with patients, data collection and analysis. Each student on this project has also been given time to shadow a few clinical shifts in the emergency department with the primary research mentor.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

Christian Hendrix, MS3 completed her Gill fellowship on this research project along with other undergraduate, medical and public health/PA students. Christian was trained in consent and enrollment techniques by the primary research mentor and received more formal training from the ED research intern team. Training and practice in social navigation also took place, including identification of emergency social issues, referral to community resources, and most importantly, motivational and therapeutic interactions with adolescent patients and their families. She completed a poster for GW research day and was able to assist in preparation of successful abstract and poster submissions to Children's National Health System Research Week and Pediatric Academic Societies 2018. She was also able to complete a shadow shift in the emergency department with the primary mentor.

* 13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: Pro00007768

* IRB Date: 4/5/17
W.T. Gill Summer Fellowship Faculty Proposal by Zeina Saliba

* 1. Faculty Sponsor

* Name: Zeina Saliba
* Degrees: MD
* Title: Inpatient Medical Director, Assistant Professor
* Organization: MFA/GWU
* Address: 2120 L St. NW Unit 600
* Apt/Suite: 
* City: Washington
* State: DC
* Zipcode: 20037
* Office Phone: 202-741-3433
* Email Address: zsaliba@gwu.edu

* 2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)

Family Planning (Contraceptive and Preconception Care) in Inpatient Psychiatric Setting- Prospective Study

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Psychiatry
Yes - Obstetrics/Gynecology

6. Sponsor's translational level
(Please select ONE)
T3: Translation to Practice

7. Hypotheses (200 word limit)
- Women admitted with psychiatric illness who do not desire pregnancy in the next two years and have sex with men are unlikely to be using contraception.
- Preconception care and reproductive options counseling is limited in women with psychiatric illness.
- College students admitted to the psychiatric unit are more likely than those who are unemployed to have received reproductive counseling.

8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
- Conduct literature review and be able to succinctly describe problem and project.
- Estimated number of participants is 40 over 4-week period with goal for student to interview total of 50 patients.
- Identify opportunities for improvement in preconception and contraceptive care in women admitted to psychiatric units.
- Identify barriers to contraception and attitudes about different forms of contraception.
- Present work at conference and write manuscript.
- Future secondary goals: Create educational tool for inpatient providers to use with patients to discuss contraceptive options and teratogenic risks of psychotropic medications as well as one for PCPs and OB/GYNs to use with women who have severe mental illness.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Primary faculty will begin data collection in January 2019. An exploratory analysis of family planning needs on a voluntary urban psychiatric unit will be conducted by interviewing all women of reproductive age who are admitted. Exclusion criteria for those who do not have sex with men, transwomen and those who have had a hysterectomy or other conditions that exclude pregnancy. Patients will be asked about their desire to have a pregnancy within the subsequent two years, their use or not of contraception, attitudes towards different forms and barriers to obtaining. We will ask about their recent visits to PCP and OB/GYN as well as inquire about practitioner's discussion about reproduction and family planning. We will collect demographic information as well as information about severity of illness and see if outcomes vary by patient characteristics. We will analyze data with chi-square tests and perform multivariate logistic regression as well as collect qualitative data.

10. Describe the student's role in the project (200 word limit)
The student will be responsible for consenting patients, conducting interviews, collecting data and with faculty mentorship analyzing it. It is expected that the student will both produce a poster for research day as well as draft a manuscript (with help from faculty). The student will have the option to be involved in future projects that arise from this study.
11. Describe the mentor's role in the project. (200 word limit)
The mentor takes responsibility for the overall organization of the project, including working with the hospital for EMR access and creation of research database. The mentor will closely oversee the student, available on-site daily. The mentor will model patient interview and observe student prior to student doing this independently. After data collection, the mentor will work with the student to analyze it and will also serve as a link with other faculty from departments of OB/GYN and school of public health who want to collaborate on this project. The mentor will make time to meet with the student to discuss future plans, career counseling and highlight opportunities for shadowing, including at the 5 Trimesters clinic. Additional mentorship will be provided by Ivy Benjenk (MPH, RN), a PhD candidate in health services administration with experience as a quality analyst and health services researcher.

12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
The primary faculty serves as the GW mentor for the nationwide Choosing Wisely STARS (Students and Trainees Advocating for Resource Stewardship) program, a value-based care education and practice initiative. Primary faculty has been approached by numerous students to mentor their work. One was a 3rd year clinical student who rotated with mentor in the hospital and project produced poster that won 3rd place at an international conference. Another 3rd year student used research elective to prepare retrospective chart review that is precursor to this study.

13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: 180570

* IRB Date: 11/30/18
W.T. Gill Summer Fellowship Faculty Proposal by Susma Shanti Vaidya

* 1. Faculty Sponsor

* Name: Susma Shanti Vaidya
* Degrees: MD, MPH
* Title: Associate Medical Director of IDEAL Clinic
* Organization: CNMC
* Address: 111 Michigan Avenue, NW
* Apt/Suite: 
* City: Washington
* State: DC
* Zipcode: 20010
* Office Phone: 202-476-2346
* Email Address: svaidya@cnmc.org

* 2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)

Telemedicine Pilot Program within the IDEAL Clinic (Pediatric Weight Management Clinic)

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.

Ana Morais, BS, MEd, Joseph Kelly, James E. Bost, MS, PhD, and Susma Shanti Vaidya, MD, MPH. Characteristics of Correctly Identified Pediatric Obesity and Overweight Status and Management in an Academic General Pediatric Clinic. Clinical Pediatrics.2018; (10) 57.

5. Sponsor's Research Focus:
Yes - Pediatrics

6. Sponsor's translational level
* (Please select ONE)
T3: Translation to Practice

7. Hypotheses (200 word limit)
Telemedicine has been used effectively as a tool to manage and treat pediatric obesity. In fact, telemedicine encounters have been as effective if not more effective in facilitating lifestyle change among obese children. Additionally, studies have demonstrated high parental satisfaction with this form of a medical encounter. Incorporating telemedicine into the IDEAL Clinic, a pediatric weight management clinic at CNMC, will result in improved adherence to lifestyle change recommendation, increased parental satisfaction with the program, and a lower attrition rate.

8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
The goal will be to enroll all new patients at the start of the summer into a telemedicine program after the first initial encounter. The telemedicine visit will be every two weeks in between regular face to face visits in IDEAL. The number of patients will depend on new patients that can be recruited at the initial encounter. Measureable objectives: 1. Parent or guardian satisfaction after 2 months 2. Rate of continued participation in the IDEAL program 3. BMI change 4. The enrolled patients will be compared with matched controls within the past year in IDEAL

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

1. The primary stage of this endeavor will require identifying all the details of the project including scheduling telemedicine sessions, parent satisfaction surveys, and an Excel Spread Sheet. 2. The secondary stage will involve enrolling patients into the project which include obtaining consent, contact information, and scheduling a subsequent telemedicine visit. 3. The next stage of the project will involve a chart review of the patients that have been enrolled and the matched controls from previous encounters. 4. The last stage of the project will involve completing of a manuscript describing the findings.

10. Describe the student's role in the project (200 word limit)
The student will initially do a literature search to look at the use of telemedicine in pediatric obesity in preparation for the study and to start writing a manuscript. We will then develop a detailed plan for enrolling the patients and scheduling visits. The student may participate with me in some of the telemedicine visits, but I will be the primary provider at these encounters. Lastly, the student will help me with the chart review.
11. Describe the mentor's role in the project. (200 word limit)
I will supervise the student throughout the project. I would like the student to start writing the manuscript and work with me on data analysis in conjunction with a statistician; however, I anticipate not being able to complete the manuscript until later in the fall. My role as a mentor will be to ensure that the student achieves the following goals:
1. The student will learn to evaluate the medical literature to develop a specific medical intervention and to write a manuscript. 2. The student will be able to shadow me in a number of visits in the IDEAL Clinic and will learn the risks, comorbidities, and management of pediatric obesity. He or she will also participate in biweekly conferences for the IDEAL Team. I would like the student to present our findings at the end of the summer to the IDEAL group. 3. The student will learn about the use of telemedicine in current medical care.

12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
I worked with Gill Fellow, Ana Morais in 2017. We did a chart review to identify the characteristics of correct identification of obese children in the Children's Health Center and we also looked at management of these patients. We did have a publication from our efforts.

13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)
Selected No (Pending)
**W.T. Gill Summer Fellowship Faculty Proposal by Maho Shibata**

* **1. Faculty Sponsor**

  * Name: Maho Shibata
  * Degrees: PhD
  * Title: Assistant Professor
  * Organization: The George Washington University
  * Address: 800 22nd St NW
  * Apt/Suite: SEH 8050
  * City: Washington
  * State: DC
  * Zipcode: 20052
  * Office Phone: 202-994-0802
  * Email Address: mshibata@gwu.edu

* **2. Daily Supervisor**

  Name:
  Degrees:
  Title:
  Organization:
  Address:
  Apt/Suite:
  City:
  State:
  Zipcode:
  Office Phone:
  Email Address:

* **3. Project Title (250 character limit)**

Modeling the molecular basis of prostate cancer health disparities using patient derived organoids

* **4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.**


5. Sponsor's Research Focus:
Yes - Anatomy
Yes - Cancer
Yes - Endocrinology

6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

7. Hypotheses (200 word limit)
In the United States, both prostate cancer incidence and mortality rates are higher in African American men compared to white men (DeSantis et al., 2016). In addition to socioeconomic factors such as access to care, it is believed that biological differences likely contribute to these health disparities. For example, sequencing studies of prostate tumors have revealed genetic alternations that differ between prostate cancers in African American and Caucasian men (Huang et al., 2017). However, African American samples are not well represented in databases such as The Cancer Genome Atlas (TCGA) (Spratt et al., 2016), and few African American prostate cancer cell culture lines or xenograft models are available, making African American prostate cancers difficult to study. Recent developments in cell culture methodologies, which allow for the growth of cells in 3D culture as “organoids” resembling mini organs, have provided a significant advance for growing prostate cancer cells in culture (Fatehullah et al., 2016), and several prostate cancer organoid lines have recently been generated from patient prostate cancer samples (Gao et al., 2014; Puca et al., 2018). We hypothesize that patient derived organoids can be utilized as a model system for understanding the molecular basis of prostate cancer health disparities.

8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
The generation of organoid lines from African American prostate cancers would facilitate research on the molecular basis of racial disparities in prostate cancers. Organoid lines can be generated more rapidly compared to xenograft models, and can also be grafted to generate xenograft models, and used for disease modeling and drug response assays (Lee et al., 2018). Our objective is to culture and characterize organoid lines from prostatectomy tissues from African American and Caucasian prostate cancer patients undergoing surgery at the George Washington University Hospital. We expect that the innovative organoid culture approach proposed for the generation of several organoid culture lines from African American prostate cancers will provide new models for understanding the basic biology and molecular basic for health disparities, and could also be used for high-throughput drug screening in the future to identify better prostate cancer treatments.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
Overview To establish a new model system for studying African American prostate tumors, we will generate organoid lines from prostatectomy tissues from African American and Caucasian prostate cancer patients undergoing surgery at the George Washington University Hospital. Dr. Antoun Toubaji (GW, Pathology, GW Biospecimen Repository Core) will identify and isolate tumor regions. Tumor content will be verified using adjacent tissue sections. We will enzymatically dissociate fresh tissues and culture cells in organoid culture conditions, with the goal of generating tumor organoid lines that can be passaged and expanded. Based on previous reports, we estimate that we will be able to generate organoid lines from approximately 20% of tumors. We will
conduct histopathology and marker analysis to compare organoids to the primary patient tumors. As a control, we will also grow normal organoids from normal regions of the same prostatectomy sample. Timeline We are currently culturing prostate cancer cell lines as organoids in the lab. Prior to summer 2019, we will start collecting fresh patient samples from the GW Biospecimen Repository in order to culture tumor organoids. The collection of patient tissues will be ongoing, as we estimate the efficiency of organoid line generation to be approximately 20%. Week 1 - Week 4: The student will be involved in the collection of fresh patient prostate tissues from the GW Biorepository. The student will enzymatically dissociate and culture tissues in organoid culture conditions. The cells will be cultured and expanded to generate organoid lines. We estimate that at least 1 patient sample will be available each week. Week 5: Once organoids have grown and sufficient material is available, the student will fix the organoids and section the tissues. Week 6-7: The student will perform histological (hematoxylin and eosin) and immunohistochemical analysis of organoids and tumor tissues from the same patient to assay for luminal (CK8, CK18, Nkx3.1), basal (CK5, CK14, P63), neuroendocrine (synaptophysin) and tumor (AMACR) markers. Week 8: The student will image the stained prostate tumor organoids and control patient tissues. We anticipate that we will be able to culture patient cells from several patients as organoids. As controls we will also culture normal prostate tissues (obtained from the same surgical sample). In the case that organoid lines cannot be generated from the tissues obtained by the student, the student will analyze previously generated organoids in the lab.

* 10. Describe the student's role in the project (200 word limit)
The student will work with the mentor, laboratory technician, and postdoctoral researcher in the lab to learn laboratory techniques, including sterile technique, media preparation, 3D organoid tissue culture, tissue sectioning and histological and immunohistochemical analysis of tissues. The student will also assist in obtaining patient tissues from the Pathology department and will dissociate tissues, grow patient-derived organoids, and characterize the generated organoids though histological and immunohistochemical analysis. The student will participate in weekly lab meetings and journal clubs and present their findings in a lab meeting presentation at the end of the summer.

* 11. Describe the mentor's role in the project. (200 word limit)
The mentor will supervise the design of the experiments and directly work with the student in the lab. The student will interact with the mentor daily, and will have weekly one-on-one meetings to discuss progress in the research and obtain critical feedback and suggestions. The mentor will also ensure that the student receives the safety and technical lab training necessary for the project, and will provide the supplies, reagents and equipment for the experiments.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
I started my lab as a new investigator in the GW Cancer Center in June 2018. I was previously a postdoctoral scientist at Columbia University Medical Center, where I worked closely with 3 medical residents (5th year Urology residents in their 1-year research year), and 1 oncology fellow in the lab. Although we do not have current medical students in the lab, we work closely with clinical collaborators in the Urology and Pathology departments to obtain fresh patient prostate cancer samples.

* 13. Do you have or will you obtain IRB approval for this project? Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: 041723
* IRB Date:  7/19/2017
**W.T. Gill Summer Fellowship Faculty Proposal by Dimitri Sigounas**

* 1. Faculty Sponsor

* Name: Dimitri Sigounas  
* Degrees: M.D.  
* Title: Assistant Professor of Neurosurgery  
* Organization: The Medical Faculty Associates of the George Washington University  
* Address: 2150 Pennsylvania Ave. NW  
* Apt/Suite: 7-408  
* City: Washington  
* State: D.C.  
* Zipcode: 20037  
* Office Phone: 202-741-2754  
* Email Address: dsigounas@mfa.gwu.edu

* 2. Daily Supervisor

Name: Dimitri Sigounas  
Degrees: M.D.  
Title: Assistant Professor of Neurosurgery  
Organization: The Medical Faculty Associates of the George Washington University  
Address: 2150 Pennsylvania Ave. NW  
Apt/Suite: 7-408  
City: Washington  
State: D.C.  
Zipcode: 20037  
Office Phone: 202-741-2754  
Email Address: dsigounas@mfa.gwu.edu

* 3. Project Title (250 character limit)

Clotomics: The Clot Genome Atlas

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Neurology
Yes - Surgery

6. Sponsor's translational level
(Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

7. Hypotheses (200 word limit)
Endovascular treatment has recently become the recommended therapy for acute stroke after the publication of five randomized trials in 2015 that demonstrate its efficacy. Hospitals have quickly adapted, leading to many academic, private, and public institutions performing mechanical and aspiration thrombectomy across the world. However, a better understanding of the disease process and patients' response to treatment is required to continue to improve care. Additionally, new clinical trials have been published on minimally invasive evacuation of intracerebral hemorrhage and its efficacy in improving clinical outcomes for this patient population. We are conducting this study in order to determine whether specific findings in RNA, DNA, or protein analysis of ischemic and hemorrhagic clots (blockages in vessels of the brain or areas of bleeding) can provide insight into the origin of the clot as well as the difference in patient outcomes with similar initial presentations and radiologic outcomes. In particular, we hypothesize that specific RNA, DNA, and protein markers collected from the clots will provide insight into clot anatomical origin as well as specific predisposing factors for patients.

8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
A. Transcriptome, proteome, and metabolome analysis of every clot to determine whether and what active processes are occurring in the endothelial cells, fibroblasts, and white blood cells in these clots including activation of genes related to cell division and intracellular communication, protein products related to these functions, and metabolic products providing evidence of active intraclot biology. B. Transcriptome, proteome, and metabolome analysis of every clot to determine a gene/protein/metabolic signature that can predict clot etiology and disease pathophysiology. C. Information from clots extracted within 3 hours of symptom onset will be compared to clots extracted from greater than 3 hours after symptom onset to demonstrate early and late cellular and metabolic processes. D. To qualitatively analyze and compare samples across different patients to draw conclusions from genome to transcriptome to protein product, as well as respective clinical outcomes noted from medical record data collection. This project will be done in collaboration with the Mount Sinai Hospital network in New York, NY. The number of patients assessed at GWUH will depend on the number of strokes requiring intervention (anticipated to be ~6-7 per month).

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
Subjects will be recruited from the medical practice of the Principal Investigator (Dimitri Sigounas). Eligible stroke patients will be approached by the Principal Investigator, research assistant, or other members of the study team for participation in the research study. For patients who are unable to consent, their legally authorized representative will be approached by the Principal Investigator or volunteer researcher. Patient recruitment will be ongoing with interim analysis or clinical outcomes and clot analysis as outlined above after 50 patients (anticipated to occur within 3 months). Medical record review and analysis of data collected from those records will be involved in this study. Data of interest will be captured on spreadsheets and abstracted from medical records and follow-up phone call 2-8 weeks following ictus. Data collected will include clinical measures that have been associated with clinical outcomes. These clinical measures will be used to evaluate different methods of providing endovascular care. Clinical measures include time-to-treatment, imaging times, and treatment times. The obtaining of clot samples will be performed in surgical procedures which are conducted separately from this research study and include ICH minimally invasive clot evacuation, endovascular thrombectomy for ischemic stroke and medical management. No treatments or medical interventions will be performed as a part of this study. Regarding these clot samples (ischemic and hemorrhagic), they will be placed in containers with tissue preservatives and mailed within 24 hours of collection for analysis by the research team at Mount Sinai Hospital in New York, NY. Specifically, the pathophysiology of clots will be of great interest to the community as a means to improve stroke patient outcomes as well as prevent stroke occurrence and the devastating clinical sequelae as a form of individualized medicine.

* 10. Describe the student's role in the project (200 word limit)
The student will be involved in enrolling patients, preparing clots for sending to Mount Sinai Hospital for analysis, collecting data which will include patient admission date and time, procedures performed, ICH etiology, stroke etiology, comorbidities, GCS score, NIHSS score, mRS score, average ICH Volume (after each CT), average Total Lesion volume (after each CT), average Edema volume (after each CT), primary and secondary outcomes, complications, and death. An mRS Score will be obtained on the follow up phone call as well. Additionally, the student will be responsible for interim analysis of the clinical findings and clot characteristics, in conjunction with the Mount Sinai research team.

* 11. Describe the mentor's role in the project. (200 word limit)
To collect specimens, oversee the enrollment of patients and compliance with the IRB, help with clinical data collection and analysis, and provide guidance on what questions may be addressed through interim analysis.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
We have not had Gill fellows trained by our mentor team to date, but have participated in clinical research with residents in neurosurgery and neurology, as well as medical students interested in endovascular neurosurgery. Several projects undertaken by mentored residents and medical students have resulted in peer reviewed journal publications. From a clinical perspective, we have medical students rotate through endovascular neurosurgery on a weekly basis to observe surgical procedures.

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)
Selected No (Pending)
W.T. Gill Summer Fellowship Faculty Proposal by Neal Sikka

* 1. Faculty Sponsor

* Name: Neal Sikka
* Degrees: MD
* Title: Associate Professor
* Organization: GW Medical Faculty Associates
* Address: 2120 L Street NW
* Apt/Suite: Suite 530
* City: Washington
* State: DC
* Zipcode: 20037
* Office Phone: 2027412956
* Email Address: nsikka@mfa.gwu.edu

* 2. Daily Supervisor

Name: Neal K Sikka
Degrees: MD
Title: Associate Professor
Organization: GW MFA - EMED
Address: 2120 L Street NW
Apt/Suite: Suite 530
City: Washington
State: DC
Zipcode: 20037
Office Phone: 2027412956
Email Address: nsikka@mfa.gwu.edu

* 3. Project Title (250 character limit)

Application of Ottawa Ankle Rules via Telemedicine

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:
Yes - Emergency Medicine

* 6. Sponsor's translational level
* (Please select ONE)
T3: Translation to Practice

* 7. Hypotheses (200 word limit)
The hypothesis for this study is that there will be no significant difference in the OAR positive rate between the telemedicine and in person provider assessments of the ankle/foot injury.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
Telemedicine is a growing mechanism for providing care. There is a need for validated clinical decision support (CDS) (such as the Ottawa Ankle Rules) which are effective in-person, to be evaluated for effectiveness via telemedicine to ensure high quality care. To date, there is little research evaluating CDS using Telemedicine. Our power analysis suggested needing to recruit 312 patients into the study. To date we have enrolled about 120. The goal for the Gill Fellow would be to work to launch a 3rd research site (right now in Discussion with Med Univ of South Carolina) and to recruit new 50 patients.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

The Ottawa Ankle Rules (OAR) are well validated clinical decision rules for determining the need for xrays in acute ankle and foot injuries. With growth of direct to consumer on-demand telemedicine, patients are frequently being evaluated virtually at home. through real-time audio video connections. Prior publications have examined the lay person's application of the rule compared to emergency medicine providers' application with significant discordance. This study aims to determine the concordance between a physician-assisted application of the Ottawa Ankle Rules via a video visit during an emergency room visit as compared to an in-person examination by the emergency provider. So far we have enrolled about 120 patients into the study since August 2017. Cornell recently joined as a 2nd site. We are trying to add a third site and accelerate enrollment to complete the study. Hopefully by summer or early fall we have completed full enrollment and early analysis for a manuscript submission.

* 10. Describe the student's role in the project (200 word limit)
The student will serve as the research assistant for this project. The will assist with recruitment, chart abstraction, data analysis and preparing a publication. The validation of Clinical Decision rules through telemedicine can be extended easily to other CDSs. We will draft the next study for the fall as well. The student will also participate / exposed to the other health technology projects in the Department and other telehealth related educational activities such as journal club, shadowing, and learning about activities in the department. There are numerous other telehealth related activities that can be matched to the fellow’s interest to ensure a wide exposure to a variety of telehealth
programs. Given interest and timing, the student can participate in development of these product lines.

* 11. Describe the mentor's role in the project. (200 word limit)
Dr. Sikka leads telehealth and Innovation efforts at MFA. He will mentor the student on health innovation, technology implementation, operations, and telehealth. He is also the leader PI on the OAR study and will mentor the student in all aspects of the recruitment, 3rd site set up and chart abstraction. We will work with MFA statistician to complete the date analysis.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
The mentor team has enjoyed working with numerous Gill and HSP students in the last few years. Each student has had significant hands on exposure to telehealth or technology related project and mentoring. Student with interest in technology, health disparities, health access, telehealth, virtual reality and other innovative solutions at the cross of clinical care and population health will enjoy working with our team and have a high likelihood of having an abstract selected for a regional or national meeting as well as peer reviewed publications. Some recent Gill Fellows include Sameer Singla, Caylynn Yao, Charles Hartley.

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)
Selected Yes

Please provide IRB number and date
* IRB Number: 011730

* IRB Date: July 2018 renewed
* 1. Faculty Sponsor

* Name: Gary L. Simon
* Degrees: MD, PhD
* Title: Director, Division of Infectious Diseases
* Organization: George Washington Medical Faculty Associates
* Address: 2150 Pennsylvania Avenue NW
* Apt/Suite: Ste. 8-436
* City: Washington
* State: DC
* Zipcode: 20037
* Office Phone: 202-741-2234
* Email Address: gsimon@mfa.gwu.edu

* 2. Daily Supervisor

Name: Hana Akselrod
Degrees: MD, MPH
Title: Clinical Instructor, Division of Infectious Diseases
Organization: George Washington Medical Faculty Associates
Address: 2150 Pennsylvania Avenue NW
Apt/Suite: Ste. 8-436
City: Washington
State: DC
Zipcode: 20037
Office Phone: 202-741-2234
Email Address: hakselrod@mfa.gwu.edu

* 3. Project Title (250 character limit)

Evaluation of Barriers to Antiretroviral Therapy among HIV-Positive Hospitalized Patients in Washington, DC

Summary: Timely and effective engagement of people living with HIV (PLWH) in antiretroviral therapy (ART) is crucial to achieving viral suppression and immunologic reconstitution, improving survival, and reducing transmission of the virus to others. Despite efforts to improve access to treatment, PLWH continue to face barriers which limit their engagement in care, including socioeconomic, structural, educational, and psychological factors. Washington, DC, has a generalized HIV epidemic with current prevalence estimated at 1.9%. Among DC residents newly diagnosed with HIV in 2017, 83% were linked to medical care within 30 days, but only 59% persisted with treatment and had viral suppression within 6 months. Understanding the complex reasons why people do not receive ART or are unable to stay engaged in care is critical to alleviating the burden of the HIV epidemic. We are conducting a prospective survey of HIV-positive patients admitted for inpatient care at the George Washington University Hospital, who report not taking ART at the time of admission. Participant recruitment began in 2018, and we project that data collection for 50 patients will be completed in early summer 2019. Through the Gill
Fellowship, we hope to involve a medical student in finalizing data collection and conducting data analysis, resulting in submission of findings for poster presentation and publication in a peer-reviewed journal by the end of the summer.

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


* 5. Sponsor's Research Focus:

Yes - Geriatrics
Yes - Pharmacology
Yes - Infectious Disease

* 6. Sponsor's translational level

* (Please select ONE)

T4: Translation to Population Health

* 7. Hypotheses (200 word limit)

Self-identified barriers to ART will differ based on some or all of the following: participant demographic and socioeconomic factors, HIV risk factors (injection drug use, male-to-male sexual intercourse, heterosexual intercourse, or other/multiple risk factors), physical and mental health co-morbidities, history of homelessness or incarceration, history of prior referrals for HIV care, and care setting. Among respondents who report being previously referred to HIV care, some or all of the following factors will correlate to not starting ART: fears about confidentiality, fears about side effects of medication, experiences of bias or discomfort in interactions with the health care system, concurrent mental health conditions, concurrent substance use, lack of family or social support, difficulty in coordinating care between multiple settings, and other. Among those previously started on ART, reasons for discontinuing treatment may include: lack or loss of insurance, other financial barriers, transportation or other logistical barriers, lack of family/social support, difficulty remembering medication, side effects of medication, high pill burden, lack of clear instructions from health care providers, lack of trust with health care providers, ongoing issues with mental health or substance use, or other.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).

A minimum of 50 patients will be enrolled, and will complete structured surveys and semi-structured interviews administered by study staff. Their medical charts will be reviewed for pertinent medical information including reason for hospitalization, HIV viral load, CD4 cell count, diagnosis of any opportunistic infections or other AIDS-defining conditions, and major co-morbidities, as well as follow-up plans. Following discharge, adherence to the follow-up plans will be evaluated at 30 days, by means of outpatient records review (if following within the GW system) or of a telephone call to the patient. Data collected from the above will be entered into a secure database as detailed in our IRB protocol. Data analysis will include descriptive (univariate) statistics as well as bivariate (Chi-Square, Student’s t-test) and multivariate (logistic regression) tests for correlation. Additional methods of data
analyses may be employed for the qualitative data based on recommendations from our sociobehavioral research consultants at the Milken Institute School of Public Health. Of the above, the Gill Fellowship recipient will be involved most closely in finalizing data collection, database construction, and basic statistical analysis, working closely with the project leader (Dr. Akselrod) and study staff.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.

Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Background/Significance: Washington, DC, continues to have one of the nation’s highest rates of HIV, estimated at 1.9% of the general population for 2017. Successful management of HIV necessitates patient engagement in multiple steps along a care continuum beginning with testing and diagnosis, followed by linkage to care, retention in care, and adherence to antiretroviral therapy (ART). Historically only a minority of patients hospitalized with a new or recent diagnosis of HIV were started on ART during the hospitalization. Linkage to care has improved as result of the availability of safer antiretroviral medications, better multidisciplinary support, and shifting attitudes towards treatment, however many barriers to initiation of ART persist. Among District of Columbia residents newly diagnosed with HIV in 2017, 83% were linked to medical care within 30 days, but only 59% had viral suppression within 6 months. Unfortunately, our Infectious Disease consultations team still frequently sees patients hospitalized with advanced HIV/AIDS on the medical wards. Our patient-centered study aims to explore the reasons why HIV-positive patients hospitalized at George Washington University Hospital have not received ART to date, or have been unable to stay engaged in care. It will provide exceptionally valuable insights for planning future services to help improve medical care for this vulnerable patient population in DC and nationwide. Detailed Plan: This is a prospective study consisting of structured surveys and semi-structured interviews, exploring multiple individual-level and structural domains describing barriers to ART initiation and continuation. The study protocol was approved by the GW Office of Human Subjects Research Institutional Review Board (IRB #031545) and participant recruitment began in 2018. Patients eligible for enrollment are identified at the time of inpatient admission and/or Infectious Disease team consultation, and are approached by study staff to discuss participation in the study. Participation is strictly voluntary and does not affect current medical care in any way. If the patient meets criteria for enrollment and agrees to participate, informed consent is obtained, and study staff spend 1-2 hours with the patient, assisting him or her in completing a survey about past and current barriers to HIV treatment. The study team completes additional data collection, including a focused medical chart review and determination of follow-up status after 30 days, for each patient. The data is entered into a secure electronic database per the IRB protocol. A total of 50 patients are anticipated to be recruited and interviewed by late spring 2019; after that point, the study will shift to the data analysis phase. Timeline: • Patient enrollment and data collection: started in spring 2018, projected to be completed in late spring (May-June) 2019. • Medical chart review: ongoing parallel to data collection, to be completed in June 2019. • Follow-up information: ongoing parallel to data collection, to be completed in June-July 2019. • Data compilation and database quality monitoring: ongoing parallel to data collection, to be completed in June-July 2019. • Data analysis: July 2019. • Abstract/poster preparation: August 2019. • Manuscript preparation: August-September 2019.

* 10. Describe the student's role in the project (200 word limit)

The student will work closely with the project leader (Dr. Akselrod) and Principal Investigator (Dr. Simon) and will be an instrumental and valued member of the research team for the duration of the summer. He or she will participate most heavily in data compilation, coding, and analysis, gaining valuable research skills in the process. This will include the review of data already entered into the study database earlier in the year, as well as addition of data for any patients still being recruited/interviewed as of June 2019. The student can expect to assist with chart reviews, and, if interested, can be trained to perform interviews. Once the data collection phase of the study ends, the focus will shift to data analysis using Microsoft Access, Microsoft Excel, and/or (depending on the student’s level of experience and interest) SAS/STAT. Data analysis will be supervised by faculty and reviewed with a statistician.
Towards the end of the summer (August) the Gill Fellowship recipient will assist in writing and submitting an abstract for a national conference on HIV (e.g. ID Week or CROI), as well as a manuscript for publication in a peer-reviewed journal (with authorship).

* 11. Describe the mentor's role in the project. (200 word limit)

Dr. Simon will provide senior mentorship and teaching, in his capacity as Director of the Division of Infectious Diseases and Vice-Chairman of the Department of Medicine. Dr. Simon has extensive experience in all aspects of medical research, from laboratory bench research to clinical trials and translational projects, as well as decades of experience in teaching medical trainees and junior researchers. In addition to teaching about basics and advances in the treatment of HIV, he will provide general mentorship and career advice based on the interests of the student. On a day-to-day basis, Dr. Akselrod, who is a junior member of the Division of Infectious Diseases, will provide direct teaching and supervision. In addition to clinical fellowship training in ID, she has a background in public health (MPH in epidemiology and biostatistics) and has conducted data analysis for multiple published projects. She will provide practical guidance with project tasks, as well as more teaching about the design and implementation of medical research. Additional members of the study team include Aimee Desrosiers (Physician’s Assistant, Division of Infectious Diseases) and Madhu Balachandran (MPH graduate and current Doctoral candidate in Public Health), who may provide additional training on specific research methods as needed.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

Dr. Simon and the Division of Infectious Diseases faculty have mentored numerous medical students over the years, and are consistently rated high by medical students and housestaff for excellence in teaching. There is currently one medical student working on a research project with the group (under direct supervision of Dr. Marc Siegel; project on treatment of Hepatitis C), as well as at least three residents (two of them under direct supervision of Dr. Akselrod; project on epidemiology of HIV and sexually transmitted infections) and five ID Fellows (several projects). The Division of Infectious Diseases has not had a Gill Fellow in recent years.

* 13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: 031545

* IRB Date: 7/25/2017
W.T. Gill Summer Fellowship Faculty Proposal by Sheila V Stager, Ph.D.

* **1. Faculty Sponsor**

<table>
<thead>
<tr>
<th>Name</th>
<th>Sheila V Stager, Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degrees</td>
<td>B. Sc. in Biochemistry M. S. in Speech-Language Pathology M. S. in Audiology Ph. D. in Communication Disorders</td>
</tr>
<tr>
<td>Title</td>
<td>Director of Research, Voice Treatment Center</td>
</tr>
<tr>
<td>Organization</td>
<td>Medical Faculty Associates Voice Treatment Center</td>
</tr>
<tr>
<td>Address</td>
<td>2300 M Street NW, Room 418</td>
</tr>
<tr>
<td>Apt/Suite</td>
<td></td>
</tr>
<tr>
<td>City</td>
<td>Washington</td>
</tr>
<tr>
<td>State</td>
<td>District of Columbia</td>
</tr>
<tr>
<td>Zipcode</td>
<td>20037</td>
</tr>
<tr>
<td>Office Phone</td>
<td>202-741-3265</td>
</tr>
<tr>
<td>Email Address</td>
<td><a href="mailto:sstager@mfa.gwu.edu">sstager@mfa.gwu.edu</a></td>
</tr>
</tbody>
</table>

* **2. Daily Supervisor**

<table>
<thead>
<tr>
<th>Name</th>
<th>Sheila V. Stager, Ph. D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degrees</td>
<td>B. Sc. in Biochemistry M. S. in Speech-Language Pathology M. S. in Audiology Ph. D. in Communication Disorders</td>
</tr>
<tr>
<td>Title</td>
<td>Director of Research, Voice Treatment Center</td>
</tr>
<tr>
<td>Organization</td>
<td>Medical Faculty Associates Voice Treatment Center</td>
</tr>
<tr>
<td>Address</td>
<td>2300 M Street NW, Room 418</td>
</tr>
<tr>
<td>Apt/Suite</td>
<td></td>
</tr>
<tr>
<td>City</td>
<td>Washington</td>
</tr>
<tr>
<td>State</td>
<td>District of Columbia</td>
</tr>
<tr>
<td>Zipcode</td>
<td>20037</td>
</tr>
<tr>
<td>Office Phone</td>
<td>202-741-3265</td>
</tr>
<tr>
<td>Email Address</td>
<td><a href="mailto:sstager@mfa.gwu.edu">sstager@mfa.gwu.edu</a></td>
</tr>
</tbody>
</table>

* **3. Project Title (250 character limit)**

Potential Outcome Measure for Recovery in Patients with Unilateral Vocal Fold Paresis

* **4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.**


Patients with unilateral vocal fold paresis often have an impaired cough and an inability to produce glottal stops that are important for speech intelligibility (i.e. lack of clarity of laryngeal articulation). Both involve dynamic movements of the vestibular or false vocal folds (FVF). Clarity of laryngeal articulation can be assessed endoscopically by observing FVF movements during repeated /i/, and acoustically at specific phonetic environments. Our first hypothesis is that, at initial evaluation, a significant difference in the degree of self-reported severity of cough (Reflux Symptom Index) will be present between patients who do and do not lack clarity of laryngeal articulation. Our second hypothesis is that a relationship exists between the number and/or duration of glottal gaps from the acoustic signal and pattern of FVF movement observed from the endoscopic examination. Our third hypothesis is that return to clarity of laryngeal articulation will also have occurred in patients reporting normalized voice, after a period of observation. Our fourth hypothesis is that if return of clarity of laryngeal articulation does co-occur with voice normalization, then it could be an outcome measure for recovery in patients who received treatment, because FVF are not usually the site of injection augmentation or surgery.

Goal 1: to determine relationship between cough and clarity of laryngeal articulation Using score of severity of cough as rated by the patient in the Reflux Symptom Index to compare with number of glottal stops present in acoustic signals (zero glottal stops being present is considered poor laryngeal clarity) and with pattern of FVF movement Goal 2: to determine relationship between presence of glottal stops acoustically and specific FVF movement patterns Comparing the number and duration of glottal stops for the four patterns of FVF movement Goal 3: to determine relationship between patient report of normalized voice and recovery of clarity of laryngeal articulation Patient report of voice normalization to be correlated with markers of recovery such as presence of FVF symmetric movement in the endoscopic examination and presence of glottal stops in the acoustic signal Goal 4: to determine relationship between FVF symmetric movement and presence of glottal stops in patients treated with injection augmentation or surgical medicalization Determining the number of patients who have been treated that have FVF symmetric movement, and the presence of glottal stops at their final evaluation

Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
Inclusion criteria for patients from the MFA Voice Treatment Center will be: 1) diagnosis of unilateral vocal fold paresis/paralysis based on laryngeal electromyography (EMG); 2) onset of symptoms at least 3 months but no more than 3 years before initial clinical evaluation; and 3) return to clinic for evaluation, including by the speech-language pathologist, following observation or treatment. Once patients have been identified, a clinical database will be developed from information provided by the medical records that includes: 1) EMG results (presence of signs of reinnervation; presence of signs of denervation; presence of normal motor units), side of paresis and etiology; 2) number of months from onset; 3) total score of patient self-rating using Glottal Function Index; 4) patient rating of severity of cough (0 to 5 from Reflux Symptom Index); 5) clinician rating of laryngeal clarity (poor, impaired, good); and 6) patient report of degree of voice recovery from final visit (normalized, near normal, far from normal or unchanged from initial). EMG results will be present in the medical record from the initial evaluation, as will the number of months from onset. Degree of recovery will be present in the medical records from the final evaluation. The other 3 measures will be recorded from both initial and final evaluations (at least 3 months from initial visit if patient observed; at least 1 month post injection; and at least 3 to 6 months postsurgical management). Copies of repeated /i/ segments from the initial and final endoscopic exams will be made for all participants. The exams will first be presented to the student blind to visit, to make the ratings of degree of FVF movement (bilateral no movement, symmetric bilateral movement, unilateral no movement, unilateral partial degree of movement). Second, the exams of each participant will be presented so that the student will not know whether the initial or final visit is presented first, and asked to compare degree of FVF movement (increased, decreased or same). The recorded acoustic segments of repeated /i/, /isi/ and /izi/ and the sentence “We eat eggs every Easter”, (which all contain glottal stops) from the initial and final evaluations will saved as .wav files. The.wav files will be given to the student in a randomized order, and using Praat (an acoustic measurement program), the number and durations of glottal stops will be measured.

* 10. Describe the student's role in the project (200 word limit)
The student will be able to complete the clinical database with information from the medical records. The student will gain an understanding of typical assessment of patients with unilateral vocal fold paresis. The student will gain experience in assessing endoscopic examinations for this patient population. Selected segments from the endoscopic examinations of all participants will be rated by the student first individually, and then directly comparing the initial and final examination. The student will also gain an understanding of acoustic measures used to assess this population, and will gain experience in assessing acoustic signals.

* 11. Describe the mentor's role in the project. (200 word limit)
The mentor will be selecting the participants that meet all inclusion criteria. The mentor will be responsible for training the student, and ensuring that the student is making reliable, appropriate measures. The mentor will be selecting the samples from the endoscopic exams and randomizing them for the rating of the initial and final evaluations, and the comparisons between the initial and final examinations. The mentor will be selecting the acoustic signals and randomizing them for student measurement of glottal stops. Repeat stimuli will be included in all of the rating and measuring tasks to evaluate reliability. The mentor will also be responsible for statistical analyses.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
I assisted in supervising Aaron Sachs during his Gill Fellowship in the summer of 2015, which resulted in a publication. I supervised Simran Gupta for her Gill Fellowship in the summer of 2018.

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)
Selected No (Pending)
1. Faculty Sponsor

- **Name:** Xiaohui Tan
- **Degrees:** MD, PhD
- **Title:** Assistant Research Professor
- **Organization:** SMHS
- **Address:** 2300 Eye St. NW
- **Apt/Suite:** Ross 438
- **City:** Washington
- **State:** DC
- **Zipcode:** 20037
- **Office Phone:** 2029944767
- **Email Address:** janexht@gwu.edu

2. Daily Supervisor

- **Name:**
- **Degrees:**
- **Title:**
- **Organization:**
- **Address:**
- **Apt/Suite:**
- **City:**
- **State:**
- **Zipcode:**
- **Office Phone:**
- **Email Address:**

3. Project Title (250 character limit)

miRNA biomarkers in Lichen Sclerosus diagnosis and treatment

4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Genomics
Yes - Cancer
Yes - Dermatology

6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

7. Hypotheses (200 word limit)
Lichen sclerosis (LS) is a chronic, lymphocyte mediated cutaneous disorder affecting approximately one in seventy women. Presenting symptoms may include intense pruritis, pain, burning, and dyspareunia. This disorder may affect any area of the skin but has a notable predilection for the female genital region, in particular, the vulva, per anal area and the groin. Affected females outnumber affected males by 13:1. Typically, the patient is a menopausal woman, but prepubertal girls and women of all ages may be affected. The typical lesions of lichen sclerosis are white plaques and papules, often with areas of ecchymosis, excoriation, and ulceration. We hypothesize that the pathological chances with LS is in part due to microRNA expression profiling difference between LS and adjacent normal skin biopsies for women with active vulvar lichen sclerosis.

8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
We have collected 13 paired patient tissues that will be homogenized for total RNA isolation using Trizol reagent (Invitrogen). 3-4ug of total RNA will then be submitted to the miRNA RNASeq sequencing and data analysis. Differential miRNA expression profiling between LS and normal vulvar skin tissue will be analyzed using the GeneSpring GX software to determine the deferentially expressed miRNAs that are statistically significant. The candidate miRNAs along with their target genes will be further analyzed by real-time PCR and Western blot assays for functional analysis.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:

- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

The overall goal of this proposal is to determine the differences in the miRNA expression profiles between lichen sclerosus (LS) and non-vulvar skin (with no LS clinically) biopsies for women with vulvar lichen sclerosus. This will demonstrate the molecular and pathological changes upon disease development. Patients are being recruited from the Center for Vulvovaginal Disorders (CVVD) which is located at 3 Washington Circle NW, Washington DC. (The CVVD is referral center for the treatment of vulvodynia, and dermatologic diseases of the vulva. The CVVD has more than 1800 patients with lichen sclerosus and in addition is actively recruiting new patients for a double-blind trial of intradermal injections of platelet rich plasma for the treatment of vulvar lichen sclerosus). The proposed experiments will be performed to screen for miRNA expression alterations involved in the initiation and development of LS. The screening results will be verified by a variety of state-of-the-art technologies available at GW and NIH for miRNA biomarker discovery and validation. The mechanism of disease progression and its
potential molecular pathways will be elucidated by bioinformatics tools, such as Genespring GX and Ingenuity Pathway Analysis (IPA). Specifically, the student is expected to complete the basic molecular lab safety and CITI training in Week 1-2; then bioinformatics data analysis for our miRNA RNASeq data, and targetScan analysis for target gene identification / primer design in Week 3-4; then real-time PCR and Western blot assay for experimental verification and data collection in Week 6-7; finally data analysis, abstract preparation and presentation. The research goal for this short term training is to identify potential miRNAs that are important in LS progression and elucidate their molecular mechanisms for LS diagnosis and management.

* 10. Describe the student's role in the project (200 word limit)
The Gill fellow will participate in the following tasks in this project. 1. Total RNA isolation and quality control analysis from both tissue and blood samples with appropriate lab safety training and CITI training. 2. miRNA RNASeq sequence data analysis using bioinformatics tools, such as GeneSpring, IPA. 3. miRNA target analysis and primer design for target gene expression analysis. 4. Real-time PCR miRNA and Western blot assays and data analysis. 5. Data summary and presentation.

* 11. Describe the mentor's role in the project. (200 word limit)
Dr. Tan will closely working with the fellow and supervise their actives on a daily basis, along with Dr. Fu. including the planning, lab safety training, experimental design, data collection and analysis. We will help student prepare his/her presentation in both oral and poster formats, hopefully resulting in a peer-reviewed publication in a timely manner.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
Previous Medical students trained in the lab. Kate Hindle (Surgery Resident) Caitrin Coffey (Gill Fellowship) Kate Hindle (Surgery Fellow) Scott Celinski (Surgery Fellow) Clair Edwards (Surgery Fellow) Erin Moran-Atkin (Surgery Fellow) Woojee Lee (Gill Fellow) Jeffrey Jacob (Gill Fellow)

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)
Selected Yes

Please provide IRB number and date
* IRB Number: 091739
* IRB Date: 11/28/2017
**W.T. Gill Summer Fellowship Faculty Proposal by Laura L Tosi**

**1. Faculty Sponsor**

* Name: Laura L Tosi  
* Degrees: MD  
* Title: Director, Bone Health Program  
* Organization: Children's National Health System  
* Address: 111 Michigan Ave. NW  
* Apt/Suite:  
* City: Washington  
* State: DC  
* Zipcode: 20010  
* Office Phone: 202-476-4063  
* Email Address: ltosi@childrensnational.org

**2. Daily Supervisor**

Name: Susan Knoblach  
Degrees: PhD  
Title: Associate Professor Pediatrics, Integrative Systems Biology  
Organization: Children's National Health System  
Address: 111 Michigan Ave, NW  
Apt/Suite:  
City: Washington  
State: DC  
Zipcode: 20010  
Office Phone: 202-476-6094  
Email Address: sknoblach@childrensnational.org

**3. Project Title (250 character limit)**

Association of Genetic Markers of Adult Fracture Risk with Bone Health Phenotypes in Pediatric and Young Adult Individuals

**4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.**


* 5. Sponsor's Research Focus:
Yes - Genomics
Yes - Pediatrics

* 6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

* 7. Hypotheses (200 word limit)
This is a validation study and not a hypothesis-driven study. Using large scale GWAS meta-analysis for fracture, the recent paper by Trajanoska et al (Assessment of the genetic and clinical determinants of fracture risk: genome wide association and mendelian randomisation study. BMJ 2018 Aug), identified 15 genetic determinants of fracture, all of which also influenced bone mineral density. The genetic determinants of fracture risk are not well described, and whether commonly used clinical risk factors for fracture are causal is not known. A number of studies have demonstrated that peak bone mass attained in adolescence could be predictive of later life fractures, and identification of individuals with low peak bone mass could lead to earlier recognition of at-risk individuals. The Bone Health Program has access to DNA from 3 cohorts of children and young adults with bone health phenotypes. We plan to assess whether the 15 variants identified by Trajanoska et al are also associated with variation in bone health phenotypes in our 3 study cohorts.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
The goal of this project is to determine whether the 15 variants identified by Trajanoska et al in the GWAS meta-analysis “Assessment of the genetic and clinical determinants of fracture risk: genome wide association and mendelian randomization study” are also associated with variation in bone health phenotypes in our 3 study cohorts. Genotype/phenotype associations for the 15 identified variants will be identified using Applied Biosystems Taqman Allelic Discrimination Assays and the Applied Biosystems QuantStudio 7 Flex Real-Time PCR System under the supervision of Dr. Susan Knoblach. Once completed, results will be analyzed in partnership with our statistician, Heather Gordish-Dressman PhD. An abstract for George Washington University, Children’s National Research Week and the Orthopaedic Research Society must be completed before the end of the summer.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
This research project is designed to be a guided exploration of the genetic underpinnings of musculoskeletal growth and development, and is intended to cover a wide variety of musculoskeletal health topics ranging from basic bench science to clinical expertise and surgical management. Training will include hands-on instruction from the lab team about proper lab practices, the best ways to handle DNA for optimal results, and general guidelines for bench research. After completing our orientation program, the student’s time will be divided between three tasks: performing DNA genotyping, organizing and doing back end research on the genes we are interested in, and shadowing Dr. Tosi, her Bone Health team, and her orthopaedic colleagues in the clinic and operating room. The student will be expected to attend all genetic research conferences held over the summer at Children’s. The current system we use for PCR analysis only allows for one plate to be run at a time and involves significant prep and scheduling. These lab tasks will require the student to be organized and diligent about their lab work to make sure all samples can be run during their 8 week program. A smaller portion of time will be devoted to organizing and analyzing the resulting data. There will also be time set aside here for the student to perform database searches to look for relevant work relating to his/her genes of interest. Additional time will be devoted to shadowing in the Children’s National Orthopaedic Clinic and operating room, so the student can interact with patients followed in our Bone Health Program as well as other orthopaedic specialties. This clinical and OR exposure is designed to assist the student in making a well thought out career decision about whether to pursue orthopaedics. The student will be expected to attend all Orthopaedic teaching conferences as well as the weekly case conference. The student is required to submit an abstract summarizing their work to the Orthopaedic Research Society annual meeting, GW Research Week, and Children’s National Research Week. 

* 10. Describe the student's role in the project (200 word limit)

As described throughout this proposal, the student will receive significant guidance and mentoring throughout the project, however the student is expected to take charge of the project and make sure that he/she completes all necessary steps. The student will learn the basics of performing genotyping. The student will perform genotyping with Realtime PCR and then work with our statistician to explore Hardy-Weinberg Equilibrium, data stratification, and analysis of covariance (ANCOVA) as part of the data analysis plan. The student will be required to attend all research conferences held in the Research Center for Genetic Medicine. Dr. Susan Knoblach, PhD will oversee supervision and training in the laboratory. In addition, the student will be required to attend Dr. Tosi’s weekly Orthopaedic Bone Health Clinic so that he/she can develop a better appreciation of the clinical impact of genetic variation on skeletal health and disease. The student will have the opportunity to observe in the Orthopaedic Operating Room. The student will be required to submit an abstract to the Orthopaedic Research Society, GW Research Day and Children’s National Research Week and prepare a poster or podium presentation if accepted. This project is supported by the Bone Health Program Research Fund.

* 11. Describe the mentor's role in the project. (200 word limit)

During the course of the project, Dr. Tosi and Dr. Knoblach will be available to guide the student and answer questions regarding the purpose of the research and proper conduct of laboratory work. Dr. Tosi will guide the brainstorming and initial planning phases of the investigation and Dr. Knoblach and her laboratory staff will provide hands on training and guidance on the use of the sequencing technologies and other equipment used. Dr Heather Gordish-Dressman (Statistics) maintains the phenotype data for our study cohorts and will assist in data analysis. Drs Tosi and Knoblach, as well as their research teams, will assist in drafting the project abstract, poster, and hopefully manuscript for publication. For the clinical and OR shadowing component of the program, Dr. Tosi’s Bone Health team will ensure that the student is introduced to experiences that emphasize the role of genetic variation and bone metabolism on musculoskeletal health.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
The summer of 2019 will mark the 15th anniversary of our Children’s National Bone Health Summer Research Program. We have hosted one or more Gill Fellows each year, as well as a number of Health Service Scholarship students. We have strived to provide an intensive lab experience focused on exploring genetic markers of musculoskeletal health, while also providing exposure to orthopaedic clinical and surgical practice, particularly in the areas of rare bone disease as well as metabolic bone disease. Besides submitting an abstract and poster to GW Research Day, our students are required to submit an abstract to the Orthopaedic Research Society and Children’s National Research Week. Over the past 15 years a significant majority of their projects have been accepted as posters or podium presentations and those students have had the opportunity to present their work on a national level.

* 13. Do you have or will you obtain IRB approval for this project?
   **Please note:** Students cannot begin a human subjects project without IRB approval.
   * (Please select ONE)
     Selected Yes

   **Please provide IRB number and date**
   * IRB Number: Pro00006645; Pro00000184; Pro00003972
   * IRB Date: Expires 11/5/19; 11/5/19; 3972 is exempt
# W.T. Gill Summer Fellowship Faculty Proposal by Jason Triplett

**1. Faculty Sponsor**

<table>
<thead>
<tr>
<th>Name</th>
<th>Jason Triplett</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degrees</td>
<td>PhD</td>
</tr>
<tr>
<td>Title</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Organization</td>
<td>Children's National Medical Center</td>
</tr>
<tr>
<td>Address</td>
<td>Center for Neuroscience Research</td>
</tr>
<tr>
<td>Apt/Suite</td>
<td>111 Michigan Ave, NW</td>
</tr>
<tr>
<td>City</td>
<td>Washington</td>
</tr>
<tr>
<td>State</td>
<td>DC</td>
</tr>
<tr>
<td>Zipcode</td>
<td>20010</td>
</tr>
<tr>
<td>Office Phone</td>
<td>2024763985</td>
</tr>
<tr>
<td>Email Address</td>
<td><a href="mailto:jtriplett@childrensnational.org">jtriplett@childrensnational.org</a></td>
</tr>
</tbody>
</table>

**2. Daily Supervisor**

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

**3. Project Title (250 character limit)**

Mechanisms of visual circuit disruption in fragile X syndrome

**4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.**


5. Sponsor's Research Focus:
Yes - Ophthalmology
Yes - Pediatrics
Yes - Neurology

6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

7. Hypotheses (200 word limit)
In previous studies of a model of fragile X syndrome, we found that visual function in the superior colliculus (SC) was altered. We hypothesize that the disorganization of descending inputs from the visual cortex (V1) underlies the visual deficits we observed.

8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
To characterize the anatomical organization of visual cortical inputs to the SC with single cell/axon resolution. Utilize anterograde and retrograde viral labeling techniques to reconstruct the dendritic morphology and axon terminal morphology of 50 individual V1-SC projecting neurons in control and fragile X mice.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
To label individual V1-SC neurons, we will utilize cutting-edge viral tracing methods. Briefly, anterograde or retrograde viruses that confer expression of fluorescent markers will be stereotactically injected into V1 or the SC, respectively. Brains will be prepared for immunohistochemistry and labeled neurons will be imaged using high-resolution confocal laser microscopy. Morphology will be reconstructed and quantified using sophisticated image-processing software to determine if there are differences between control and fragile X mice. These techniques are routinely used in the Center for Neuroscience Research and all of the necessary equipment is available.

10. Describe the student's role in the project (200 word limit)
Student will be trained in and perform all experimental techniques, collect and analyze data, interpret results in collaboration with mentor, and present the findings in written/oral/poster format as opportunities present themselves.

11. Describe the mentor's role in the project. (200 word limit)
The mentor will directly train or oversee the training of the student in experimental techniques, meet regularly with the student to discuss results and troubleshoot experiments, aid in the communication of data.
* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

I have previously mentored one Gill fellow in the lab (Mohib Khan).

* 13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Not Required)

Please specify why it is not required.

Not using human subjects.
W.T. Gill Summer Fellowship Faculty Proposal by Wei Li

* 1. Faculty Sponsor

* Name: Wei Li
* Degrees: Ph.D
* Title: Assistant Professor
* Organization: Children's National Medical Center
* Address: 111 Michigan Ave NW
* Apt/Suite: 5110A
* City: Washington
* State: DC
* Zipcode: 20010
* Office Phone: 2024764986
* Email Address: wli2@childrensnational.org

* 2. Daily Supervisor

Name:
Degrees:
Title:
Organization:
Address:
Apt/Suite:
City:
State:
Zipcode:
Office Phone:
Email Address:

* 3. Project Title (250 character limit)
Identification of Critical Genes in Pediatric Cancer from Public Functional Genetic Screens

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.
http://www.pnas.org/content/115/31/7869.short
https://www.nature.com/nbt/journal/v34/n12/abs/nbt.3715.html

* 5. Sponsor's Research Focus:
Yes - Genomics
Yes - Pediatrics
Yes - Cancer

* 6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

* 7. Hypotheses (200 word limit)
We hypothesis that we are able to systematically investigate critical genes for various pediatric cancers from the mining of large-scale functional genetic screening. Screening technology is a high-throughput functional assay based on the latest CRISPR/Cas9 genome engineering system, and has been widely used to study various cancer types. By collecting and analyzing public available screening data on over hundreds of cell lines, genes that are essential for tumor growth, and genes that suppress tumor growth can be systematically identified. These findings have the potential to discover (1) potential biomarkers that are indicative of patient survival, and (2) possible drug targets to treat certain types of pediatric cancer. Our group has the track record for the design, modeling, visualization and interpretation of genome-wide CRISPR/Cas9 screens. We already developed eight algorithms and webservers, including MAGeCK algorithm that has >180 citations and >30,000 downloads. Using these softwares, we identified possible mechanisms and potential drug targets for endocrine resistance in ER+ breast cancer, ER-mutant breast cancer, primary and castration-resistant prostate cancer, published in PNAS and Cancer Cell.

* 8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
This pure computational biology project will process and analyze the screening data of over 30 pediatric cancer cells. The objectives are to (1) collect public available datasets and evaluate the quality of these datasets in the public domain, (2) identify consensus signals that exist between different screening technologies, (3) identify the functions of top genes that are biologically meaningful, and (4) if possible, develop a program or pipeline to standardize and visualize the results above.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research

Aim 1. Collect and evaluate the quality of existing screening datasets. Many screening datasets are available from the public domain, including RNA interference (RNAi) screens, CRISPR screens of different libraries and types (knockout, inhibition or activation). Furthermore, the Achilles project (and other similar projects) includes screens over hundreds of cell lines, providing opportunities to study the genetic landscape of different tumors. We will use the established MAGeCK-VISPR/MAGeCKFlute pipeline we developed for data processing (e.g., normalization, copy number correction, batch removal, and score calculation). Aim 2. Make genome-wide screens from different technologies/libraries comparable using canonical correlation analysis (CCA). It is a common task in genomics.
analysis to integrate measurements from multiple platforms on the same set of samples. Heterogeneous data from different platforms cannot be combined directly or using batch removal approaches, as the latter assumes an equal impact of batch on both datasets. Canonical correlation analysis (CCA) is a way of identifying the consistent patterns of two related datasets, by finding the linear combinations of features that maximize the correlation between the two. CCA has been used to identify consistent patterns between gene expression and DNA copy number variations, and most recently, to integrate single-cell RNA-seq data generated from different platforms and technologies. We will use CCA to combine datasets from screens of two different technologies. The outcome of CCA is the weights of individual cell lines (or genes), and the corresponding linear transformation of the data such that the common source of variances between two datasets are captured. On the other hand, variances that are specific to one dataset (e.g., library biases demonstrated in preliminary results) will be assigned a lower weight and are filtered out after transformation. CCA also provides a projection from high-dimension raw data into a low-dimension transformed data, enabling us to perform integrated downstream analysis and visualization.

* **10. Describe the student's role in the project (200 word limit)**

The student is responsible for (1) getting familiar with the computational tools our group previously developed, (2) collecting and processing public screening data, and (3) performing additional analysis based on the proposed research aims. In addition, the student will interact frequently with the PI (1-3 meetings/week), collaborators across the country, and other members of the lab/department.

* **11. Describe the mentor's role in the project. (200 word limit)**

The PI (Wei Li) will oversee the whole project: he will provide instructions for all the resources needed to perform the aims, and guide the student in all aspects (data collection, programming, biological interpretation, etc.). Furthermore, the PI will create a vibrant, interactive environment to support the career development of the student, including but not limited to (1) sharing experience on research, skill development, communication, presentation, etc.; (2) encouraging discussion with other faculties and members of the department that has a variety of scientists working on different disease problems; (3) providing opportunities to connect to collaborator laboratories and industrial partners.

* **12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)**

The PI has joined CNMC six months ago so has not mentored any medical student. However, in the past the PI already supervised four graduate students and published five (co)corresponding authored papers.

* **13. Do you have or will you obtain IRB approval for this project?**

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

  **Selected** No (Not Required)

Please specify why it is not required.

This is a pure computational biology project based on the abundant public screening data on cancer cell lines. All the data is published and no IRB approval is required.
W.T. Gill Summer Fellowship Faculty Proposal by Michael Whalen

*1. Faculty Sponsor*

**Name:** Michael Whalen  
**Degrees:** MD  
**Title:** Assistant Professor of Urology/Urologic Oncology  
**Organization:** GW Medical Faculty Associates, GW School of Medicine & Health Sciences  
**Address:** 2150 Pennsylvania Ave NW  
**Apt/Suite:** 3-417  
**City:** Washington  
**State:** DC  
**Zipcode:** 20037  
**Office Phone:** 2027413121  
**Email Address:** mwhalen@mfa.gwu.edu

*2. Daily Supervisor*

Name: Michael Whalen  
Degrees: MD  
Title: Assistant Professor of Urology/Urologic Oncology  
Organization: GW Medical Faculty Associates, GW School of Medicine & Health Sciences  
Address: 2150 Pennsylvania Ave NW  
Apt/Suite: 3-417  
City: Washington  
State: District of Columbia  
Zipcode: 20037  
Office Phone: 2027413121  
Email Address: mwhalen@mfa.gwu.edu

*3. Project Title (250 character limit)*

Outcomes Research in Urologic Oncology

*4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.*


https://app.tessello.co.uk/CourseStore/clients/BJUI/101085-Perioperativevenoust-201772512038/launch.html

5. Sponsor's Research Focus:
Yes - Cancer
Yes - Surgery

6. Sponsor's translational level
* (Please select ONE)
T2: Translation to Patients

7. Hypotheses (200 word limit)
There is a growing number of pelvic MRI studies being performed for prostate cancer diagnosis, especially in the wake of level 1 evidence demonstrating the superior performance of prostate biopsy performed with MRI-guidance compared to traditional (non-targeted) systematic biopsy. There are also many novel biomarker tests commercially available for prostate cancer risk-stratification prior to prostate biopsy, such as 4K score. The interrelationship between MRI and these protein-based blood tests as biomarkers for aggressive prostate cancer has yet to be fully elucidated. It is a specific aim of this research project to determine the performance characteristics of prostate MRI vs. 4K score with regards to diagnostic accuracy in a practical clinical setting. -The Quality Improvement aspect of the project will seek to determine how performance accuracy at GW compares to other centers' experience in the medical literature. The use of robotic surgery for radical cystectomy for bladder cancer has been associated with higher rate of atypical nodal metastasis and peritoneal carcinomatosis. The National Cancer Database project seeks to determine mortality rates for robotic cystectomy for node positive patients compared to open surgery. The hypothesis is that robotic surgery will have higher mortality rate for these node-positive patients.

8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
There are n=513 patients who have completed prostate MRI studies at GW since 2015. A primary objective of the project is population of the relevant clinical, demographic, pathologic, perioperative, and cancer outcomes information of these patients who have undergone treatment for their prostate cancer diagnosis. This number of patients is certainly feasible for data-entry during a summer research project. the remainder of the time will be spent in conducting original analysis of the data for publication as well as Urology Department Quality Improvement, which will have direct and meaningful impact on the delivery of patient care. Findings generated from this project will likely also generate protocol revisions for the ordering and interpretation of prostate MRI studies. The tangible goal will be drafting one or two abstracts for submission to the Society of Urologic Oncology annual meeting and the American Urological Association annual meeting. These abstracts will culminate in manuscripts to be submitted for publication.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
This research project is designed to provide exposure to clinical outcomes research within the field of Urology and Urologic Oncology. The student will engage in critical reading/analysis of published journal articles in the domains of prostate cancer and bladder cancer. These will serve as a model for subsequent design and implementation of a retrospective research project utilizing our single-institutional prostate MRI database. The research experience will teach the student how patient clinico-pathologic variables can be assessed with basic statistical methods to derive correlations with multiple clinically relevant study endpoints. The student will gain exposure to these statistical methods as well as work closely the Medical Faculty Associates biostatisticians, Andrew Sparks and Richard Amdur. There will also be opportunity and expectation to contribute to the growing IRB-approved Retrospective and Longitudinal Database of Genitourinary Cancer based on the clinical and surgical experience of the GW Urology physicians. There is a growing number of pelvic MRI studies being performed for prostate cancer diagnosis, especially in the wake of level 1 evidence demonstrating the superior performance of prostate biopsy performed with MRI-guidance. There are also many novel biomarker tests commercially available for prostate cancer risk-stratification prior to prostate biopsy. The interrelationship between MRI and these protein-based blood tests as biomarkers for aggressive prostate cancer has yet to be fully elucidated. It is a specific aim of this research project to contribute to our prostate cancer MRI database and begin to answer these very important clinical questions. There will also be opportunity to conduct outcomes research using a large national clinical database: the National Cancer Database (NCDB). The specific research project will be catered to the student’s interests. The student will work closely with a resident mentor to provide clinical context and relevance for the research hypotheses. Further projects using these databases will be possible based on the student’s own intellectual curiosity and motivation to develop original ideas/hypotheses for investigation. Specific research questions/projects for investigation include: -Mortality rates for robotic vs. open radical cystectomy for patients with pathologic node positive disease: There has been concern recently in the urologic literature about the risks associated with robotic radical cystectomy. There have been multiple reports of unusual pelvic recurrence of disease and even peritoneal carcinomatosis after robotic surgery. Proponents of the open approach cite these risks. Although many papers have focused on these risks for all patients, this project will focus on those patients with pathologic node positive (pN+) disease to investigate whether the risks of these unusual recurrences may be stage-related. Depending on the student's interests, time will be spent performing literature review and drafting the introduction and discussion of the manuscript. He/She will also spend time with data entry to input information from the electronic medical record into the database. This work will be supplemented by weekly meetings for troubleshooting and discussion of interesting aspects of prostate cancer diagnosis and treatment. The project will last for the summer, with opportunity to extend participation during the academic year.

* 10. Describe the student's role in the project (200 word limit)

The student will take the lead with literature search and drafting the project manuscript with the guidance of the Urology residents and attending supervisor. He/She will be responsible for coordination with the biostatistician and assist with interpretation of the statistical results. The goal of the project is for the student not only to learn about outcomes research, but to make a meaningful contribution to the field of Urologic Oncology. He/She will also be responsible for populating the growing prostate MRI database using the REDCap interface and collaborating with the Radiology department to expand this database. There will be opportunity for statistical analysis of the data alongside the MFA professional statisticians as well. There will be ample opportunity for shadowing experiences in the outpatient clinic and the operating room to gain further exposure to clinical Urology. The student will also participate in weekly Urology Grand Rounds and resident didactic sessions to supplement their growing Urologic fund of knowledge.

* 11. Describe the mentor's role in the project. (200 word limit)

The mentor will provide ample opportunity for discussion of the rationale for the project and the potential ideas for publication arising from the database. The mentor will schedule regular weekly research meetings to assess the student's progress and troubleshoot any questions. The mentor will also invite the student to participate in clinical patient care. One half-day per week will be spent shadowing in the Urology clinic and another day will be spent in the operating room. These mentorship experiences will provide student exposure to the field of Urology and to provide clinical context for the database work. The mentor will also attend regular meetings between the student and the statisticians. The mentor has significant experience in outcomes research as well as basic statistical methods, so is well-equipped to be able to guide the student's interest and success with the project.
12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

-I am thankful to have worked with a student during the Gill Fellowship program Summer 2018, Christina Darwish. Richard Amdur and Andrew Sparks, biostatisticians, also worked with Ms. Darwish during last year's project.
-During fellowship, I also was responsible for coordinating resident research activities. -I am currently the Research Coordinator for the Urology Department, helping to oversee and trouble shoot the various research and quality improvement projects in which the Urology residents are engaged. -Dr. Campbell Grant, chief resident in Urology, and I worked a project with the National Cancer Database in 2017, which has been finalized and submitted for publication. -I have served as a medical student mentor in the Clinical Apprenticeship Program since 2017, and have had three students thus far.

13. Do you have or will you obtain IRB approval for this project?

Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected Yes

Please provide IRB number and date

* IRB Number: 041723

* IRB Date: 7/10/2018
# W.T. Gill Summer Fellowship Faculty Proposal by david yamane

## 1. Faculty Sponsor

| *Name:* | david yamane |
| *Degrees:* | MD |
| *Title:* | assistant professor |
| *Organization:* | GWU MFA |
| *Address:* | 2120 L street NW |
| *Apt/Suite:* | suite 400 |
| *City:* | washington |
| *State:* | dc |
| *Zipcode:* | 20037 |
| *Office Phone:* | 2027412948 |
| *Email Address:* | DAVID.YAMANE@GMAIL.COM |

## 2. Daily Supervisor

| Name: | Daniel King |
| Degrees: | md |
| Title: | fellow |
| Organization: | GWU Hospital |
| Address: | 900 23rd street NW |
| Apt/Suite: | |
| City: | washington |
| State: | dc |
| Zipcode: | 20037 |
| Office Phone: | |
| Email Address: | drk101488@gmail.com |

## 3. Project Title (250 character limit)

retrospective review of the use of Angiotensin II and methylene blue for refractory shock in the intensive care unit.

## 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.


5. Sponsor's Research Focus:
Yes - Anesthesiology
Yes - Pharmacology
Yes - Infectious Disease
Yes - Cardiology
Yes - Emergency Medicine

6. Sponsor's translational level
(Please select ONE)
T2: Translation to Patients

7. Hypotheses (200 word limit)
Often times patients are admitted to the ICU with shock. These patients are usually treated first with IV fluids to support their blood pressure, however if they fail to respond to this, they are placed on vasopressors to support their hemodynamics. Occasionally patients will have persistent shock despite the use of vasopressors. Several "salvage" therapies are currently used to treat these patients, one is a methylene blue, which inhibits the inducible form of the nitric oxide synthase, thereby creating vasoconstriction. Another newer salvage therapy is angiotensin II, which causes vasoconstriction through the Renin-angionsin-aldosterone pathway. These salvage therapies have never been compared in the literature. Our hypothesis is that Angiotensin II will causes greater improvement in blood pressure but will not have a significant change in overall survival outcome.

8. Project goals and measureable objectives (e.g. number of patient records, assays completed) (200 word limit).
Our goal is to complete the analysis and submit for abstract oral presentation by the end of the summer. We hope to complete a chart review of 200 patients. Our ultimate goal will be to submit a completed manuscript.

9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
This will be a retrospective chart review of all patients admitted to the ICU with refractory shock within the last 3 years. The pharmacy department will perform a query of all the medication orders for angiotensin II and methylene blue, to generate our screening list of patients for inclusion into the study. This will be performed prior to the student starting. We will be collecting baseline demographics, illness severity scores, as well as clinical variables including vasopressor requirements, mean arterial blood pressures, and outcomes measures (death, survival, etc). The data collection will occur over 1 month. After have completed data collection we will work with a statistician to do data analysis, looking at our primary outcome which is improvement in mean arterial pressure but also evaluating, survival outcomes. This will take place over 2 weeks. Finally, we will work on abstract writing and manuscript submission. Our goal will be to submit for abstract presentation to the society of critical care medicine for oral presentation which is due at the end of august. Once the abstract is submit we will complete the full manuscript for submission in a journal publication.

10. Describe the student's role in the project (200 word limit)
The student's role would primarily be data collection and chart review. The student would also help with data management and data analysis, to give them experience with biostatistics. And finally the student would be responsible for drafting the abstract for submission, as well as the background, method, results for the manuscript. this will give them valuable experience in creating scientific manuscripts and abstracts.

* 11. Describe the mentor's role in the project. (200 word limit)
The mentor will be directly overseeing the project. The mentor will be involved overseeing data collection and analysis. The mentor will also help with statistical analysis. The mentor will also be supervising abstract and manuscript writing.

* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)
The mentor is currently involved directly in the preclinical curriculum, as a clinical skills and reasoning (CSR) instructor. He is also involved in the Clinical Apprenticeship Program (CAP). Last year the mentor supervised 2, 1st year medical students through a similar research project that was accepted for oral presentation at the Society of Critical Care Medicine conference. The abstract will also be submitted to the Neurocritical Care Society for presentation. The manuscript is in draft.

* 13. Do you have or will you obtain IRB approval for this project?
Please note: Students cannot begin a human subjects project without IRB approval.
* (Please select ONE)
Selected Yes

Please provide IRB number and date
* IRB Number: 180607
* IRB Date: 11/12/2018
W.T. Gill Summer Fellowship Faculty Proposal by Xiaoyan Zheng

* 1. Faculty Sponsor

* Name: Xiaoyan Zheng
* Degrees: Ph.D.
* Title: Assistant professor
* Organization: The George Washington University
* Address: SEH, Suite 8840
* Apt/Suite: 800 22nd Street NW
* City: Washington
* State: DC - District of Columbia
* Zipcode: 20052
* Office Phone: 2029944228
* Email Address: xzheng@gwu.edu

* 2. Daily Supervisor

Name: Xiaoyan Zheng
Degrees: 
Title: 
Organization: 
Address: 
Apt/Suite: 
City: 
State: 
Zipcode: 
Office Phone: 
Email Address: 

* 3. Project Title (250 character limit)

Identification of novel biomarker and potential treatment in primary lung adenocarcinoma

* 4. Up to three faculty publications (within the last three years). Projects without recent publications are unlikely to be filled.

NA

* 5. Sponsor's Research Focus:

Yes - Cancer
Yes - Pulmonology
* 6. Sponsor's translational level
* (Please select ONE)
T0/T1: Basic Science Discovery and Initial Translation to Humans

* 7. Hypotheses (200 word limit)
Lung cancer remains the leading cause of cancer-related mortality worldwide, with smoking by far the leading risk factor for lung cancer. Despite significant advances in therapy, the lung cancer five-year survival rate (18.6%) is lower than many other leading cancer sites, such as colorectal, breast and prostate. Screening for individuals at high-risk has the potential to dramatically improve lung cancer survival rates by finding the disease at an earlier stage when it is more likely to be curable. Thus, identification of novel biomarkers is needed to improve prognostication and prediction of lung cancer, especially in the high-risk populations. Conversely, clinically relevant cancer biomarkers will also lead to new therapeutic options.

* 8. Project goals and measurable objectives (e.g. number of patient records, assays completed) (200 word limit).
We recently found that Neuron-Derived Neurotrophic Factor (NDNF) is highly expressed in both mouse and human lung. Using integrative transcriptome analysis of datasets from multiple cancer cohorts, we find that a lower level of NDNF is associated significantly (P<0.001) with a poor overall survival of lung adenocarcinoma (LUAD, the largest histological subtype of lung cancer) patients. Consistently, NDNF is significantly (P < 0.001) down-regulated in the tumor tissues relative to adjacent normal tissue (ANT) in all LUAD patients. In particular, NDNF expression is negatively correlated with the smoking history of LUAD patients (P < 0.005). Intriguingly, but limited by relatively small available sample size, we found NDNF expression in the healthy human and mouse lung is also down-regulated upon cigarette smoking. These findings lead to our first hypothesis that NDNF expression can be used as a novel biomarker for future/early LUAD detection, especially in smokers. Consistent with the reduced level of NDNF in LUAD, shRNA-mediated NDNF knockdown promotes colony formation and anchorage-independent growth of both mouse and human LUAD cells. Collectively, these preliminary studies lead to our second hypothesis that NDNF also functions as a novel tumor suppressor of LUAD and may lead to innovative therapeutic avenues for lung cancer.

* 9. Overall design of the research project (500 word limit). Please describe time frame and breakdown of activities.
Selection criteria include:
- The project design makes it likely that the objectives will be achieved
- The project is likely to result in a report of interest to other scholars
- The project fulfills discovery/original research
Aim 1. Test whether lower levels of NDNF is associated with higher likelihoods of LUAD, especially in smokers.
Aim 2. Test whether NDNF functions as a tumor suppressor in LUAD

* 10. Describe the student's role in the project (200 word limit)
1) To be trained with basic bioinformatics and perform data analysis. 2) To be trained with basic molecular biology techniques and perform experiments such as PCR, immunohistochemistry on the mouse or human tissue samples.

* 11. Describe the mentor's role in the project. (200 word limit)
The mentor will guide the student to understand the design of the project; train the student with basic techniques, assist the student to critically analyze the data, and motivate the student to integrate their experience on basic research with future medical doctor training.
* 12. Describe the current and previous medical student training by your mentor team. Indicate any Gill Fellows. (200 word limit)

NA

* 13. Do you have or will you obtain IRB approval for this project?  
Please note: Students cannot begin a human subjects project without IRB approval.

* (Please select ONE)

Selected No (Not Required)

Please specify why it is not required.

The patient data will be downloaded from the TCGA database. The patient samples were fixed and will be purchased from a company.