Rohrmann Endowment for UW Radiology Resident Educational Excellence

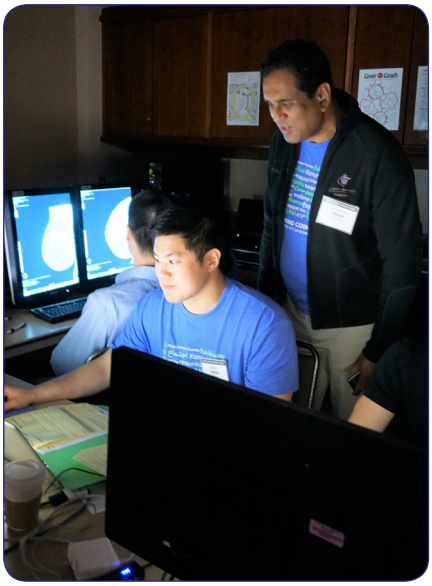
UW Radiology Residents Serve - Locally, Regionally, and Abroad – Supported by the Rohrmann Endowment

SEATTLE-KING COUNTY CLINIC

On September 20-23, 2018, eight UW Radiology residents volunteered alongside over 4,000 volunteers to provide free medical care to 3,661 individuals at the Seattle-King County Clinic (SKCC). This clinic was once again carried out under the leadership of UW Radiology Residency Program Director Dr. Angelisa Paladin, co-medical director alongside Dr. Rick Arnold.

This annual clinic, which completed its fifth year of operation, has run every fall to provide medical, dental, and vision services to the most vulnerable members of our community. During the four days it is open, the clinic engages thousands of volunteers, from multiple professions and backgrounds, providing free care to the uninsured and underinsured of our region. The clinic is a partnership between health care organizations, private businesses, and nonprofits of the greater Seattle region, and welcomes everyone. UW Radiology supports on-site imaging, including mammography (in conjunction with the SCCA), ultrasound, and X-ray. The SKCC is an endeavor that allows the UW through its departments, staff, and faculty to directly engage with and serve its larger community.

SKCC has provided basic medical care for 20,000 underinsured and uninsured patients over the past five years. UW Radiology residents have dedicated their time annually towards this cause and other community outreach programs' efforts throughout the city.



Mickey Lee, MD (foreground)
Gautham Reddy, MD (standing)

Justin Vranic, MD (L) and Cody Rissman, MD (R) review patient images

Dr. Angelisa Paladin, UW Radiology Program Director and Co-Director of Seattle-King County Clinic

Service takes on many forms for UW Radiology Residents. Sometimes the service is just what comes naturally to the residents. UW Medicine shared how second-year radiology resident Shamus Moran (pictured in the photo on the right), who was at the right place at the right time, sprang into action to save a life!

UW Medicine Newsroom

Fouwa Saechao, who went into cardiac arrest July 31, meets Dr. Shamus Moran, a UW Radiology resident who was one of two men who saved Saechao's life via CPR & using an AED. Mr. Saechao is shown after discharge from Harborview Medical Center

Residents Volunteer for Great Causes!

2018 WALK TO END LUPUS

On Saturday September 22, 2018, residents participated in the 2018 Walk to End Lupus at Gas Works Park as our program-wide fall volunteer activity. As providers, we see the devastating effects of conditions such as lupus in our patients, and so it is important for us to be advocates for our patients. For our fall activity, we decided to support research and awareness of this disease by supporting the Lupus Foundation of America. Participation included both donating money as well as being present at the walk. While at the event, we had a chance to get to know other participants as they shared personal stories of loved ones affected by lupus, as well as customize our own "why I walk" for lupus poster. It was a great opportunity to be involved in our community and support this cause.

- Segen Aklilu, MD, Diagnostic Radiology, PGY-3

Hoiwan Cheung (R2) and Segen Aklilu (R3)

SPECIAL OLYMPICS WASHINGTON

Brave UW Radiology residents took the Plunge for Special Olympics Washington this winter!

The original plan was to jump into the icy water of the Puget Sound at Alki Beach for the Seattle Polar Plunge on February 9, to raise money and awareness for Special Olympics Washington. Due to the Seattle snow storm, it was rescheduled for February 23, still a very chilly day! The Polar Plunge was a great success. Aaron Abajian and Hoiwan Cheung (R2s) were wonderful participants and made the big Alki Beach Plunge for UW (pictured left)! Team UW Radiology raised $1,031!

- Patty Ojeda, MD, Team Captain, PGY-3

Aaron Abajian and Hoiwan Cheung (R2s)

Patty Ojeda (R3 Resident) and Jonathan Revels (UW Radiology Fellow)
Solidarity plunge - February 10, 2019

You can support Radiology Resident Excellence!
UW Medicine Advancement
Box 358045, Seattle, WA 98195-8045
Call: 206.543.5686 / 866.633.2586
Online: Acceleratemed.org/Rohrmann or MobileCause

UW Radiology Residents: A Sampling of Co-Authored Papers 2018-19 – Supported by the Rohrmann Endowment

UW Radiology Residents and Fellows (highlighted below) have been first authors and co-authors on many research papers. The residency program is very proud of the research produced by these trainees, along with the support of faculty.

Weaver, J.J., Natarajan, N., Shaw, D., Apkon, S., Koo, K.S.H., Shivaram, G.M. & Monroe, E.J. (2018) Transforaminal intrathecal delivery of nusinersen using cone-beam computed tomography for patients with spinal muscular atrophy and extensive surgical instrumentation: early results of technical success and safety. Pediatr Radiol. PMID: 29130140. DOI: https://doi.org/10.1007/s00247-017-4031-6

Ingraham, C.I., Johnson, G.E., Albrecht, E.L., Padia, S.A., **Perry, B.C.,** Monroe, E.J., **Dobrow, E.M.**, Hippe, D.S. & Valji, K. (2018). Value of Antibiotic Prophylaxis for Percutaneous Gastrostomy: A double-blind randomized trial. J Vasc Intervent Radol. PMID: 29100903. DOI: https://doi.org/10.1016/j.jvir.2017.08.018

Weaver, J.J., Dobrow, E.M., Hsu E.K. & Monroe, E.J. (2018). Single-access liver floss technique with antegrade hepatic vein access and recanalization in Budd Chiari syndrome. Diag Intervent Radiol. PMID: 29187341. DOI: https://doi.org/10.5152/dir.2017.17327

Pierce, D.B., Johnson, G.E. & Monroe, E.J., Loggers, E.T., Jones, R.L., Pollack, S.M., Padia, S.A. (2018). Safety and efficacy outcomes of embolization in hepatic sarcomas. Am J Roentgenol. PMID:29090997. DOI: https://doi.org/10.1007/s00247-018-4091-2

Woerner, A.J., Koo K.S.H. & Monroe, E.J. (2018) Endovascular stent graft exclusion of an iatrogenic tracheo-innominate fistula after unsuccessful surgical repair. J Clin Interv Radiol. DOI: https://doi.org/10.1055/s-0038-1666887

Monroe, E.J., **Pierce D.B.,** Ingraham C.R., Shivaram G.M. & Valji K. (2018). An interventionalist's guide to hemoptysis in cystic fibrosis. RadioGraphics. PMID: 29528824. DOI: https://doi.org/10.1148/rg.2018170122

Pierce, D.B., Shivaram, G., Koo, K.S.H., Shaw, D.W.W., Meyer, K.F. & Monroe, E.J. (2018) Ultrasound guided lumbar puncture in pediatric patients: technical success and safety. Pediatr Radiol. PMID: 29397406. DOI: https://doi.org/10.1007/s00247-018-4091-2

Woerner, A.J., Shivaram, G., Koo, K.S.H., Hsu, E.K., Dick, A.A.S., Monroe, E.J. (2018) Clinical and imaging predictors of surgical splenorenal shunt dysfunction in pediatric patients. J Pediatr Gastroenterol Nutr. PMID: 29470285. DOI: https://doi.org/ 10.1097/MPG.0000000000001931

Perry, B., Monroe, E.J. & Shivaram, G. (2018) Adjustable Diameter TIPS in the Pediatric Patient: The Constrained Technique. Diag Intervent Radiol. PMID: 29770770 DOI: https://doi.org/10.5152/dir.2018.17447.

Shin, D.S., **Magill, D.B.,** Johnson, G.E., Ingraham, C.R., Kogut, M.J. & Monroe, E.J. (2018) Upper extremity catheter angiography: indications, techniques, anatomy, and classic cases. J Clin Interv Radiol. DOI: 10.1055/s-0038-1666966.

Olivieri, J.F., **Jeyakumar A.,** Shivaram, G.M., Koo, K.S.H., Monroe, E.J. (2018) Emergent embolization of a ruptured splenic artery aneurysm complicating Menkes disease. Radiol Case Rep. DOI: 10.1016/j.radcr.2018.08.032.

Koo, K.S.H., **Lamar, D.,** Monroe, E.J., Shivaram, G., Shaw, D.W.W. (2018) Catheter Directed Thrombolysis for Portal Vein Thrombosis in Children: A Case Series with Focus on Safety and Efficacy. J Vasc Intervent Radol. DOI: 10.1016/j.jvir.2018.07.018.

Monroe, E.J., **Jeyakumar, A.,** Ingraham, C.R., Shivaram, G., Koo, K.S.H., Hsu, E.K., Dick, A.A.S. (2018). Doppler ultrasound predictors of transplant hepatic venous outflow obstruction in pediatric patients. Ped Transplant. PMID: 30338622 DOI: 10.1111/petr.13310.

Rinzler E.S., Shivaram, G.S., Shaw D.W.W., Monroe, E.J., Koo, K.S.H. (2019) Microwave ablation of osteoid osteoma: initial experience and efficacy. Pediatr Radiol. PMID: 30617514 DOI: 10.1007/s00247-018-4327-1.

Jeyakumar, A., Monroe, E.J. (2019) Surgical mesoportal and portosystemic shunt interventions. In Press. Dig Dis Intervent.

A Unique and Inspiring Global Health Rotation – Supported by the Rohrmann Endowment

Radiology Rotation in Cameroon

- by Berthina Coleman, MD, PGY-5

After a 28-hour flight, I arrived at the Nsimalen International Airport in Yaoundé, Cameroon for my global health rotation. I arrived with a mixture of excitement and reminiscence. I am originally from Cameroon and I distinctly remember leaving the Nsimalen airport 16 years earlier for Dakar, Senegal, where I bid my family farewell on my way to New York in order to pursue further education in the United States. It was even more amazing because I was coming back home with my husband and two girls. I had been gone for a staggering 16 years, which was much longer than I anticipated. I was welcomed by my parents at the airport and it was pretty much an out-of-body experience driving back to our family compound approximately 30 minutes away to a home where I was raised.

The very next day I headed to the Centre des Urgences de Yaoundé which will be referred to as the CURY. The CURY is a relatively new emergency center which was recently added to the Central Hospital in Yaoundé. The Yaoundé central hospital is one of the oldest hospitals in Cameroon and, interestingly, it is the same hospital where I had been born 30 something years prior! I was excited to return to Cameroon and grateful for the opportunity to learn more about trauma and emergency radiology, which is one of my fellowship choices for the upcoming academic year.

Berthina Coleman, MD, PGY-5

The CURY was opened in Yaoundé in June of 2015. It was built as a joint effort between the governments of Cameroon and South Korea. It was the first Emergency Center of its kind in the entire central Africa region, and it is comparable to a level one trauma center in the United States. My contacts at CURY were Drs. Louis Bitang and Caroline Ntyam. Dr. Bitang is the medical director for the CURY, who also practices as a general surgeon. Dr. Caroline Ntyam is head of the Radiology department. I was introduced to Dr. Bitang by my parents who had met him in Dakar, Senegal while he completed his general surgery training.

CURY is staffed with 24-hour coverage by most services including trauma surgery, neurosurgery, and radiology. Interestingly, the radiology coverage overnight was done remotely with the help of online communication services including WhatsApp. It was not uncommon for the on-call radiologist to receive de-identified images and cines of overnight studies for preliminary interpretation. While this is not ideal, it allows the facility to have 24-hour radiology coverage, given the current shortage of radiologists in Cameroon. According to a 2017 RADAID report, there are approximately 50 radiologists in Cameroon; approximately one radiologist for every 500,000 inhabitants.

The Yaoundé Central Hospital, which is located on the same campus as the CURY, also has radiologists on staff who focus on reading inpatient studies but are available to read STAT cases if necessary. While at the CURY, reports were generated by a transcriptionist who generated a formal report as well as an informal one-line statement to the patient in lay terms explaining any actionable terms. The patients had the option of requesting to speak with a radiologist if any parts of their reports were unclear. This rarely happened, given that the facility generated a patient-friendly report. Reports were mostly generated in French but could be generated in English if requested by the patient. Most physicians in Cameroon are bilingual since the medical education system is bilingual. During my rotation, it was not unusual to hear clinicians and patients seamlessly switch between English and French, which was refreshing.

Cameroon is a country of approximately 24 million inhabitants, and it is one of the few mandatorily bilingual countries in the world. Yaoundé is a city of approximately 3.4 million inhabitants. About 80% of Cameroonians are French speaking, while 20% of the population is English speaking. While in Cameroon I had the opportunity to dictate reports in both English and French. Dictating reports in French was a new experience for me, having completed my radiology training so far in English. While at the CURY I had the opportunity to perform CT scans under the supervision of the attending radiologists on service. I also had an opportunity to perform a few radiographic studies. Fluoroscopy or MRI were not available at the CURY; however, the Yaoundé Central Hospital had an MRI machine. Fluoroscopy was available in private facilities around the city.

The CURY had one 32-slice CT scanner, two digital radiography units, and two ultrasound units. Staffing included radiology techs who were present 24 hours a day and are able to perform CT and radiograph studies. They have a

"I am forever grateful to the Rohrmann Endowment and its donors for allowing me to have such an amazing opportunity. It has been a lifelong dream to go back to Cameroon and learn about the practice of medicine."

radiography unit and two ultrasound machines. Ultrasound studies are only performed by radiologists. There was no formal program for ultrasound technologists training in Cameroon. Once a study is completed by the radiology department, the patients could receive both a CD and the radiologist's report once their payment was complete. There is very limited access to PACS systems in Cameroon, so most patients rely on transferring their images from one facility to another using CDs.

After my second week on the rotation, I had an opportunity to rotate at one of the community-based radiology practices in one of the suburbs of Yaoundé. I was able to get a feel for community-based radiology practice in Yaoundé. In addition, I was able to see a slightly more rural population, as it was located on the outskirts of the city. The community-based radiology practice had CT, US, and radiography units. However, the CT unit was unavailable during my rotation. Patients requiring CT scans had to be transferred to facilities closer to the city center.

Centre des Urgences de Yaoundé (CURY)

I learned about and was reacquainted with several tropical diseases. I saw the usual potpourri of TB, Malaria, Syphilis, and other endemic diseases which I would typically not encounter in my training here at UW. Conversely, there was a relatively small number of typical Western diseases such as atherosclerosis and its sequelae.

We began each day with morning reports from the night staff as well as a multidisciplinary report from each department head including nursing, pharmacy, and ancillary staff. This usually lasted about 30 minutes. We then had a 30-minute meeting with the medical staff where difficult overnight cases were reviewed. The radiology team was usually present and helped review the cases with the respective teams, which I found to be a particularly helpful experience. I attended morning rounds with the medicine and surgery teams on some days and was able to answer any radiology-related questions.

I noticed something in Yaoundé which I had never quite seen in a hospital in the US. Most departments had a list posted on the wall with the cost of their most commonly ordered studies. That way patients were sure about the exact cost of any care they may be receiving. It will be interesting to see how price transparency plays out in the US, given that hospitals are now expected to publish their prices online. Medical care in Cameroon is heavily subsidized by the government for civil servants, who happen to make up for most of Cameroon's workforce. Patients working in the private sector are expected to pay for services before they are rendered, except for patients with life-threatening injuries.

I had an opportunity to do a radiology lecture for residents and junior faculty on head and neck trauma, some of the most common pathologies encountered during the summertime when most students were out of school. I also gave a separate lecture on abdominal pathology on radiography, and I used the lecture materials I had received from Dr. Rohrmann. Both sessions were well received since the talk was geared towards residents. Radiology training is not always a part of their formal education. They all welcomed the idea of having dedicated radiology lectures.

During my month-long rotation, I worked with four different radiologists who all trained in different countries; namely, France, South Africa, Russia, and the UK. I had the opportunity to glean differences in approach and technique from each of them. Additionally, I had a great opportunity to meet with a few radiology residents from a different facility, the Centre Hospitalier Universitaire (CHU) in Yaoundé, and I was able to discuss differences in training with them.

I am forever grateful to the Rohrmann Endowment and its donors for allowing me to have such an amazing opportunity. It has been a lifelong dream to go back to Cameroon and learn about the practice of medicine. It was doubly rewarding to be able to learn about radiology especially in my subspecialty choice. I hope to go back and practice in Cameroon at some point in my career, and I am grateful to have had a chance to form relationships with radiologists in my country of origin. I hope that our program continues to support residents who have an interest in global health and international projects. I believe that it will provide residents with a broadened world view, allowing for better interactions with clinicians and patients from different racial and ethnic backgrounds. Ultimately this will lead to better patient care.

UW Radiology Residents Shine at RSNA 2018 – With Hearty Support from the Rohrmann Endowment!

Dr. John Wu, PGY-3, recipient of a Student Travel Stipend Award, presented at RSNA on November 26, 2018, *Adrenal Nodules Greater Than 10 Hounsfield Units (HU) on Non-Contrast CT: Still Indeterminate?* He summed up his experience, grateful to the Rohrmann Endowment and our generous donors for this special opportunity.

Dr. Jennifer Xiao, PGY-3 (L) and Dr. Zi Jun (John) Wu, PGY-3 extend their thanks to the Rohrmann Endownment donors at the UW Radiology Reception at RSNA

RSNA 2018 was an enriching experience. Stepping into the conference halls loud with countless contemporaries in the field of radiology, including those with clinical, technical and entrepreneurial inclinations, imparted to me an expansive perspective of the field which, although incomplete, is more authentic than the limited view of my former self.

I would like to thank those faculty who offered direction and support during this experience, including Drs. Puneet Bhargava and Erik Soloff who were in attendance during my presentation. A special acknowledgement goes to Drs. Carolyn Wang and Achille Mileto, who continue to advocate for my success in more ways than I can express. I consider myself fortunate that this encounter was timed centrally during my training.

RSNA 2018 serves as an opportunity for clear reflection on my previous clinical exposure, yet also as a navigating beacon as I move toward becoming a formed radiologist. I hope my gained perspective will help me provide the highest quality of clinical care.

- Zi Jun (John) Wu, MD, PGY-3

Dr. Shuman sent out hearty congratulations to these UW Radiology RSNA Award recipients:

A surprise appearance by former Chair Dr. Norman Beauchamp - pictured above with Interim Chair Dr. William Shuman and Vice Chair of Research, Dr. Paul Kinahan

Dr. Wei Wu (Vivi), chosen by the RSNA Scientific Program Committee to receive the **RSNA Trainee Research Prize** for the research project "A Novel Prediction Model for Pulmonary Nodule Diagnosis Combining Plasma Biomarkers, Radiomics, Conventional Imaging Features, and Clinical Data."

Dr. Patty Ojeda, **RSNA Trainee Travel Award** for her abstract: "Natural Language Processing at Work! Is There a Difference Between LI-RADS Category 3 to Category 5 Progression Assessment Between CT versus MR? A Retrospective Analysis of 1,887 Patients Who Underwent 5,082 Radiologic Exams for HCC Surveillance."

Dr. Safia Cheeney, pediatric fellow, received a **Trainee Travel Award** for her abstract "BR255-SD-WEA2: Patient and Tumor Characteristics to Predict the Benefit of Pre-Operative Breast MRI: Results from a Machine Learning Approach at a High Volume Academic Center."

Dr. Jennifer Xiao, **RSNA Resident Travel Award** to support her presentation of abstract "SSC07-08: Clinical Evaluation of Virtual Unenhanced Images from Second-Generation Dual-Energy CT Gemstone Spectral Imaging."

Dr. Zi Jun (John) Wu, awarded a **Student Travel Award** for the abstract "SSE12-03: Adrenal Nodules Greater Than 10 Hounsfield Units (HU) on Non-Contrast CT: Still Indeterminate?"

Dr. Lei Wu, awarded a **Student Travel Award** for the abstract "Blunt Cerebrovascular Injury: 10-Year Experience at a Level I Trauma Center."

Original Research – Supported by the Rohrmann Endowment for UW Radiology Resident Educational Excellence at the University of Washington

Musculoskeletal Imaging, Original Research

The Relevance of Ulnar-Sided Contrast Extravasation During Radiocarpal Joint Wrist Arthrography

Michael J. Lee, Michael L. Richardson, Hyojeong Mulcahy, Felix S. Chew, and Jack Porrino

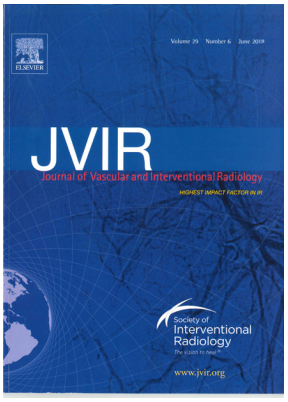
Magnetic resonance imaging (MRI) of the wrist combined with radiocarpal joint injections of contrast has been instrumental in diagnosing injuries to the triangulofibrocartilage complex (TFCC). These radiologic exams have decreased the need for invasive and costly wrist arthrograms. As the frequency and quality of imaging increases, our understanding of wrist anatomy continues to evolve. For example, we observe contrast extravasating proximal and medial to the ulnar styloid during radiocarpal joint injections. Some radiologists speculated that this may be due to injuries to the triangulofibrocartilage, but this finding had never been published in the literature.

With financial assistance from the Rohrmann Endowment, Dr. Jack Porrino and I performed a retrospective study of MRI wrist arthrograms performed at the University of Washington to determine whether contrast extravasation near the ulnar styloid correlated with patient symptomology, TFCC defects, and other factors. We were able to establish that this finding was only correlated with right-handedness, which is suggestive of degeneration due to chronic use rather than acute injury. This data could prevent unnecessary and costly workups for patients. Our manuscript was accepted as original research by the *American Journal of Roentgenology*. We are grateful for the Rohrmann Endowment's generosity and support for our research project. Contributions to the Endowment help UW residents pursue scholarly activities and provide better care for our community.

- Mickey Lee, PGY-4

Read More: https://www.ajronline.org/doi/full/10.2214/AJR.18.20304

A Unique Opportunity for UW Radiology Resident, thanks to the Rohrmann Endowment



In August 2018, second-year UW Radiology resident Dr. Aaron Abajian returned to his medical school (Yale) to record a video for the *Journal of Visualized Experiments (JoVE)*. The video covered work that was published in the *Journal of Vascular and Interventional Radiology*, "Predicting Treatment Response to Intra-arterial Therapies for Hepatocellular Carcinoma with the Use of Supervised Machine Learning — An Artificial Intelligence Concept." Abajian, Aaron et al. JVIR, Volume 29, Issue 6, 850 - 857.e1

The work covered the use of machine learning in interventional oncology. Dr. Abajian, et. al., developed a logistic regression model for predicting response to trans-arterial treatments in patients with hepatocellular carcinoma. The model included imaging, physical exam, and laboratory features. They showed that two features, cirrhosis and pre-treatment arterial tumor enhancement, were predictive of treatment outcomes (overall accuracy 78%) in a limited cohort of patients. Machine learning is a rapidly growing area of radiology research and promises to be an important part of future radiology practice.

Funds from the Rohrmann Endowment supported Dr. Abajian's work. He was first-author on the research paper while a medical student, and presented in June 2018 at the World Conference on Interventional Oncology (WCIO).

You can be a part of Radiology Resident Excellence by sending your donation today:
UW Medicine Advancement Box 358045 Seattle WA 98195-8045 **Online: MobileCause**

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Residents and Faculty participate in the Third Annual Doug Green Memorial Hike

Starting in 2016, UW Radiology residents and faculty have hiked in the foothills of some of the most beautiful mountains in the Pacific Northwest, in memory and honor of Dr. Doug Green. Saturday, October 20, 2018 was no exception to the previous two years of a crisp morning breaking into a sunny day of hiking and reminiscing. Dr. Green was a beloved body faculty member and an accomplished outdoorsman. In celebration of his spirit, this day was spent hiking to Annette Lake near Snoqualmie Pass.

2019 Annual Pre-Health Conference by the UW Minority Association of Pre-Medical Students (MAPS)

Back by popular demand, UW Radiology residents have again partnered with the UW Center for Health Equity, Diversity and Inclusion (CEDI) and the UW MAPS organization to provide an ultrasound workshop at the annual Pre-Health Conference. Our department participated last year at this conference and we were thrilled to be invited back because of the overwhelming popularity of the workshop among conference attendees last year. The MAPS Pre-Health Conference was designed to expose high school and college students to careers in healthcare and emphasize the importance of diversity in medicine. Approximately 75 students were in attendance at our workshop, eager and ready to learn about anatomy and get a glimpse of the field of radiology. We used portable ultrasound devices and supplies provided by Dr. Kurt Weaver of the Department of Radiology, as well as models to review basic ultrasound techniques. Students were also able to get hands-on experience while scanning their peers. We enjoyed working with the students and look forward to participating at the 2020 conference!

- Segen Aklilu, MD, Diagnostic Radiology, PGY-3

Participating residents from left to right: Janis Yee, Andrew Kim, Hoiwan Cheung, Shamus Moran, Patricia Ojeda and Segen Aklilu